



THE MATHEMATICAL  
ASSOCIATION OF VICTORIA



# 2021 Primary and Early Childhood Mathematics Education Conference

MEANINGFUL MATHS: MAKING MATHEMATICS EDUCATION ENGAGING FOR ALL

The Mathematical Association of Victoria (MAV) in collaboration with the Melbourne Graduate School of Education's Mathematics, Science, and Technology Education Group (MSTEG) present a conference focusing on early childhood and primary school mathematics education.

A virtual event | Hand-picked program of high-quality presenters | Learn from leaders



Join us for either or both of these two days

## Building leadership capability in mathematics education

Thursday 10 June, 2021

For current and emerging mathematics and numeracy leaders, and system leaders in primary schools and early childhood settings, including Principals, Deputy Principals, Numeracy Leaders, Academics, DET, VCAA and others.

### Themes include:

- Explore how to use evidence-based approaches to implement change and improve practice
- Improving assessment, looking beyond content (proficiencies, capabilities and student's engagement)
- Integration of effective use of technologies across the mathematics curriculum
- Explore how professional collaboration and feedback can strengthen mathematical outcomes, PLC
- Strengthening engagement between your school and communities.

## Building capability for all mathematics educators

Friday 11 June, 2021

Designed for primary teachers and early childhood educators regardless of experience level. Sessions will build confidence and develop professional ability as a mathematics educator in a supportive, hands-on and engaging series of workshops.

### Themes include:

- Developing inquiry and problem-solving based approaches
- Explore the integration of digital technologies within mathematics education
- Link content knowledge with pedagogy to deepen pedagogical content knowledge
- Explore how to use evidence-based approaches to improve your practice
- Engaging your school community in mathematics
- Exploring innovative strategies in differentiation.

[www.mav.vic.edu.au/Conference/2021-Primary-and-Early-Childhood-Conference](http://www.mav.vic.edu.au/Conference/2021-Primary-and-Early-Childhood-Conference)

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# Building leadership capability in mathematics education

## Thursday 10 June, 2021

### What primary leaders said about the primary conference.....

'Great combination of philosophy, theory and practice!'  
'Excellent presenters who provide outstanding  
resources and willingly share their knowledge.'

Join us to explore mathematics leadership.  
Sessions will provide practical advice to lead change in your own school context.

Session	Presenters	Title
Welcome and Keynote 1 9am–10.15am	Alan Schoenfeld	A: What really counts in learning, and how can we support teachers in making it happen?  <i>Keynote sponsor:</i> 
Break: 10.15am–10.30am		
Workshop rotation 1 10.30am–11.25am	Angela Rogers	B1: Developing a whole school approach to counting: Using the Counting Collections routine.
	Wee Tiong Seah	B2: When are we ever going to use this mathematics?!
	Ellen Corovic and Jen Bowden	B3: Effective coaching – How do we make an impact?
	Paul Staniscia	B4: Using evidence to embed change
	Cath Pearn	B5: Providing support for students 'at risk' of being assessed as being at, or below, national minimum standards for numeracy.
	Belinda Johnston	B6: Nurturing a love for mathematics <i>(Early childhood - Year 2 conference stream)</i>
Workshop rotation 2 11.30am–12.25pm	Kate Copping	C1: Data Driven: Interpreting and using data effectively
	Michael Minas	C2: Introducing a whole school approach to differentiation through problem solving
	Terri Truscott	C3: Riding the rollercoaster of change
	Paul Staniscia	C4: Teaching and assessing mathematical proficiency
	Helen Schiele	C5: Strengthening foundational mathematical knowledge and understanding through moderation <i>(Early childhood - Year 2 conference stream)</i>
Lunch and networking: 12.25pm–1pm		
Workshop rotation 3 1pm–1.55pm	Max Stephens and Duncan Symons	D1: Building connections between Mathematics, STEM and Digital technologies to foster growth in algorithmic and computational thinking from Foundation to Year 6
	Pam Robertson and Narelle English	D2: Building formative assessment capacity
	Ellen Corovic	D3: Finding clarity
	Susie Flynn and Jen Bowden	D4: Human-centred design – How do adults learn best?
	Catrina Elek	D5: Supporting teachers through coaching: Effective programs and strategies <i>(Early childhood - Year 2 conference stream)</i>
Keynote 2 2pm–3pm	Kate Copping	E1: Becoming a primary mathematics leader <i>Keynote sponsor:</i> 
Keynote 2 2pm–3pm	Jane Page	E2: Leading learning in early years education: what matters and why? <i>(Early childhood - Year 2 conference stream)</i> <i>Keynote sponsor:</i> 
F: 3pm–3.30pm Optional open session: join us for chat to network and debrief. Bring your questions.		

Register at [www.mav.vic.edu.au/Conference/2021-Primary-and-Early-Childhood-Conference](http://www.mav.vic.edu.au/Conference/2021-Primary-and-Early-Childhood-Conference)

**Building leadership capability in  
mathematics education - day 1  
Thursday 10 June, 2021**

Time	Title/abstract	Presenter biography
<p>Welcome and Keynote 1: 9am-10.15am</p>	<p><b>A: What really counts in learning, and how can we support teachers in making it happen?</b> As teachers, we hope to craft ambitious and equitable classrooms – learning environments from which students emerge as knowledgeable and resourceful thinkers. As mathematics and numeracy leaders, and instructional coaches, we hope to provide consistent and coherent support for students and teachers. The Teaching for Robust Understanding (TRU) Framework identifies five key dimensions of classroom practice that make a difference and that can be the underpinnings of coherent professional development. I'll exemplify TRU with classroom video and discuss tools that professional learning communities can use for ongoing student-focused reflection and growth.</p>	<p><b>Professor Alan Schoenfeld</b> Alan Schoenfeld is the Elizabeth and Edward Conner Professor of Education and Affiliated Professor of Mathematics at the University of California at Berkeley. A mathematician by training who studies issues of mathematical thinking, teaching, and learning, he has served as President of the American Educational Research Association and been awarded the Felix Klein Award for life-time achievement in mathematics education research by the International Commission on Mathematical Instruction. His main research focus is on the Teaching for Robust Understanding (TRU) Framework, which concerns creating learning environments from which students emerge being knowledgeable and flexible thinkers and problem solvers.</p> <p>Keynote sponsor:   Education and Training</p>
<p>Workshop rotation 1: 10.30am-11.25am</p>	<p><b>B1: Developing a whole school approach to counting: Using the Counting Collections routine</b> From whole number through to fractions, counting is fundamental to children developing an understanding of our number system. During this session Dr Ange Rogers will show you how to introduce a whole school approach to counting, using the 'Counting Collections' routine. 'Counting Collections' is an engaging, student-centred routine that is simple to facilitate in F-6 classrooms. You will see examples of students completing the routine and learn the best ways to support their learning. You will leave this session with the enthusiasm and practical knowledge to successfully support teachers to implement 'Counting Collections' across your school. Warning: you will never look at a \$2 shop in the same way after attending this session!</p>	<p><b>Dr Angela Rogers</b> Dr Ange Rogers is an experienced primary school teacher and Numeracy Leader. She is the editor of the Mathematical Association of Victoria's teacher journal- Prime Number. Ange is a passionate presenter who regularly facilitates Professional Development for teachers. In 2014 she completed her PhD in Mathematics Education focusing on place value. She currently lectures to pre-service teachers at RMIT University and loves connecting research and practice to support teachers and leaders. Ange has 4 children and works to promote a love of maths at home through her social media accounts @ numberdoctors.</p>
	<p><b>B2: When are we ever going to use this mathematics?!</b> The title of this session should be familiar to many if not all of us. How do we respond to this question when asked by our students, their parents (and/or teachers)? In this sharing session, we will hear how some of us had responded, and discuss the effectiveness of each of these. We will reframe this question from not just the cognitive context, but also from the affective and conative perspectives. We will also consider this question in relation to the Mathematics Proficiencies in the Australian Curriculum, and the competencies that are being promoted internationally. Towards the end of this session, we will discuss how our (new) responses to this question can better promote whole-of-school mathematics and numeracy learning.</p>	<p><b>Professor Wee Tiong Seah</b> Wee Tiong Seah is Professor in Mathematics Education at the Melbourne Graduate School of Education. He is passionate about harnessing conative variables to foster cognitive and affective development in learners. In particular, Wee Tiong works with schools to implement holistic approaches to facilitating mathematics learning, cultivating student engagement and promoting mathematical wellbeing.</p>

