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December 2023

#### From the CEO's desk



Dear AAMT members, affiliates, stakeholders and friends,

Welcome to another edition of Highest Common Factor.

As we approach the end of another eventful year, I find myself not only reflecting how quickly the year has passed but also taking stock of what we have achieved as an organisation in 2023.

This year, AAMT achieved significant milestones that have propelled our mission to advance the field of mathematics education across the country.

We successfully delivered the first major round of funding for the "Focus on Maths" project, a transformative initiative aimed at empowering and equipping schools to make sustainable change at a local level. The project's impact has been felt far and wide, thanks to the dedication and hard work of our members and partners.

Furthermore, we proudly launched 'Strength in Numbers,' our podcast dedicated to exploring innovative teaching methods, sharing insights from experts and teachers alike, and fostering a sense of community among mathematics educators. The positive response from our community has been inspiring, and we are thrilled to announce that another season is in the works for 2024.

AAMT has consolidated and expanded its reach and influence by participating in conferences, discussions and roundtables, and contributing to national dialogues on mathematics education. Our collaborations with the Federal Government and other partners on various projects have underscored our commitment to driving positive change in the education sector.

To support our growing initiatives, we've been able to increase our staffing, ensuring that we have a talented and dedicated team working to advocate for mathematics education across the country.

Looking ahead, 2024 promises even more exciting developments for AAMT. We are thrilled to announce another round of funding for the Focus on Maths project, amplifying our impact and reaching more schools and educators across the nation. You can find more information about that later in our newsletter.

In response to the overwhelmingly positive feedback on 'Strength in Numbers,' as already mentioned, we are delighted to confirm that the podcast will return for another season in 2024. We look forward to continuing to provide valuable insights, engaging discussions and a platform for sharing best practices in mathematics education. We are always on the look out for guests for the show. If you would like to hear someone on the podcast reach out and let us know. Or, maybe, you'd like to be considered as a guest for the show!

#### **Highest Common Factor**

One of the highlights on our radar for 2024 is the potential study tour to the US and Canada. This unique opportunity will allow us to visit schools, districts and/or universities, culminating in attendance at the National Council of Teachers of Mathematics (NCTM) annual conference in Chicago. This is a great opportunity for Australian teachers, leaders and teacher educators to look at mathematics education from different perspectives with a view to sharpen and enhance our own practice here. To keep up to date on details of this study tour, complete the no-obligation expression of information form which can be found later in this newsletter. Like previous AAMT study tours, places are likely to fill quickly.

We are also exploring the possibility of bringing esteemed author and educator Peter Liljedahl to Australia for collaborative initiatives that will further elevate our efforts in advancing mathematics education.

And, of course, the major highlights in 2024 will be the arrival of the International Congress on Mathematics Education to Sydney in July 2024. If you haven't already, make sure you register for this once in a lifetime opportunity to interact with educators from across the world as we welcome them to Australia.

AAMT journals are a significant part of the life and work of AAMT. These journals would not be possible without the hard work of a number of people. To everyone who has written and submitted an article for our journals in 2023 - thank you! I extend heartfelt thanks to our journal editors Bronwyn Reid-O'Connor, Benjamin Zunica, James Russo, and Jane Hubbard, for their dedication and contributions to The Australian Mathematics Education Journal (AMEJ) and The Australian Primary Mathematics Classroom (APMC). In an effort to manage costs and maintain high-quality content, Council has decided to reduce the number of editions of each journal to three in 2024. At this point in time this is a decision for 2024 only. Council will review the decision in mid 2024. This decision is reflected in the costs of journals in 2024. We encourage our members to contribute and engage with these valuable resources.

A special thank you goes to our hardworking staff - Aditya Pal, Lavina Thomas, Denise Halliday, Brice Gardner and Jacquie Sprott. Your commitment and passion have been instrumental in our success this year.

I must acknowledge and make my gratitude publicly to the Council of AAMT for their unwavering diligence and governance, ensuring effective guidance of our organisation in 2023. To our affiliates, members, and all other stakeholders, your partnership and support have been invaluable.

