March 2017

Highest Common Factor

Newsletter of the Australian Association of Mathematics Teachers (AAMT) Inc.

From the President

In December last year the AAMT Council and representatives from the Affiliates undertook governance training led by Steve Bowman. As a result of this training, AAMT Council has been working on the 2017–2020 Strategic Plan and has developed the following four goals:

- To contribute to the improvement of the quality of mathematics teaching to enhance student engagement and learning
- To strengthen AAMT's connections and collaboration with Affiliates
- To develop and implement an ongoing Communication Plan
- To streamline and improve AAMT's operations and management.

Greater emphasis has been put on timelines and student activities. Some are outlined below.

AAMT is actively involved in the International Mathematical Modelling Challenge (IM²C). Registrations are now open (go to www.immchallenge.org.au). This is a great opportunity for students to work collaboratively in teams to find a solution to a mathematics problem.

The Day of STEM (www.dayofstem.com.au) was a huge success last year and the results were published in the last HCF. I was pleased to receive the email below from Amira Marwan, a Year 11 student from Mentone Girls' Grammar School in Melbourne who summarises her experience:

A few months ago, my Specialist Mathematics class entered a national maths challenge (with the help of our fantastic Maths teacher) organised by Collingwood Football Club. Students were given the opportunity to take on the role of a Capologist, a relatively new position which involves the management of a sporting team's salary cap. The challenge required a sound knowledge of statistics and data analytics, which was in turn utilised to assign each player of the Collingwood team a specific salary; similar in theory to 'SuperCoach' or 'Fantasy Football'. Each of the student's results were then compared to real-life salaries managed by Collingwood Capologist, Dominic Milesi. Prizes, including behind-the-scenes tour of the Collingwood grounds, were given to those whose results were closest in value to Dominic's.

Having not heard of the 'Day Of STEM' initiative, I found this challenge to be a very interesting and unique one. I especially enjoyed creating my own 'Life Journey' profile, in which I took a personality test and found out what my strengths were, as well as a number of possible career options. As I was one of the lucky winners of this challenge, I also got the opportunity to explore the Collingwood FC grounds and learn more about the role of a Capologist. Although I am a diehard supporter of the Hawks, I found this experience to be very enjoyable and one that I would recommend to any student – regardless of their degree of interest in the AFL.

It is wonderful news that Renée Hoareau, who managed the Connect with Maths project for AAMT, has been appointed as *Director of Education and Engagement* for LifeJourney, the company which supports Australian schools to implement Day of STEM programs in the classroom. If you wish to learn more or wish to contact Renee about the Day of STEM platform, email Renee at renee@lifejourney.us. The Day of STEM *Women in STEM* program will be launched on Tuesday 21 March and the following month will see the *Cybersecurity Experience* off and running. Register online at www.dayofstem.com.au.

Another student activity, run by AMSI, will involve the showing of *Hidden Figures*, a 'must-see' new release blockbuster. The film is about women who cross all gender

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and race lines to serve as the brains behind one of the greatest operations in history—the launch into space of astronaut John Glenn. AMSI is running special screenings for Year 10–12 female students and their teachers around Australia in March. Go to http://teachers.choosemaths.org.au/hiddenfigures.

In April this year, the Careers with STEM website (https://careerswithstem.com) will include a section on careers in mathematics. The website and quarterly magazine have been created to inspire students to pursue STEM careers. It includes useful statistics around employment, salaries and degrees.

The *reSolve: Mathematics by Inquiry* project is progressing very well. A series of applied mathematics lessons including a number of special topics are under way, including ones involving algorithms. At the moment, the project is looking for Champions—classroom teachers, principals and others from around Australia to learn about and promote the use of project resources; find out more at www.aamt.edu.au/resolve.

I have been invited to be on the Expert Advisory Panel for the National Year 1 Literacy and Numeracy Check. The reform aims to ensure that students who are behind in their schooling are identified early and can receive the extra support they need. The panel will undertake consultations with teachers and relevant education experts.

These are exciting times for mathematics educators. With the increased focus on Australia's performance in the Mathematics–Science areas, it seems that governments at both the State and Federal level may become more focussed on the needs of educators at the front line.

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Engaging Local Leaders Initiative (ELLI)

Building on the work of the Towards Empowering Mathematics Professional Encompassing Science and Technology (TEMPEST), a collaboration between AAMT and the University of Tasmania, this initiative will bring high quality professional learning to teachers, with the help of our affiliated associations and other providers.

The TEMPEST Implementation Officers will assist school leaders to be deliverers of relevant professional learning modules from Dimensions in their own schools. The officers will present a face-to-face workshop where the leaders will be introduced to the Dimensions materials and ways to use them effectively, including practical advice about how to read and use the Facilitator's Guide. Following this workshop, the officers will be available, at distance, to support the leaders in facilitating the subsequent sequence of professional learning. When completed, the officers will conduct a debriefing and feedback session on the support documentation and processes.

Interested? Contact Kate Manuel, Manager National Projects at kmanuel@aamt.edu.au for further information.

ASMJ Editor(s)

Expressions of interest are sought for the position of Editor(s) of *Australian Senior Mathematics Journal* (ASMJ). Editors work in conjunction with AAMT staff to produce two issues at regular intervals each year. The appointment will be for 2018–19 with a handover period later this year. Expressions of interest (please include a brief CV) or any inquiries should be directed to Will Morony (CEO, wmorony@aamt.edu.au, 08 8363 0288. Submissions close 1 June.