	<p><b>B3: Effective coaching – How do we make an impact?</b></p> <p>One of the greatest challenges confronting school leaders is the wide range of student abilities in mathematics. In this workshop, we explore how to plan and present problem-solving tasks that will challenge and engage all students, from the most reluctant to those who are extremely confident. A range of strategies designed to ensure the appropriate level of cognitive challenge for each student will be explored. Each participant will leave with a clear understanding of how to lead the implementation of challenging problem-solving tasks at your own school.</p>	<p><b>Jen Bowden and Ellen Corovic</b></p> <p>Jen Bowden enjoys inspiring teachers to become more critical and creative in their teaching. As an education consultant for the Mathematical Association of Victoria, she works with teachers and leaders to build teacher capacity, increase knowledge of curriculum content, develop pedagogies and establish school-wide improvement plans. Jen's current interest is in developing challenging tasks with teachers to ensure all students are engaged and challenged in their learning. She is interested in utilising inquiry to strengthen students' mathematical understanding and cognitive engagement.</p> <p>Ellen Corovic is a passionate educator who enjoys collaborating with students, teachers and schools. As a teacher, school leader and now education consultant, Ellen works to build individual and collective efficacy as well as teacher capacity in mathematics. Ellen supports school improvement through ongoing professional learning, coaching, and leading reflective conversations. Building mathematical connections, authentic learning and research informed decisions are some of her approaches. Ellen was based at The Mathematical Association of Victoria for ten years as a consultant and is now a Research and Professional Learning officer and PhD candidate at Monash University. Her current research is in sustaining student thinking in mathematics. She has also completed a Master of Instructional Leadership at The University of Melbourne. Ellen enjoys supporting teachers to find the beauty, fun and love of both mathematics, teaching and leading.</p>
	<p><b>B4: Using evidence to embed change</b></p> <p>When implementing change to improve practice, goals need to come from necessities rather than desires, so that they can be deeply embedded in the history and culture of the school. To do this, leaders must move back and forth from a transformational leader to an instructional leader and identify the appropriate times for each. There is no step-by-step shortcut to transformation however it can happen when teachers see themselves as evaluators of their effects on students and when they use evidence-based practices to inform, change, and sustain these beliefs about their effects. Through the analysis of change models participants will explore how they can establish a purpose, build a shared vision, develop shared plans, lead the action and evaluate the results all within their own settings.</p>	<p><b>Paul Staniscia</b></p> <p>Paul Staniscia is a Deputy Principal, Learning &amp; Teaching Leader and Mathematics Leader at a northern suburbs catholic primary school. He also works as a consultant for the Mathematical Association of Victoria and has written various articles for their Prime Number journal. In 2019 Paul was recognised by ACEL as a New Voice in School Leadership and continues to work with ACEL through publications and as part of their Editorial Board. Having completed a Master of Educational Leadership, he values a culture of relational trust when working with teachers in evidence-based learning and teaching, in Australia and across New Zealand. His recent work has been around developing self-regulated learners and ensuring they know where they are going, have the tools for the journey, monitor their own progress, recognise when they are ready for what's next and know what to do next. Paul uses both previous classroom teaching experience as well as effective leadership practices when collaborating with teachers in using data to identify student need and impact of teaching.</p>

	<p><b>B5: Providing support for students ‘at risk’ of being assessed as being at, or below, national minimum standards for numeracy</b></p> <p>Each year students from Years 3 and 5 sit the national literacy and numeracy (NAPLAN) tests designed to identify whether they have the skills critical for their learning. The NAPLAN assessment scale is divided into ten bands to record student results in the tests. The national minimum standards are one band at each year level and describe some of the skills and understandings students are expected to demonstrate at their particular year of schooling. Students below the national minimum standard are at risk of being unable to progress satisfactorily at school without targeted intervention. Students who are at the national minimum standard may also require additional assistance to enable them to achieve their potential. In this session we will examine the national minimum standards for Years 3 and 5, identify possible difficulties these students may be experiencing. We will discuss ways that leaders can support classroom teachers and parents to assist students to move beyond the national numeracy minimum standards.</p>	<p><b>Dr Cath Pearn</b></p> <p>Dr Cath Pearn is a lecturer in mathematics education at The University of Melbourne. She has taught in the Master of Teaching programs across all levels – Early Childhood, Primary and Secondary. Cath is currently supporting South Australian teachers in both the Early Childhood and the R – 2 Numeracy Programs. She is particularly interested in the identification and assistance for students mathematically ‘at risk’ of not meeting the national minimum standards and those who are not achieving their mathematical potential. Cath is also a Senior Research Fellow in the Assessment and Reporting Division at ACER. Cath developed Mathematics Intervention, a program for Year 1 students mathematically ‘at risk’, which she continues to support. Her PhD investigated the links between fractional competence and algebraic reasoning of middle-years students.</p>
	<p><b>B6: What does growth in early mathematics look like?</b> <i>(Early childhood - Year 2 conference stream)</i></p> <p>The early years are a critical time for learning, when foundations are laid that support ongoing conceptual development. Nurturing a love for mathematics begins with positive experiences and the natural world is the perfect setting to engage their sense of wonder. Join us in a practical and playful workshop that explores the creative and limitless ways that the natural world can lend itself to mathematical learning that is meaningful and memorable for young children.</p>	<p><b>Belinda Johnston</b></p> <p>Belinda Johnston is an Early Years Professional from Melbourne and has worked in the field for almost 20 years. Her experience ranges from the practicalities of working on the floor with children to facilitating professional conversations with Managers and Directors. Her particular focus is on critical reflection and its power to strengthen practice in any area of teaching. Belinda has worked with Swinburne University, VCAA and Gowrie Victoria. She currently lectures at Holmesglen Institute.</p>
<p>Workshop rotation 2: 11.30am- 12.25pm</p>	<p><b>C1: Data driven: Interpreting and using data effectively</b></p> <p>A key role for mathematics leaders is analysing school data at individual, class, cohort and school levels. Teachers often collect a lot of data through assessment. However, it is not assessment that improves learning, it is the how we use that assessment that impacts the effectiveness of our teaching. This session will explore how, as leaders, we can best use the data that we have within our school to inform our practice. We will examine how we can use our data to plan for teaching and student learning.</p>	<p><b>Kate Copping</b></p> <p>Kate Copping is a lecturer in Mathematics Education and PhD candidate at the Melbourne Graduate School of Education (MGSE). Her research involves leadership and teacher professional learning in mathematics. Kate has provided mathematics professional development for teachers through ACER, DET and within individual schools. She has taught in schools in Victoria, NSW and USA, and has also worked in teacher education for MGSE since 2008.</p>

