

Highest Common Factor

March 2018



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

From the President



I would like to thank the current Councillors for all the work they have done this year, especially David Shigrov (MASA) and Karen McDaid (MANSW) who will be leaving Council this year. Jurek Paradowski (CMA) will be the President for the next two years and I will be the Immediate Past President. Rom Cirillo (MAWA) will be finishing his term as Treasurer and a new Treasurer will be elected at the AGM in April in Adelaide. Will Morony will be retiring at the end of June and Duncan Rayner will be taking over as the new CEO. We will be celebrating the work Will has done in April this year.

The Prime Minister's Prizes for Science are Australia's most prestigious and highly regarded awards for outstanding achievements in scientific research, research-based innovation and excellence in science teaching. For the first time, mathematics teachers are eligible to be nominated for the Excellence in Science Teaching awards and Jurek Paradowski will be representing AAMT on the awards committee.

The Science Teaching Prizes (two prizes, one for primary teachers and one for secondary teachers) awards \$50 000 to a teacher who has made an outstanding contribution to science, mathematics or technology education. Nominations for the prizes opened on 21 February 2018. More information is available at www.science.gov.au/community/PrimeMinistersPrizesforScience.

It is wonderful that Eddie Woo (as a maths teacher) has been recognised for his efforts in mathematics education by receiving the 2018 Australian Local Hero award on Australia Day. There are many more teachers and consultants doing amazing things with thousands of teachers and students. In the reSolve project, for example, there are another 300 or so teachers from around Australia being trained as Champions. In April this year they will undertake a two day workshop entitled "Transforming school mathematics in Australia: Leading Cultural Change". You can access the professional learning modules, classroom resources and special topics at www.resolve.edu.au.

The outpouring of affection for Leon Poladian who passed away

on 13 February was very inspiring. Leon was recognised with an AAMT Distinguished Service Award for over 25 years of service to the National Mathematics Summer School, most recently as Director until 2017. Will Morony said that one of his legacies is the hundreds of students who have been inspired in mathematics from attending the NMSS. Terry Gagen was the Acting Director of the 2018 Summer School, and the newly formed NMSS Advisory Board has appointed Ben Burton as Director



Leon Poladian receiving his Distinguished Service Award in July 2017

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for the next three years. Ben is a mathematician who enjoys working with ideas from computer science, and his main interest is in computational geometry and topology. He is currently a Professor in the School of Mathematics and Physics at the University of Queensland.

Our last Council meeting was held in Melbourne at the MAV office. The AAMT Council had the opportunity to meet with the MAV Councillors to discuss issues and share

information. It is pleasing to note the considerable energy devoted to building the relationship between AAMT and its affiliates. Most of the Memorandums of Understanding between AAMT and the affiliates have been signed off and hopefully all the MoUs will be signed before AAMT's Annual General Meeting in April. In addition, the CEOs of AAMT, MANSW and MAV and the Executive Officer of MAWA have recently instituted regular catch-up

conversations by teleconference.

Despite relinquishing the position as President of AAMT, I still look forward to working closely with all of you in the future. It has been a privilege and an honour to have held this position and a memory I will cherish.

Allason McNamara

President

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From the CEO



During 2017, AAMT worked with Pivot Professional Learning to pilot the use of some mathematics-specific questions as an optional component in their process for teachers and schools to obtain student feedback on their classes. In return for AAMT promoting their services and recruiting schools into the pilot, Pivot undertook to provide AAMT with reports on the data for each of semester. There are some interesting and encouraging results.

First, however, the caveats. The sample sizes for both semesters were small (76 teachers in Semester 1, rising to 131 at the end of the year; corresponding to 2812 and 4612 students respectively). For statistical reasons, therefore, it has not been possible to break down the information by state or territory, sector, etc. It is also important to note that this is a self-selecting sample of schools.

The mathematics-specific questions focussed on students' sense of the value of mathematics and being successful in the subject. In both semesters the students responded very positively to these items. It seems, therefore, that the views of the vast majority of the students who responded align with what

their teachers think about mathematics and its learning.

In both semesters, the students rated their mathematics classes at least as well, and often more highly, than other subjects across the questions asked. To quote the confidential report provided to AAMT Council, there was a "higher aggregate performance for teachers of maths classes than non-maths classes. This pattern was repeated across most subgroups of teachers (i.e., year levels)."