As the year draws to a close, on behalf of the AAMT and Council I wish you a relaxing, restful and refreshing summer break. Thank you for your continued support, and here's to a bright and promising future for mathematics education in Australia.

Enjoy this newsletter.

Allan Dougan CEO



#### Teaching Digital Currency in the Australian Classroom - Banger High

In an increasingly digital world, Australia is recognising the importance of teaching students about digital currency. It's a complex topic, encompassing virtual currency, cryptocurrency, and central bank digital currencies (CBDCs).

As the financial landscape continues to evolve, it's essential that our students understand these concepts.

Take a closer look at digital currencies and how you can introduce the concept to your students in the article below.

#### Click here to read the article

#### North American Study Tour

We're delighted to announce that AAMT Study Tours are back! For 2024 we're planning a trip to North America aimed at both primary and secondary teachers in late September. The two week tour will include lots of exciting, instructive and fun activities, from attendance at the National Council of Teachers of Mathematics (NCTM) annual conference in Chicago, to school visits and a trip to Calgary to learn more about 'math' education across the border in Canada. There will be opportunities to hear from some leading global experts in mathematics education at the primary and secondary level and to broaden your pedagogical knowledge, professional networks and horizons.

At this stage we're asking for Expressions of Interest, which entail no commitment. It just gives us an idea of our appetite for the Study Tour and by leaving us your contact details we can get directly in touch with you once we have more information about the itinerary, costs etc.. Don't miss out on what will be a fantastic professional development opportunity!

To register your interest, fill in this quick form here.

North America here we come!

#### Strength in Numbers AAMT's Podcast

Join us as we dive into the fascinating world of mathematics education with AAMT's new podcast, Strength in Numbers.

Listen in as our host, Allan Dougan *(CEO, AAMT Inc.)*, converses with a fabulous range of inspirational guests.

Be sure to subscribe on <u>Apple Podcasts</u>, <u>Spotify</u>, <u>Amazon Music</u> or wherever you get your podcasts, if you haven't already!

**Click here to listen now!** 



#### Teacher's Day campaign

In celebration of Teachers' Day 2023, we held a competition via our Facebook page to 'tag a teacher'.

Our lucky winners were Tamara Hulands who tagged her colleague Richard Hodson. They both teach at Emmanuel College Warrnambool in Victoria and each received a \$100 voucher for our <u>online Maths Store</u>.

Tamara used her voucher to purchase <u>Peter Liljedahl's Building Thinking Classrooms in</u> <u>Mathematics</u> book. But did you know that the Mathstore also sells classroom resources and games like Footy Feud, Número and Take Sum Risks which also found their way into Tamara's cart?

If you didn't see the competition, then you probably aren't following us on our socials. We post to Facebook most days, with regular features including our 'Misconception Mondays' which explores a common maths misconception and how to help students overcome it,

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reminders and overviews of new Strength in Numbers podcast episodes as they drop and 'Easy as 123', a series that explores a range of maths teaching issues from boosting engagement, teaching money and marking a maths exam to teaching quadratic equations.

In addition, we share other content we think might interest our teachers and other followers, from relevant news in the world of maths education and interesting research to resources incorporating Aboriginal and Torres Strait Islander perspectives in maths teaching and learning. Over the coming holidays we'll be re-featuring some of our most popular posts from 2023, so if you're not a follower, now is a great time to join in! You can follow us on <u>Facebook</u>. If <u>LinkedIn</u> or <u>X</u> are more your thing, you'll find us on these social platforms too.

# maths 300

### Maths300 Newsletter Your Ticket to the Latest Updates in Maths300

We introduced the Maths300 newsletter last term, an initiative to keep users up to date with what's happening with Maths300.

Once a term we now publish a newsletter that highlights the best of Maths300 including resources and community news.

Our goal is to help you support your students to learn through inquiry, to collaborate and most of all to think like mathematicians, whilst keeping an eye on the curriculum changes happening around the country.

We published the second Maths300 newsletter early this term, and are delighted to share that the response has been exceptionally positive.

This newsletter carried handpicked activities covering both primary and secondary maths, showcased the software and highlighted a newly added resource.