	<p><b>C2: Introducing a whole school approach to differentiation through problem solving</b></p> <p>One of the greatest challenges confronting school leaders is the wide range of student abilities in mathematics. In this workshop, we explore how to plan and present problem-solving tasks that will challenge and engage all students, from the most reluctant to those who are extremely confident. A range of strategies designed to ensure the appropriate level of cognitive challenge for each student will be explored. Each participant will leave with a clear understanding of how to lead the implementation of challenging problem-solving tasks at your own school.</p>	<p><b>Michael Minas</b></p> <p>Michael Minas has worked in education for 20 years, both in Australia and the United Kingdom. For the past decade, he has been employed in a variety of numeracy leadership positions. These roles have included assisting with the implementation of school-wide improvement plans, coaching and mentoring, delivering professional development sessions and modelling of high-quality maths lessons. His areas of interest include problem solving and student engagement. In 2018, Michael's ability to shape learning well beyond his classroom was recognised when he won a CHOOSE MATHS Teaching Excellence Award. He has edited the <i>Prime Number</i> journal and has written articles for a range of other local and international publications. He is also a contributing author to the Maths 300 website. Michael presents at conferences around Australia and provides consultancy services to the Mathematical Association of Victoria and PD Online.</p>
	<p><b>C3: Riding the rollercoaster of change</b></p> <p>You've been tasked with leading whole school maths, now what do you do? This workshop will share one school's journey and how they successfully navigated the rollercoaster of change and in three years flipped their results from trending away from state means to now being deemed an influence school in mathematics improvement. We will explore how the use of evidence-based improvement models can support the implementation of change, how data can promote an inquiry mindset alongside strategies for nurturing a collaborative approach to drive improvement and accountability.</p>	<p><b>Terri Truscott</b></p> <p>Terri Truscott is a Leading Teacher of Mathematics at Dandenong Primary School. She has over 30-years' experience in education and has played a key role in whole-school improvement within Australia's number one most culturally diverse community. Terri is a passionate advocate for improving the teaching and learning of mathematics through the development of instructional practice, data literacy, mentoring and coaching alongside championing the power of collaborative professional learning teams. Her University of Monash Master of Educational Leadership and postgraduate studies in Bastow's Unlocking Potential Principal Preparation program coupled with her experience and reflective practice have allowed her to further develop her knowledge and capacity in leading whole school improvement. Terri's involvement in the MAV Primary Maths Collaborative two year project has further reinforced her belief that high quality education provides empowerment, supports equity and leads to life-long learning.</p>
	<p><b>C4: Teaching and assessing mathematical proficiency</b></p> <p>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. 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 teaching the Strands, assessing them through whole school moderation practices and reporting to the Strands through self, peer and teacher feedback.</p>	<p><b>Paul Staniscia</b></p> <p>See session B4 for Paul Staniscia's biography.</p>

	<p><b>C5: Strengthening foundational mathematical knowledge and understanding through teacher moderation</b>  <i>(Early childhood - Year 2 conference stream)</i></p> <p>This workshop will explore the lived tensions of being data rich and information poor within a school's assessment schedule. In unpacking the foundational mathematical conceptual understandings in seeking a collaborative approach with colleagues, to ensure that feedback is timely, and informative in supporting a student to narrowing a learning gap or enhancing levels of proficiencies.</p> <p>The conceptual lens here will be placed on the importance of seeing mathematical understanding as a continuum of learning from birth to 8 years old (Year 2). The workshop will focus on a series of provocations and questions that can be offered to colleagues in developing a whole school approach ensuring that teachers are confident facilitators of foundational learning outcomes – referencing the recently reviewed Australian Curriculum.</p>	<p><b>Helen Schiele</b></p> <p>Helen has worked in the educational field for over 30 years as an educator, lecturer and consultant. She has worked in the areas of curriculum design, differentiation, professional learning communities, Cognitive Coaching and literacy and numeracy strategies. Helen has worked extensively as an early childhood educator, predominately in low socioeconomic areas and multicultural communities. Helen's extensive experience as a teacher in both the primary and secondary fields also includes leading initiatives in gifted education and philosophy. She is passionate about the early years and for children to be successful, and respected as unique thinkers within their educational journey. Helen is also completing her doctoral studies in collective efficacy in faith-based schools.</p>
<p>Workshop rotation 3: 1pm-1.55pm</p>	<p><b>D1: Building connections between mathematics, STEM and digital technologies to foster growth in algorithmic and computational thinking from Foundation to Year 6</b></p> <p>Algorithmic and Computational thinking are now an essential component of mathematical literacy. This session will focus on how it needs to be developed through the primary years and provides practical advice for teachers and curriculum leaders.</p> <p>Participants will look at the benefits of algorithmic thinking for supporting problem solving and mathematical reasoning throughout the primary years. We will show how the Victorian Curriculum positions algorithmic thinking (F to 6) and how this links Mathematics, STEM and the Digital Technologies. These connections provide teachers and curriculum leaders many opportunities to develop students' algorithmic thinking and problem-solving skills, starting from the use of robotic devices in the early primary years to later use of coding using Scratch. Our focus will be on the development of students' conceptual understanding and mathematical reasoning - not simply on using tools or learning a programming language.</p>	<p><b>Dr Max Stephens and Dr Duncan Symons</b></p> <p>Dr Duncan Symons is a lecturer in science and mathematics education. His primary responsibilities involve preparatory teacher education in the fields of primary mathematics and science. Duncan's research interests include inquiry, investigative and problem-based approaches to mathematics education in the primary years. He is also interested in how mathematics can be embedded within the broader curriculum. The adoption and promotion of STEM (science, technology, engineering and mathematics) to achieve integration has become an area of research and teaching interest, and Duncan facilitates a program for teacher candidates at the University of Melbourne with this as a focus.</p> <p>Dr Max Stephens is a senior research fellow in mathematics education. Max's research areas focus on the emergence of algebraic thinking in the middle years, developing a construct of Teacher Capacity, and the cultural conditions needed for the successful adaptation of Lesson Study outside Japan. He has interests internationally in curriculum and assessment, notably in Japan and in China. Prior to The University of Melbourne, Max occupied senior roles with the Victorian Department of Education and at the Victorian Curriculum and Assessment Authority. He has been a reviewer of the Australian Curriculum: Mathematics for the Australian Government and has provided interpretations of international assessments in Mathematics for Australian Schools.</p>