Further, when the results were compared over time "teachers in maths classes demonstrated improvement between Semester 1 and Semester 2 in almost all areas." In other words mathematics teachers work hard to do better. This contrasts with the Pivot finding for other teachers—overall, they did not improve from one semester to the next.

Pivot were also able to report on specific differences between students' responses for mathematics classes and other subjects. In general, students in the first semester reported that their mathematics classes were more 'on task' than other subjects; that their mathematics teacher was more likely to use different strategies to help students learn; and that they felt

clearer about how they are going in mathematics compared with other subjects.

In Semester 2 the areas of relative strength were around the teacher's knowledge, an emphasis on thinking rather than just giving answers and clarity of expectations.

All in all I think this is a pretty good 'report card' for the teachers involved! It provides some evidence to counter the put downs suffered all too often by mathematics teachers.

Everything is not rosy, however: there were some areas in which mathematics classes did not fare quite so well. Among these in Semester 1 were questions around students expressing their ideas and explaining their reasoning; for Semester 2 it was more to do with engagement and reviewing learning.

These are pointers (at best) to things the teacher involved can work on. Interestingly, those areas are among the foci of the reSolve: Mathematics by inquiry project—and the revised website (www.resolve.edu.au) makes it easier for you to have a look and get started engaging with that project.

Will Morony

Chief Executive Officer

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Online resources

AAMT has been involved in the development of a number of varied online resources over time—some of which may have been lost or forgotten! Below is a quick reminder of just some of the online resources available to mathematics educators.

Dimensions

AAMT's new professional learning site: download powerpoint slides and handouts; use online tools to track your learning; network with other educators.

<http://dimensions.aamt.edu.au>

Top Drawer Teachers

Big ideas, common misunderstandings, examples of good teaching, assessment ideas, and student materials on a variety of topics.

<http://topdrawer.aamt.edu.au>

Make It Count: Maths and Indigenous Learners

A site to support schools with pathways, strategies, tools and resources to improve the mathematics and numeracy outcomes of Aboriginal and Torres Strait Islander learners.

<http://mic.aamt.edu.au>

Photo Maths

A collection of photos with accompanying mathematical activities and investigations.

www.aamt.edu.au/digital-resources

TLF Units of Work

A collection of units of work for a wide variety of year levels that were developed by teachers from around Australia. Units can be downloaded as Word documents and topics include time, arrays, fractions, area and perimeter, and more.

www.aamt.edu.au/Better-teaching/Classroom-resources/TLF-units-of-work

reSolve: Mathematics by Inquiry

A national program run in conjunction with the Australian Academy of Science that provides resources (Foundation to Year 10) to help students learn mathematics in innovative and engaging ways.

www.resolve.edu.au

AAMT policies and position statements

AAMT has written policies and statements to help guide schools and educators on a wide variety of topics.

www.aamt.edu.au/About-AAMT/Position-statements

Maths300

A subscription website hosting a collection of interesting and successful mathematics lessons. Maths300 lessons are highly accessible to a broad range of students, featuring low floor, high ceiling tasks.

www.maths300.com

AAMT journal articles

AAMT has a growing collection of free articles from its three journals—*Australian Primary Mathematics Classroom*, *The Australian Mathematics Teacher*, *Australian Senior Mathematics Journal*—available for download.

www.aamt.edu.au/Journals/Sample-articles

Mathematics education discussion list: discuss@aaamt.edu.au

An email discussion list that has been going for over 20 years now!

www.aamt.edu.au/Communities/Discussion-list

AAMT's webshop

Books, manipulatives, software and more. Shopping for a resource? Try AAMT's webshop!

www.aamt.edu.au/Webshop

News from reSolve: Maths by inquiry

The new and improved reSolve website (www.resolve.edu.au) has been released. It is now easier to find the great resources being developed by the project. Unfortunately, due to a technical issue, any current users will need to register again before downloading the resources—the reSolve team sincerely apologises for the inconvenience.

The latest reSolve newsletter is also available at www.science.org.au/news-and-events/newsletters/resolve/february-2018.

Mathematics education events calendar

Besides listing national and international events on its website (see www.aamt.edu.au/Events), you can now add AAMT's Mathematics Education Events Google calendar to your electronic calendar of choice. Go to www.aamt.edu.au/Events/Subscribe-calendar to get your fill of professional learning events!