#### Click here to access Term 4 newsletter

#### **Mathematics Hub**

One of the things we've been working on this term is developing some teaching resources with our colleagues at Education Services Australia, to be incorporated in the Mathematics Hub.

These particular resources will be made available some time next year, but in the meantime if you haven't visited the Mathematics Hub, it's a treasure trove of resources mapped to Australian Curriculum v9.0. There are professional learning modules, including the Maths in Schools Professional Learning and the Explicit Teaching in Maths modules, teaching and assessment resources, resources on embedding Indigenous Knowledges, planning tools, a Year 1 Number Check too and more.

All the resources are designed to support teachers and schools to teach mathematics and numeracy in engaging and informative ways that will improve mathematics and numeracy outcomes for their students. Click <u>here</u> to check out these resources.

#### Gems from the bookstore





### Numeracy Across the Curriculum

Numeracy connects the mathematics learned at school with out-of-school situations that require capabilities such as problem solving, critical judgment, and sense-making related to non-mathematical contexts.

This book provides prospective and practising teachers with practical, researchbased strategies for embedding numeracy across the primary and secondary school curriculum. Based on the authors' ten-year research program, the text explains what numeracy is and how numeracy has developed as an educational goal.

It describes in detail the five dimensions of the authors' model: attention to real-life contexts; application of mathematical knowledge; use of physical, representational and digital tools; the promotion of positive dispositions towards the use of mathematics to solve problems encountered in day-to-day life; and a critical orientation to interpreting mathematical results and making evidencebased judgements.

Featuring practical examples and case studies throughout, this book will build preservice teacher confidence, demystify common misconceptions and grounds theory into practice in this vital area of student competency.

Click here to order now!



## Challenging Mathematical Tasks: Unlocking the Potential of All Students - *Peter Sullivan*

Challenging Mathematical Tasks supports the idea that students learn best when they work on problems that they do not yet know how to solve. Peter Sullivan's research shows that many students do not fear challenges in mathematics, but welcome them. And rather than having teachers instruct them, these students prefer to work out solutions for themselves.

This book :

- includes activities that allow for sustained thinking, decision-making and risk-taking by the students,

- features a 'Learning Focus', 'Key Mathematical Language', 'Pedagogical Considerations', 'Enabling and Extending Prompts' for each task, plus 'Supplementary Tasks' and 'Possible Solutions', and

-follows a set structure to help students approach and work through the tasks.

Click here to order now!





# Join our mailing list to get the latest news

Come and be counted in Sydney, 2024!

#### Focus on Maths Update



Our Focus on Maths program is an initiative that aims to promote equity of access to maths education and improve the maths skills of students, by building capacity in maths teaching.

We're so excited to announce that we have approved grants of over \$53,000 to six schools from Tasmania to the Northern Territory and from the West to East coast of Australia and would like to thank our philanthropic partners, Origin Energy Foundation and Allen+Clarke for helping make it happen.

Our Focus on Maths schools are diverse, including a remote Aboriginal community school, a metropolitan primary school serving a mostly refugee and asylum seeker population and a cluster of a regional high school and their feeder primary schools. All our schools are from low socioeconomic areas, serving the most disadvantaged students. Our CEO Allan Dougan was excited to meet some of our Focus on Maths teachers face to face at the recent MAWA conference. [see photos below]

The projects being funded include tailored in-school professional development activities, offsite targeted professional learning courses, attendance at conferences and webinars, purchase of hands on resources and release time to support the establishment of shadowing and mentoring relationships and to enable a team of maths leaders to develop and then deliver professional learning in their own schools.

Despite their differences, all our schools share a vision and a great level of dedication to improving the maths and numeracy dispositions and outcomes for their students. Many congratulations to our Focus on Maths grant recipients - we're looking forward to working with you and seeing the results in 2024!



#### Mathematics on a Graphics Calculator - Resources by Peter McIntyre

We're pleased to present to you a treasure trove of knowledge and guidance on the basics (and beyond) of using graphics calculators for Mathematics.