	<p><b>D2: Building formative assessment capacity</b></p> <p>The importance of formative assessment in supporting learning is widely recognised. The challenge for educational leaders is to build formative assessment capacity within educators. This session will showcase readily available resources to support the development of educators' formative assessment skills. It will address common issues that arise for mathematics/numeracy educators when interacting with these resources and discuss how these can be minimised or avoided. The session will draw on practical experiences of the Assessment Research Centre and will cover challenges related to both formal and informal assessments, as well as those related to objective and judgement-based assessment. Participants will explore the suitability of these professional development resources for use in their educational context.</p>	<p><b>Pam Robertson and Narelle English</b></p> <p>Pam Robertson is a Research Fellow at the Assessment Research Centre, The University of Melbourne and works on projects relating to assessment (both large-scale and classroom) and the use of assessment data to inform decision-making. She is experienced in the development, validation and evaluation of assessment materials tailored for specific purposes. She also teaches courses in the areas of assessment. She has been involved in numerous projects, both within Australia and internationally, involving formative uses of assessment data, judgement-based assessment and the alignment of assessment and curricula. Pam has previously been a teacher of maths and science and has co-authored multiple physics texts.</p> <p>Narelle is a Research Fellow, Lecturer in Assessment and doctoral candidate at the Assessment Research Centre, University of Melbourne. She works on projects relating to assessment and the design and development of data collection tools and instruments. She is currently leading projects for the Victorian Department of Education and Training on principal assessment and for AITSL on formative assessment. She has designed and implemented assessment for teaching programs for both formal tertiary qualifications and school-based professional learning. Narelle has also taught and held leadership positions in department schools in Victoria, and overseas in the US state system and an international school in Japan.</p>
	<p><b>D3: Finding clarity</b></p> <p>Embarking on school improvement, meeting the daily demands of running a school and meeting the reporting requirements of the department can all be a juggle. This session will explore how to find clarity of purpose amongst the noise. Tools will be shared to assist leaders (and teachers) to clearly define and plan for whole school professional learning and action.</p>	<p><b>Ellen Corovic</b></p> <p>See session B3 for Ellen Corovic's biography.</p>
	<p><b>D4: Human-Centred Design – how do adults learn best?</b></p> <p>Human-Centred Design (HCD) is a creative approach that puts people at the heart of a problem-solving process. It focuses on being led by your curiosity, not your assumptions. In this workshop we will share an understanding of how HCD helps gain a better understanding of people's needs, hopes and aspirations, therefore leading to creating a more meaningful learning experiences within our schools. We will share the fundamentals of the HCD process. HCD is an effective, creative problem-solving technique with a strong set of tools and methodologies that improve collaboration and engage diverse voices. The participants will work with tools and learn the process that will unlock understanding for improvement the schools they are working in. We will investigate how HDC is making and impact in the corporate world and can be adaptive to create change within school settings.</p>	<p><b>Susie Flynn and Jen Bowden</b></p> <p>Susie is a passionate human-centred service designer who has played an active role in delivering on many key projects across diverse industries. This included working with organisations such as The City of Melbourne, Yarra Valley Water, The Australian Red Cross, InfoXchange, and the Department of Education. As a human-centred designer, Susie has been able to unravel complex problems using a human-centric approach. More recently Susie has enjoyed the challenges of working for Beyond Blue and being able to make an impact at a highly valued and increasingly adaptive not-for-profit organisation. This experience provides Susie a unique and holistic perspective of the successes, challenges of adopting this way of working within mental health.</p> <p>See session B3 for Jen Bowden's biography.</p>

	<p><b>D5: Supporting educators through coaching: Effective programs and strategies</b>  <i>(Early childhood - Year 2 conference stream)</i></p> <p>Ongoing forms of professional development such as coaching can improve young children's outcomes through improving teaching practice. Coaching programs and strategies in ECEC and teacher professional development vary widely. However, several programs, features and strategies are commonly used across effective coaching and mentoring programs. This workshop will highlight what the research indicates to be critical features of effective coaching programs in early education settings. The workshop will also engage participants in exploring specific coaching strategies they could draw on in their work to support and empower educators and teachers to reflect on, modify and improve their practices in mathematics education.</p>	<p><b>Catriona Elek</b></p> <p>Catriona Elek is a PhD candidate at the Melbourne Graduate School of Education (MGSE) investigating coaching for early childhood educators. She is also a Research Fellow at the Research in Effective Education in Early Childhood (REEaCh) Hub at MGSE. Catriona has a background in adult education and has worked in the field of early childhood, health and community services – in Sydney, Alice Springs and Melbourne.</p>
<p>Keynote 2: 2pm – 3pm</p>	<p><b>E1: Becoming a primary mathematics leader</b></p> <p>Improving teacher capacity and confidence in teaching mathematics in primary schools has become a focus within the state of Victoria. One initiative to develop teacher competency and confidence in mathematics has been to appoint mathematics leaders, as part of the leadership team in schools, to support generalist primary classroom teachers with more experienced and trained mathematics specialists. This means that middle level leaders in schools are expected to become instructional leaders with deep content, assessment and pedagogical content knowledge. For teachers in this leadership role, this sets high expectations, placing mathematics leadership at the centre of improving mathematics teaching and learning within their schools. For many of these new leaders, professional development is highly sought after. However, training and support for mathematics leaders has often concentrated on content knowledge, with a lesser focus on leadership training. This presentation focuses on primary mathematics teacher-leaders' perspectives of the influences and challenges to their role and their understanding of leadership in a primary mathematics context. It will address awareness of important aspects of primary mathematics leadership and suggest ideas and strategies for good leadership practice.</p>	<p><b>Kate Copping</b></p> <p>See session C1 for Kate Copping's biography.</p> <p><i>Keynote sponsor:</i>  <b>EssentialAssessment</b>  <i>Assessment and Curriculum made easy</i>  <small>Australian Curriculum • NSW Syllabus • Victorian Curriculum</small></p>

Keynote 2:  
2.50pm –  
3.50pm

### **E2: Leading learning in early years education: what matters and why?**

Educational leadership is key to building high quality early years educational programs and practices and to advancing young children's learning and developmental outcomes. In recent years we have witnessed a growing investment by government in educational leadership in early childhood education and care and school settings. Despite this, Educational Leaders report a lack of understanding regarding the active ingredients of educational leadership and how they can be effective in this role. This presentation will focus on what research tells us are the effective features of educational leadership. It will place a particular emphasis on the evidence-based teaching strategies that are known to improve teachers' practices and advance young children's learning and developmental outcomes. It will reflect on how these strategies help teachers to learn about and improve their teaching practices and advance young children's mathematical thinking.

### **Associate Professor Jane Page**

Jane Page is an Associate Professor in the Melbourne Graduate School of Education (MGSE) at the University of Melbourne and a Senior Researcher in the REEaCh Hub. Jane has worked in the early childhood field for over thirty years covering a range of roles both as a director and teacher in early childhood services as well as teaching and researching in the University sector. Jane's research interests include teacher effectiveness, coaching and educational leadership. Jane has been actively engaged in the development and implementation of a number of projects with state and local governments and the Victorian Curriculum Assessment Authority (VCAA) that focus on early years teachers' pedagogical practices. In 2015-2019 has been a Research Adviser for VCAA including most recently the Leading Assessment for Learning and Development: A Communities of Practice Project. Jane has also managed projects concerned with quality pedagogy and the impact of evidence-based interventions on vulnerable children.