AAMT 2019 conference

AAMT's next biennial conference will be held 9–11 July 2019 in Brisbane. Make a note in your diary now; more details will be available later this year.

E-news

All members automatically receive AAMT's fortnightly email news updates, however, anyone is welcome to subscribe to this list. If you would like to receive these emails directly (instead of perhaps having them forwarded by a colleague) then sign up online at www.aamt.edu.au/News or contact office@aaamt.edu.au.

Annual General Meeting

The Annual General Meeting of the association will be held at 4.00 pm on Saturday 21 April 2018 at the AAMT office, Building D, 80 Payneham Road, Stepney SA.

The business of the meeting (as outlined in AAMT constitution) will be to:

- confirm the minutes of the 2017 AGM;
- receive the President's report;
- receive the Association's financial report and Auditor's report for 2017;
- appoint an Auditor for 2018;
- receive the Chief Executive Officer's report for 2017;
- elect the Treasurer 2018–19 (if more than one nomination is received);
- accept proposed changes to AAMT regulations;
- any other business (please contact your Councillor if there are matters you wish to have discussed).

Under AAMT's constitution (adopted in 2012), all individual members, life members and nominated persons of institutional members are entitled to vote (either in person at the meeting or by proxy).

Councillors

If there are any matters you wish to bring to the attention of the AAMT Council, please contact your local State/Territory Councillor. A list of Councillors is available at www.aamt.edu.au/Contact/Council.

AAMT catalogue

Included with this copy of HCF is AAMT's catalogue of resources available for sale—but why should you buy resources from AAMT? Members receive a 20% discount on all goods sold by AAMT. However, by choosing to purchase your resources through AAMT, you help fund the association and its activities—allowing the organisation to continue to support and advocate for mathematics educators all over Australia. And while there are many good resources available 'out there' from many different sources, you can be sure that AAMT's professional staff have selected only quality resources! If you have found a great resource, then please let the AAMT office know about it so it can be considered for the catalogue. AAMT is also looking to revamp its webshop so that shopping online is easier and more informative!

New NMSS Director

The Advisory Board of the National Mathematics Summer School is pleased to announce the appointment of Professor Ben Burton as Director for 2019–21. Prof. Burton is from the School of Mathematics and Physics at the the University of Queensland. He has been involved with the NMSS as a tutor and lecturer for many years, so is well acquainted with the school and many of the people involved. Ben's other contributions to inspiring our next generation of mathematicians and computer programmers include involvement in both the Mathematics and Informatics Olympiads—as Australian Director of the latter for its first ten years.

Change to postage charges

AAMT endeavours to keep postage charges for orders of resources to a minimum. Recent increases to costs mean that AAMT has revised its postage charges as follows:

- 1 item \$10.00
- 2–3 items \$14.00
- 4–6 items \$18.00
- 7–10 items \$24.00

Orders with 11 or more items will be contacted with a freight charge before the order is processed.

New AAMT journal editors

AAMT Council has appointed new editors of both *The Australian Mathematics Teacher* and *Australian Senior Mathematics Journal*. Margaret Marshman (University of the Sunshine Coast) is the new editor of the AMT, and Rob Lewis (University of Tasmania) and Tim Bond (Gleeson College, SA) are the ASMJ editors. Lorraine Day is continuing as editor of *Australian Primary Mathematics Classroom*.

The editors of all the journals would welcome articles—of research, classroom stories, teaching ideas, resource reviews, interesting classroom mathematics, etc. Contact information for all the editors and information about submitting papers is available on the AAMT website at www.aamt.edu.au/Journals.

AAMT Council sincerely thanks the retiring editors—Maree Skillen from AMT and Jill Brown from ASMJ—for their work. AAMT journals are a major contribution to mathematics teaching in this country. We are all indebted to past and present editors for their commitment and contributions.

The Australian Association of Mathematics Teachers (AAMT) Inc. is a federation of:

Canberra Mathematical Association (CMA)
Mathematical Association of New South Wales (MANSW)
Mathematical Association of South Australia (MASA)
Mathematical Association of Tasmania (MAT)

Mathematical Association of Western Australia (MAWA)
Mathematical Association of Victoria (MAV)
Mathematics Teachers Association of the Northern Territory (MTANT)
Queensland Association of Mathematics Teachers (QAMT)