Maths Inside

Bees with backpacks? A square kilometre of telescopes? What's a Zebedee? The Maths Inside project, a collaboration between the University of Technology Sydney, AAMT, and CSIRO, takes you into the lives of scientists and the mathematics that they use. Each module (and there will be eight in total) is based around a short video featuring scientists involved in cutting-edge research. The scientists explain the mathematics that they use every day in their work, mathematics which ranges from simple number operations to very sophisticated concepts. There are different pathways that lead to their careers, but all share a passion and commitment about the importance and wonder of mathematics.

The videos are accompanied by classroom materials suitable for students in Years 8 to 12. The activities are designed to be engaging and open-ended, with most having substantial investigative elements.

If you are interested in trialling the modules, please contact the Maths Inside Project Manager at marco.angelini@uts.edu.au.

From the CEO

Consider this: Nine am on a warm January morning. A lecture theatre at the Australian National University in Canberra. Around 70 boys and girls aged 15–17 plus about a dozen adults. Dr Norm Do begins a lecture on number theory by recapping some previous results with modular arithmetic. He moves on to continued fractions and Diophantine equations, detouring into some history. Along the way he talks about the fascinating way in which applications of mathematics flow in unpredictable ways as a result of the creativity and imagination of mathematicians. I am personally fascinated and enjoy it all immensely. So it seems are the students, although their attention is probably sharpened by knowing that they will later need to use the ideas presented to solve problems in tutorials.

Welcome to the National Mathematics Summer School (NMSS—insiders call it 'Nemesis' which reflects the sound of the acronym, but makes no real sense, at least to me). Every January since 1968 a similar group of students nearing the end of secondary school have gathered at the Australian National University for two weeks to learn interesting, challenging mathematics. It is a stimulating environment in which students from around the country mix with others who have similar interest and aptitude in mathematics. There is also a social program that further strengthens the bonds between attendees. Indeed, a few years ago I met a couple of ex-students who met at the NMSS and subsequently married!

The NMSS has been conducted under agreement between AAMT and the ANU for the last five decades. In fact, the forthcoming 2018 NMSS will mark its 50th anniversary which is really something worth celebrating. It is my understanding that the NMSS is the longest-established of all the student summer schools held in this country, and having an unbroken run of 50 years is testimony to the commitment and plain hard work of many volunteers over the decades.

Leon Poladian has been a stalwart staff member over 25 years. During the 1990s he was a Tutor and Lecturer and became Deputy Director in 2000. He has continued as a Lecturer ever since. In 2013, he became only the third Director of the NMSS (after Larry Blakers and Terry Gagen). Personal circumstances have resulted in Leon indicating that he wishes to step down as Director for the 2018 school.

I am sure that all former students will join mathematics educators across the country in sincerely thanking Leon for his many contributions over such a long period of time. A formal recognition of Leon's work on the NMSS will be able to be incorporated in the 50th anniversary celebrations, so please stay tuned.

Leon Poladian's impending departure means that the NMSS will be seeking to appoint its next Director. AAMT and ANU will be calling for Expressions of Interest in the near future and hope to have the next Director in place for an effective handover of responsibilities.

Will Morony
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AAMT 2017: Capital Maths conference

Where can you hear inspiring speakers, network with colleagues from all around the country as well as overseas, and discover the latest research in mathematics education?

The AAMT 2017: Capital Maths conference is an exceptional opportunity to do all of this, plus more. Enjoy the President's reception, an excursion to Questacon, and the cultural delights that our capital can offer.

Our very special guest, Dr Peter Neumann (Oxford University), son of Hannah and Bernhard, will deliver the Hannah Neumann Memorial Lecture on Tuesday 11 July. Our other keynotes are of equal distinction: Professor Chris Franklin from the USA, and homegrown Australian educators, Dr Rhonda Faragher and Dr Chris Wetherell.

Join us in Canberra from Tuesday 11 July – Thursday 13 July. It might be chilly in the capital but it will definitely be a capital event!

Offers to present and written papers for the proceedings are due on 31 March (note that this has been extended from the 1 March date on the flyer).

For more information and to register go to www.aamt.edu.au/go-aamtconference.

capital MATHS

Annual General Meeting and proposed change to Constitution

AAMT's Annual General Meeting will be held at 4 pm on 22 April 2017 at the AAMT office (Building D, 80 Payneham Road, Stepney SA 5069).

The business of the AGM, as outlined in the Constitution, shall be:

- confirm the minutes of the preceding AGM
- President's report for 2016
- financial report for 2016
- Auditor's report for 2016
- appoint an Auditor for 2017
- Chief Executive Officer's report for 2016
- alter the Constitution of the Association
- elect the President Elect
- other business.

Notice is also given of a motion to change to the AAMT Constitution. That the words:

> *3.1 Provide a coherent representative voice and advocate in government and policy forums on behalf of mathematics educators in Australia, for the purpose of advancing their professional standing.*

be changed to

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i.e., that "for the purpose of advancing their professional standing" be removed. The reason for the proposed change is that the Australian National Charities Commission has advised that those words may compromise the Association's charity status.

The current AAMT Constitution is available at www.aamt.edu.au/About-AAMT/Constitution.

All current individual and life members or nominated persons (of an institutional member) are entitled to vote or may nominate, in writing, a person to vote by proxy. Should you wish to vote by proxy, it is suggested that members contact their AAMT Councillor (see www.aamt.edu.au/Contact/Council).

If you have any questions about the Annual General Meeting, please contact your AAMT Councillor or the AAMT office (08 8363 0288, office@aamt.edu.au).