*Keynote sponsor:*

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# Building capability for all mathematics educators

Friday 11 June, 2021

Do you find teaching mathematics a challenge? Are you looking to find some great new ideas to engage students? Join us to explore mathematics education, teaching and learning, with a focus on improving your mathematics content and content pedagogical knowledge. Learn how to develop greater cognitive engagement through inquiry-based approaches.

Session	Presenters	Title
Keynote 1 9am–10.15am	Cath Pearn	A: Identifying and assisting students assessed as being at or below national minimum standards for numeracy  <i>Keynote sponsor:</i>   Education and Training
Break: 10.15am–10.30am		
Workshop rotation 1 10.30am–11.25am	Mayamiko Malola and Cath Pearn	B1: From additive to multiplicative thinking: key ideas and strategies for teachers in the primary years
	Siobhan Merlo and Matthew Harrison	B2: Optimising cognitive load for students with mathematical learning difficulties and disabilities.
	Andrew Lorimer-Derham	B3: Boring, pointless and scary!
	Jennifer Bowden	B4: Creating engaging enabling and extending prompts
	Rachel Pollitt and Vanessa Townsend	B5: Play-based approaches to teaching and learning mathematics with 3 – 5 year old children <i>(Early childhood - Year 2 conference stream)</i>
Workshop rotation 2 11.30am–12.25pm	Bronwyn Ryrie Jones	C1: Improving teacher-written assessments in mathematics
	Sebastian Sardina and Max Stephens	C2: Supporting the development of students' algorithmic and computational thinking in the primary years
	Tom Moore	C3: Teaching in action – making sense of student effort
	Ellen Corovic	C4: A handful of favourites: explore a collection of context rich investigations
	Nicola Yelland, Jeanne Marie Iorio and Jayson Cooper	C5: Early mathematical explorations: creating new learning ecologies for meaning making <i>(Early childhood - Year 2 conference stream)</i>
Lunch and networking: 12.25pm–1pm		
Workshop rotation 3 1pm–1.55pm	Cath Pearn	D1: 'Three-quarters is nearly one': Highlighting common fraction misconceptions
	Pam Robertson and Toshiko Kamei	D2: Assessing and teaching critical thinking within numeracy and mathematics
	Terri Truscott	D3: Moving beyond Pinterest planning
	Duncan Symons and Derek Holton	D4: What is the next number, and why is it important?
	Dianne Liddell	D5: Introducing numeracy into the early years <i>(Early childhood - Year 2 conference stream)</i>
Keynote 2 2pm–3pm	Tom Moore	E: Mathematical representations – positives and potential pitfalls <i>Keynote sponsor:</i> 
Keynote 2 2pm–3pm	Belinda Johnston	E: Transitions to school – a story of success <i>(Early childhood - Year 2 conference stream)</i> <i>Keynote sponsor:</i> 
F: 3pm - 3.30pm Optional open session: Join us for chat, to network and debrief. Bring your questions.		

Register at [www.mav.vic.edu.au/Conference/2021-Primary-and-Early-Childhood-Conference](http://www.mav.vic.edu.au/Conference/2021-Primary-and-Early-Childhood-Conference)

# Building capability for all mathematics educators

## Friday 11 June, 2021

### What primary leaders said about the Primary conference.....

*The conference provided an excellent forum to learn about and discuss current research-based information. It provided a range of workshops led by knowledgeable and approachable presenters. I was able to walk away excited about sharing some new ideas and resources with colleagues.*

Time	Title/abstract	Presenter biography
Keynote 1: 9am-10.15am	<p><b>A: Identifying and assisting students assessed as being at or below national minimum standards for numeracy.</b></p> <p>Many students may be mathematically 'at risk' and struggling to solve mathematical tasks. Early childhood teachers need to provide a range of opportunities so their children develop mathematical knowledge, skills and understanding while interacting with their environment. Some primary students rely on inefficient methods such as guessing, trying to remember rules, using tally marks and always use the inefficient method of 'count all' when solving a range of mathematical tasks. In both early childhood and primary settings there needs to be an emphasis on mathematical tasks that relate to students' everyday life and build on the mathematics the students already know and can do. Students should be encouraged to use concrete materials, 2D representations, drawings or diagrams, as well as words and symbols when recording solutions to mathematical tasks. The focus should be on developing and demonstrating fluency, understanding, problem solving and reasoning rather than rote learnt rules and procedures.</p>	<p><b>Dr Cath Pearn</b></p> <p>Dr Cath Pearn is a lecturer in mathematics education at The University of Melbourne. She has taught in the Master of Teaching programs across all levels – Early Childhood, Primary and Secondary. Cath is currently supporting South Australian teachers in both the Early Childhood and the R – 2 Numeracy Programs. She is particularly interested in the identification and assistance for students mathematically 'at risk' of not meeting the national minimum standards and those who are not achieving their mathematical potential. Cath is also a Senior Research Fellow in the Assessment and Reporting Division at ACER. Cath developed Mathematics Intervention, a program for Year 1 students mathematically 'at risk', which she continues to support. Her PhD investigated the links between fractional competence and algebraic reasoning of middle-years students.</p> <p>Keynote sponsor:   Education and Training</p>
Workshop rotation 1: 10.30am-11.25am	<p><b>B1: From additive to multiplicative thinking: Key ideas and strategies for teachers in the primary years.</b></p> <p>Multiplicative thinking is a central pillar of mathematical learning in the primary and middle years. It forms the basis for understanding numerous topics such as proportions, patterns, ratios, fractions, and percentages. The development of algebraic thinking also relies on students having developed sound multiplicative thinking. The transition from additive thinking to multiplicative thinking is a challenge for many learners in the middle years. However, it is not a simple one-step process. This session will present teaching suggestions and several case studies demonstrating the challenge some learners encounter in transitioning from additive to multiplicative thinking, and how teachers can help students with this. This session will include practical activities and tasks to help move students progressively from additive to multiplicative thinking.</p>	<p><b>Mayamiko Malola and Dr Cath Pearn</b></p> <p>Mayamiko Malola is currently a PhD student in the Graduate School of Education at the University of Melbourne. His research interest is on development of Multiplicative thinking in early and middle school years.</p> <p>See session A for Cath Pearn's biography.</p>