The author, Peter McIntyre, a former (now retired) Maths lecturer at UNSW Canberra at ADFA, has meticulously crafted two volumes: one a comprehensive guide for the TI-84 family and another for the Casio 9860 family of calculators. Peter believes that graphics calculators are a vastly underutilised resource in high schools, colleges and universities, primarily because of insufficient guidance on their operation and the absence of adequate instructional resources.

The objective of these books is to confront this challenge by empowering teachers, offering them the necessary skills and confidence to seamlessly integrate these calculators into their teaching methodologies, thus helping them transform Mathematics into a captivating and enjoyable subject.

Peter has kindly made the books available for download (free of charge) to make life easier for teachers and students to use the calculator for maths and appreciate its full power.

Click here to download these resources.

You're welcome to send your comments, corrections, suggestions and requests for help to Peter at <u>pdmcintyre@icloud.com</u>.

#### International Mathematical Modelling Challenge



Are you looking for a different way to challenge your secondary students and help them develop and enhance their ability to visualise, understand and apply mathematics in the real-world? Perhaps you are wondering how to implement the mathematical modelling outcomes in the new curriculum?

The <u>International Mathematical Modelling Challenge</u> or IM<sup>2</sup>C might be just the activity you are looking for to get your students working collaboratively in teams, unpacking a problem, hypothesising, testing and developing a working solution, documented in a written report. The 2024 challenge runs from 13 February 2024 to 26 March 2024 and registrations are now open.

There's heaps of information about the challenge on the IM<sup>2</sup>C website, including a Teachers' Guidebook. However, if your school isn't quite yet ready to tackle IM<sup>2</sup>C, there's still lots of great information on the website to mine, such as the What is Mathematical Modelling?, Mathematical Modelling Framework and Example Problems all included in the Supporting Resources section <u>here</u>.



If you're not familiar with the GiST (Girls in STEM) Toolkit, it showcases a range of resources for teachers, students and their families.

There are links to some great teaching resources to engage and impassion all students in STEM education, incorporating rich mathematics.

Take a look at this activity that explores how many eggs a sea turtle lays in its lifetime.

Right now, GiST is running a competition called **She did what?** The competition is open to all Australian students from Years 5 to 10 and students can win \$500 for themselves and \$500 for their school. To enter they'll need to create a short video, individually or as a group, about an Australian woman in STEM.

As the year is drawing to a close, it sounds like a great way to celebrate some of our great female scientists (including mathematicians!). Entries close on 11 December 2023.

Click here to find out more.

#### **Congratulations Donna Buckley!**

#### Winner of the 2023 Prime Minister's Prize for Excellence in Science Teaching in Secondary Schools

Donna Buckley from John Curtin College of the Arts and a member of AAMT has received the Prime Minister's Prize for Excellence in Science Teaching in Secondary Schools, in the 2023 Prime Minister's Prizes for Science.

Donna inspires students with diverse, creative backgrounds by applying mathematics to realworld problems and introducing them to future career opportunities in science. Initiatives she has led include a Maths Talent Quest, which encourages students to think creatively about mathematics, and a cohort of coders at the school as part of the Perth Girls' Programming Network.

She also established an accredited cybersecurity course in Western Australia to educate the next generation about ways to make our country more safe and secure in an online environment.

Her passion for innovative ways of making mathematics and cybersecurity more engaging has had a significant impact on both science, technology, engineering and mathematics (STEM) educators and students in Western Australia.

Seen in the picture below (second from right) with Allan Dougan CEO, AAMT Inc (right), Rachel Whitney-Smith from ACARA (left) and Prof Cheryl Praeger AC (second from left) at the awards ceremony.



Thank you for subscribing to the AAMT newsletter.

Here are a few other ways to stay updated on the latest in maths education in Australia:

Follow us on Twitter <u>@aamtinc</u> for weekly maths puzzles, fun facts and news or on <u>Facebook</u>.

Connect with our <u>CEO Allan Dougan</u> or <u>Education Specialist Denise Halliday</u> on LinkedIn.

Our quarterly newsletter is delivered right into your mailbox. Past newsletters can be found on our website under the **About Us/Newsletters** section.

And if you like what you read, please tell your colleagues about us!

Kind regards, AAMT Team

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