	<p><b>B2: Optimising cognitive load with mathematical learning difficulties and disabilities</b></p> <p>his workshop will apply Cognitive Load Theoretical Principles to providing meaningful instruction for learners with mathematical learning difficulties and disabilities. Cognitive Load Theory posits that schemas develop in long term memory via working memory. If working memory becomes 'overloaded', the quality and speed of learning has been found to be reduced. Students with mathematics learning difficulties and disabilities often possess limitations in their working memories compared to same-aged peers for a myriad of reasons. It is therefore critical that the way in which material is presented takes this into account. Specifically, this workshop will explore: principles of Cognitive Load Theory, the critical role of working memory in learning mathematics, common myths regarding how we learn, ways in which executive functioning limitations can impact on mathematical understanding, and specific teaching strategies and recommendations for instructional design.</p>	<p><b>Dr Siobhan Merlo and Dr Matthew Harrison</b></p> <p>Dr Siobhan Merlo is a lecturer in the Learning Intervention team at the Melbourne Graduate School of Education and is an experienced Psychologist and Learning Intervention Teacher who has been working in the field for over twenty years. She obtained her PhD from the University of New South Wales in the area of Cognitive Load Theory in 2005, and has worked extensively with students exhibiting specific and pervasive learning difficulties, social-emotional and behavioural difficulties. In her practice, she utilises a variety of evidence-based strategies including neuroscientific technology-based approaches to accelerate learning.</p> <p>Dr Matthew Harrison is an experienced educator and researcher with a keen passion for utilising technology to enhance children's social learning and inclusion. He has taught in Australia, South Korea and the United Kingdom at primary, secondary and tertiary levels. As part of the Learning Intervention team at University of Melbourne Graduate School of Education, Matthew is currently coordinating Autism Intervention. His research focuses on inclusive education and the creative use of digital technologies as teaching and learning tools. He is currently completing a doctorate examining how cooperative videogames can be used as spaces for developing social skills in children with autism and cognitive challenges.</p>
	<p><b>B3: Boring, pointless and scary!</b></p> <p>Sadly, these are some of the most common words our students associate with maths. This mindset (often inherited) creates enormous barriers to learning and enjoying mathematics. It's time to shift this thinking. This hands-on workshop will showcase a range of engaging games and activities to increase your capacity to: Engage learners of any ability, build skills and confidence in your weaker learners, get students working together and thinking out loud, encourage curiosity and creative thinking, provide rich, challenging tasks, and foster a love of maths</p>	<p><b>Andrew Lorimer-Derham</b></p> <p>Andrew is a passionate educator and inventor who relentlessly creates unique ways to spread a love of mathematics. Andrew's desire to build skills and confidence in his students has seen him develop Think Square (a suite of hands-on maths games), Mirrogram (the world's first reflective clothing line) and Skillhouettes (an app to track and record motor skill development). His creative ideas have been featured on LightFM and The Age; he is a puzzle writer for COSMOS magazine and has been contracted to develop innovative solutions for Cricket Australia's junior programs. Andrew currently spends most of his time running student workshops and staff PD around the idea of 'Intentional Fun' where he takes great pleasure in demonstrating what a joyful, imaginative and playful pursuit maths can (and should) be. Andrew will inspire you to see possibilities, be creative, and think outside the box as you shape the next generation of mathematicians.</p>
	<p><b>B4: Creating engaging enabling and extending prompts</b></p> <p>Enabling and extending prompts have become a popular way to effectively differentiate tasks across classrooms. Prompts allow students to become including in tasks, supporting them by reducing the complexity of the task or extending and challenging their thinking. In this workshops we will investigate some challenging and engaging tasks and explore how to create prompts to ensure all students are including and tasks are differentiated.</p>	<p><b>Jennifer Bowden</b></p> <p>Jen Bowden enjoys inspiring teachers to become more critical and creative in their teaching. As an education consultant for the Mathematical Association of Victoria, she works with teachers and leaders to build teacher capacity, increase knowledge of curriculum content, develop pedagogies and establish school-wide improvement plans. Jen's current interest is in developing challenging tasks with teachers to ensure all students are engaged and challenged in their learning. She is interested in utilising inquiry to strengthen students' mathematical understanding and cognitive engagement.</p>

	<p><b>B5: Play-based approaches to teaching and learning mathematics with 3 – 5-year-old children</b>  <i>(Early childhood – Year 2 conference stream)</i></p> <p>Children explore mathematics innately during daily routines and play. Knowing how to identify and support children’s mathematics learning in play-based programs can – at times - be challenging. This session combines theory and practice in action, including hands-on ideas for how to incorporate mathematics in early childhood programs, and practical ways to address the foundations of children’s mathematics learning. This session will also explore play-based assessment strategies to support educators when identifying, assessing and planning for children’s ongoing mathematics learning.</p>	<p><b>Dr Rachel Pollitt and Vanessa Townsend</b></p> <p>Rachel completed her PhD at the University of Melbourne. Her research focused on spatial reasoning and assessment in early childhood teaching practice. She has worked as a Clinical Teaching Specialist and has taught in the Master of Teaching program at the University of Melbourne. Rachel’s research interests include play-based mathematics assessment strategies, early childhood pedagogy, and how spatial reasoning can inform mathematics curricula in early childhood education. She is the Director of Early Learning across Haileybury’s campuses and is responsible for the ongoing development of the ELC program and curriculum.</p> <p>Vanessa Townsend is a graduate of the Institute of Early Childhood Development. She is passionate about providing play-based learning experiences that support and extend children’s mathematics understanding. Vanessa aims to inspire and engage children in their mathematics learning, providing opportunities throughout her daily program and practice for children to develop their higher order thinking skills and apply their learning in everyday contexts. Vanessa enjoys creating resources using recycled and natural products to support her pedagogy. She is the Deputy Head of Haileybury City ELC and a Lead Educator, teaching and learning with the Pre-Prep group.</p>
<p>Workshop  Rotation 2:  11.30pm -  12.25 pm</p>	<p><b>C1: Improving Teacher-written Assessments in Mathematics</b></p> <p>To assess student progress in mathematics, primary school teachers often write their own tests. While many teacher-written assessments garner good data about student learning, it is important that teachers interrogate the quality of their assessments. Do our tests really suit our students? To what extent are we writing reliable test items? Have we provided adequate scope for students to show what they really know? In this highly-practical workshop, leaders will consider important factors which affect the quality of teacher-written tests in mathematics; real-life examples from a primary school classroom will be used to illustrate the ways in which tests can be reviewed and improved.</p>	<p><b>Bronwyn Ryrie Jones</b></p> <p>Bronwyn is a lecturer at the Melbourne Graduate School of Education, where she specialises in developmental assessment practices. A primary school teacher by background, Bronwyn’s interests lie at the intersection of current assessment theory and the everyday classroom practice of teachers. Bronwyn is keenly interested in how teachers can design more reliable assessments which better reflect what students can do, and what they are ready to learn next. She has worked with metropolitan and regional schools across Australia to review and improve the quality of teacher-written assessments, with a view to equip teachers with more usable data about their students.</p>

	<p><b>C2: Supporting the development of students' algorithmic and computational thinking in the primary years</b></p> <p>In this workshop we explain how to promote algorithmic/computational thinking in the primary years by solving a typical problem that arises in many real-world situations and applications: sorting a bag (collection) of numbers. If we have a few, say 5, numbers, then the task is easy and can be done without any systematic process. However, when we have tens, hundreds, or thousands of numbers, a precise sorting strategy is needed, as much as we need a strategy to add two numbers of any size. We explain how the sorting task can be used with primary students both in unplugged and plugged manners. The aim is to encourage children to develop and analyse their own strategies. The activity is suitable from Year 4 to Year 6, at different levels of detail and analysis.</p>	<p><b>Professor Sebastian Sardina and Dr Max Stephens</b></p> <p>Sebastian is a professor of Artificial Intelligence in the School of Science at RMIT University. Sebastian's research is mainly concerned with algorithms for dynamic systems, with contributions in the AI sub-fields of automated planning, reasoning about action, and agent programming. Outside AI, he has a strong interest in the teaching of algorithmic thinking and Computer Science to children and youth. Sebastian has worked with schools and community organisations helping teachers and students appreciate the relevance of algorithmic thinking in the curriculum. He is familiar with resources to support such teaching, including those that link directly to classroom explorations. At the 2019 MAV Conference he was an invited keynote speaker on a panel looking at curriculum change and, in 2020 together with Max Stephens, delivered a practical workshop for teachers.</p> <p>Dr Max Stephens is a senior research fellow in mathematics education. Max's current research focusses on how algorithmic/computational thinking is increasingly embedded internationally in the school curriculum at all levels, for example in New Zealand, France, England, Japan and in China. Prior to The University of Melbourne, Max worked in the Victorian Department of Education and at the Victorian Curriculum and Assessment Authority. In 2020, he co-authored the entry on algorithmic/computational thinking in the second edition of the Springer Encyclopedia of Mathematics Education.</p>
	<p><b>C3: Teaching in action – making sense of student effort</b></p> <p>This workshop is one not to be missed. It can be best described as high quality teaching - meets theory to inform practice - meets american sports commentary. Throughout this prerecorded workshop, Thomas interviews Coach Pete Breukers to learn more about a model which he uses to describe students' effort and engagement during Maths. This theoretical model was developed by the presenters and can be used to describe the different types of thinking and engagement that are present within the maths class. Once understood, the model can then be used as a guide to inform planning in order to promote high levels of mathematical thinking and engagement for your class.</p>	<p><b>Tom Moore</b></p> <p>Thomas is a passionate educator who is driven by helping both students and teachers to enjoy the experience of working mathematically. He is currently completing a PhD exploring how productive relationships are formed between maths teachers and their students. When he isn't studying, you will find Thomas working as a casual relief teacher in classrooms around Melbourne, as he enjoys putting his ideas to the test to ensure they are robust and hold true under a range of teaching conditions. Thomas also works with teachers and school leaders across Victoria as a consultant to help both primary and secondary schools implement an inclusive and engaging mathematics curriculum for all. Thomas is an avid believer that everyone can enjoy learning mathematics, and that the key to achieving this is often in our delivery!</p>
	<p><b>C4: A handful of favourites: explore a collection of context rich investigations</b></p> <p>Context rich tasks can assist to draw learners into the mathematics at play. In this session, teachers will explore a handful of the presenter's favourite tasks. The role of challenge, persistence and student problem posing will be examined with practical tips for implementation. Come and immerse yourself in mathematical play through context rich investigations.</p>	<p><b>Ellen Corovic</b></p> <p>Ellen Corovic is a passionate educator who enjoys collaborating with students, teachers and schools. As a teacher, school leader and now education consultant, Ellen works to build individual and collective efficacy as well as teacher capacity in mathematics. Ellen supports school improvement through ongoing professional learning, coaching, and leading reflective conversations. Building mathematical connections, authentic learning and research informed decisions are some of her approaches. Ellen was based at The Mathematical Association of Victoria for ten years as a consultant and is now a Research and Professional Learning officer and PhD candidate at Monash University. Her current research is in sustaining student thinking in mathematics. She has also completed a Master of Instructional Leadership at The University of Melbourne. Ellen enjoys supporting teachers to find the beauty, fun and love of both mathematics, teaching and leading.</p>

	<p><b>C5: Early mathematical explorations: creating new learning ecologies for meaning making</b>  <i>(Early childhood – Year 2 conference stream)</i></p> <p>In this workshop we consider the early mathematical processes and skills that are the foundation for numeracy. Mathematics is an integral part of everyday life and we use the example of walking in the city to explore the potential of being in the ‘present’ and taking the opportunity to stop and view what is around us to consider what mathematical moments can occur. We share the ‘out and about’ project to illustrate some alternative ways of viewing early mathematical explorations that are based in authentic activity in new learning ecologies. The mathematics that is taught in schools should be connected to everyday lives and communicated in multimodal representations of shared experiences. Here, we contemplate possibilities and consider authentic learning with young children.</p>	<p><b>Professor Nicola Yelland, Dr Jeanne Marie Iorio, Dr Jayson Cooper</b></p> <p>Nicola Yelland is the Professor of Early Childhood Studies in the Melbourne Graduate School of Education at the University of Melbourne. Her teaching and research interests have been related transformative pedagogies and the use of new technologies in school and community contexts. She has also worked in East Asia and examined the culture and curriculum of early childhood settings. Nicola’s work engages with educational issues regarding varying social, economic and political conditions and thus requires multidisciplinary perspectives. Her evidence informed approaches provides a context for exploring transformative pedagogies that is based in the real world and connected to the lives of teachers.</p> <p>Jeanne Marie Iorio is a Senior Lecturer in early childhood education. Her research, teaching, and writing focuses on disrupting and rethinking accepted educational practices in early childhood and higher education. This work includes rethinking quality as meaning-making; children’s relations with place, more-than-human and materials; pedagogical documentation and research methods; and pedagogies originating from the municipal infant-toddler centres and preschools in Reggio Emilia, Italy.</p> <p>Jayson Cooper is an arts-based researcher in early childhood, land-based education, and public pedagogy. His work explores the ways places, with all their complexities, are pedagogical. His research and teaching embraces post-qualitative art-based pedagogies and methodologies that seek ways the public sphere is artful, and full of pedagogy in a hyper-complex entangled world. Decolonising agendas drive how he connects and understands places as an educator and artist. His publications explore young children’s art and aesthetics, public pedagogy, community-based learning and art education. Jayson is a lecturer in early childhood studies at Melbourne Graduate School of Education.</p>
<p>Workshop  Rotation 3:  1pm -1.55pm</p>	<p><b>D1: ‘Three-quarters is nearly one’: Highlighting common fraction misconceptions</b></p> <p>Teachers believe that fractions are one of the most challenging areas of mathematics to teach and learn. While fractions can be represented in many contexts, one-half of a length or an area is not the same as one-half of a quantity or the position of the number one-half of a number line marked zero to two. Errors caused by misconceptions occur across all year levels and may not be discovered by the student or teacher. Teachers need to be aware of possible fraction misconceptions, so these can be avoided or, if already in place, they can be addressed. For example, many primary students position the number three-quarters very close to the number one on a number line because they believe that “three-quarters is nearly one”. This session will describe common fraction misconceptions and discuss possible strategies to prevent them from happening or to address specific misconceptions held by students.</p>	<p><b>Dr Cath Pearn</b></p> <p>See session A for Cath Pearn’s biography.</p>

	<p><b>D2: Assessing and teaching critical thinking within numeracy and mathematics</b></p> <p>Both VEYLDF and the Victorian curriculum require teachers to teach and assess critical thinking. This session will provide a framework to support teachers to develop assessment strategies to target critical thinking skills within numeracy/mathematics. In the session, teachers will design informal assessment strategies and associated teaching strategies to further students' abilities in core skills needed to be successful in mathematics. These will be applicable in both early childhood and primary settings. The method presented will provide strategies to elicit evidence of student learning, assess where they are in their learning and use this information to progress students in critical thinking skills within mathematics. Skills targeted will be focused on observable skills that students need to learn mathematics such as reasoning, representing, and planning. Targeting such skills will provide students with essential skills to become independent learners in mathematics.</p>	<p><b>Pam Robertson and Toshiko Kamei</b></p> <p>Pam Robertson is a Research Fellow at the Assessment Research Centre, The University of Melbourne and works on projects relating to assessment (both large-scale and classroom) and the use of assessment data to inform decision-making. She is experienced in the development, validation and evaluation of assessment materials tailored for specific purposes. She also teaches courses in the areas of assessment. She has been involved in numerous projects, both within Australia and internationally, involving formative uses of assessment data, judgement-based assessment and the alignment of assessment and curricula. Pam has previously been a teacher of maths and science and has co-authored multiple physics texts.</p> <p>Toshiko Kamei is a Research Fellow at the Assessment Research Centre at the University of Melbourne. Her research interests include assessment of general capabilities, measurement theory, and approaches to raising the capacity of teachers to teach all students. Her doctoral work focused on the development of an assessment for Critical and Creative Thinking to support teachers of students with disability, undertaken as part of the Students with Additional Needs (SWANS) program. Toshiko is a qualified special education and primary teacher with 19 years of teaching experience in primary, secondary and specialist settings.</p>
	<p><b>D3: Moving beyond pintrest planning</b></p> <p>Shining a light on the nouns and verbs found within the mathematics curriculum can deepen pedagogical content knowledge and support purposeful planning. By gathering the gold from the curriculum, this hands-on workshop, will explore practical approaches that support the balance of planning for the 'what' and the 'how' of teaching and learning mathematics alongside delving into hints on keeping differentiation manageable.</p>	<p><b>Terri Truscott</b></p> <p>Terri Truscott is a leading teacher of mathematics at Dandenong Primary School. She has over 30-years' experience in education and has played a key role in whole-school improvement within Australia's number one most culturally diverse community. Terri is a passionate advocate for improving the teaching and learning of mathematics through the development of instructional practice, data literacy, mentoring and coaching alongside championing the power of collaborative professional learning teams. Her Monash University Master of Educational Leadership and postgraduate studies in Bastow's Unlocking Potential Principal Preparation program coupled with her experience and reflective practice have allowed her to further develop her knowledge and capacity in leading whole school improvement. Terri's involvement in the MAV Primary Maths Collaborative two year project has further reinforced her belief that high quality education provides empowerment, supports equity and leads to life-long learning.</p>

	<p><b>D4: What is the next number, and why is it important?</b>  Patterns, sequences, and why they are fundamental to primary mathematics.  In this workshop we explore the fundamental nature of patterns and sequences as building blocks for mathematical conceptual understanding. We show how conceptual understanding of patterns and sequences is central to understanding the three content strands of Measurement and Geometry, Statistics and Probability and Number and Algebra. In this session participants will collaborate in solving several problems with patterns and sequences as a focus and then they will be asked to reflect on the way they approach this important area within their planning and teaching and be challenged to ensure that it is visible in their approach to mathematics instruction.</p>	<p><b>Dr Duncan Symons and Emeritus Professor Derek Holton</b>  Duncan is a lecturer in science and mathematics education. His primary responsibilities involve preparatory teacher education in the fields of primary mathematics and science. Duncan’s research interests include inquiry, investigative and problem-based approaches. He is also interested in how mathematics can be embedded within the broader curriculum. The adoption and promotion of STEM to achieve integration has become an area of research and teaching interest, and Duncan facilitates a program for teacher candidates at the University of Melbourne with this as a focus.</p> <p>Derek is an Honorary Professor at the University of Melbourne and Emeritus Professor at the University of Otago. His current interests include working with a range of schools to promote problem solving in mathematics and an understanding of what mathematicians do. Derek provides professional development for teachers related to problem solving and the work of mathematicians.</p>
	<p><b>D5: Introducing numeracy into the early years</b>  <i>(Early childhood – Year 2 conference stream)</i>  This presentation details pedagogical practices used to introduce numeracy into early childhood learning environments, in ways which are authentic, relevant and purposeful. Documentation from a mathematical inquiry will be shared and discussed giving educators insight into how to plan, implement and assess mathematical inquiries in accordance with the Victorian Curriculum and Early Years Learning Framework. The concept of using the environment as a third educator will be discussed, in relation to the creation of play-based learning spaces. Examples of play spaces that are stimulating and inviting will be shared the ways that mathematically rich learning opportunities have been incorporated into the learning spaces will be explained. Educators will be supported to explore where authentic mathematical experiences can be embedded into their own learning environments and practical strategies that educators can utilise to set provocations that spark curiosity and encourage children into the world of mathematics will be shared.</p>	<p><b>Dianne Liddell</b>  Dianne is a co-founder and Director of Engage, Empower, Educate. She is an experienced teacher with experience across State, Catholic and Independent schools both nationally and internationally. Dianne’s experience focuses on the implementation of play-based teaching approaches into early years learning environments. 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 completed a Bachelor of Teaching/ Applied Science from Deakin University majoring in Biology and Environmental Science. She then completed a Graduate Diploma, specialising in Literacy and Numeracy Instruction. Dianne is completing a funded Educational Research project through The University of Melbourne, exploring how a pedagogy of listening illuminates student voice.</p>
<p>Keynote 2:  2pm – 3pm</p>	<p><b>E: Mathematical representations – positives and potential pitfalls</b>  Thomas spent much of his 2020 lockdown creating animations to demonstrate mathematical concepts using no words. In doing so, he thought deeply about a range of concrete materials teachers often use within their classroom. This keynote will explore a number of skills taught in primary school and the advantages and disadvantages of representing maths concepts in different ways. It will also delve into criteria to consider when determining which representations to use when teaching your students.</p>	<p><b>Tom Moore</b>  See session C3 for Tom Moore’s biography.</p> <p>Keynote sponsor:</p> 

**E: Transition to school - a story of success**

*(Early childhood – Year 2 conference stream)*

The transition from kindergarten to primary school is a momentous occasion for everyone involved. This session tells the story of one child's transition to school from the perspectives of the parent, the teachers and the child. Belinda will share helpful tips, ideas and methods to bridge the gap between kinder and school settings. This workshop is a must for kinder educators, teachers and parents.

**Belinda Johnston**

Belinda Johnston is an early years professional from Melbourne and has worked in the field for almost 20 years. Her experience ranges from the practicalities of working on the floor with children to facilitating professional conversations with managers and directors. Her particular focus is on critical reflection and it's power to strengthen practice in any area of teaching. Belinda has worked with Swinburne University, VCAA and Gowrie Victoria. She currently lectures at Holmesglen Institute.

Keynote sponsor:





## 2021 Primary and Early Childhood Mathematics Education Conference

### MEANINGFUL MATHS: MAKING MATHEMATICS EDUCATION ENGAGING FOR ALL

#### Dates

Thursday 10 June 2021

Building leadership capability in mathematics education

Friday 11 June 2021

Building capability for all mathematics educators

#### Venue

Virtual

#### Time

9am–3pm

#### Cost

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#### Contact

For information about bookings email Jacqui Diamond:  
jdiamond@mav.vic.edu.au.

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To receive the member rate, you must first be a MAV member. If you are not a MAV member and wish to attend this conference, you can join the MAV (small school discount also available). Alternatively, join as an individual member.

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