

2022 MAWWA ANNUAL REPORT





CONTENTS

MAWA 2022 ANNUAL REPORT

Message From the President	4
Reflection From the Executive Officer	5
Student Activities	
Have Sum Fun Face-to-Face	6
Have Sum Fun Online	7
Have Sum Fun Live	8
Maths Empowering Girls Day	9
Maths Talent Quest	10
WA Mathematics Summer School	12
National Mathematics Summer School	13
WA Mathematics Problem Solving Program	14
Other Reports	
WA Annual Maths Conference	15
Memberships	16
Social Media Advertising	17
Publications	18
Professional Learning	19
Outreach Report	20
Office Report	22
MAWA Maths Expo	23
Maths Active Schools	24
Financial Overview	25
Our Partners and Sponsors	28
Organisational Structure	29

MESSAGE FROM THE PRESIDENT

DR JOHN WEST

I am delighted to report that MAWA recorded another strong financial performance in 2021, despite the continued challenges of the operating environment. Fortunately WA's hard border meant that almost all of MAWA's face-to-face events were able to proceed as scheduled, and we are very thankful to the students, teachers and parents whose attendance contributed to the success of our events in 2021. MAWA's operations were also boosted by increased demand for MAWA Professional Learning and resources from the Maths Store.

Sadly MAWA farewelled Office Associate Holly Hughes at the end of 2020. We wish Holly all the best in her new role. The Western Australian Problem Solving Program also reached an end of era in 2020, with program originator Dr Nathan (Norm) Hoffman deciding to 'pull up stumps' at the end of the year. Norm has taught into the program since its inception in 1992 and we will endeavour to grow and expand his vision for the program in years to come. Ms Quita Berry, also a long-standing teacher in the program, retired at the end of 2020, and we wish to thank both Norm and Quita for their many years of service.

To support our ever-expanding range of student activities, 2021 saw us welcome on board Mr Tom Love as MAWA's Student Activities Coordinator. We were also delighted to have Mr Murray Wallis join the team, initially to provide administrative support for the student activities portfolio. Murray's extensive IT experience and his willingness to share has also enabled MAWA to gradually expand the IT capabilities of our office team. For MAWA this means that work that would previously have had to be outsourced can now be completed internally.

It was quickly apparent that MAWA's investment in added support for student activities and IT was very timely, particularly with the added challenges of working from home and Covid restrictions. I am very proud of the

way the team pulled together to continue to provide the high level of service that MAWA is rightly known for.

As we continue to navigate these difficult operating conditions, MAWA has renewed its focus on delivering high quality student activities, professional learning and resources. At the same time, we are excited to be continuing to support growing numbers of teachers and students around WA through our outreach program. We are thrilled to be adding Jennifer George (North Metro), Belinda Miller (Peel), and Ngaire Satre and Brandon Docking (Pilbara) to the growing network of MAWA regional ambassadors. We welcome you all and look forward to working with you in 2022.

On behalf of MAWA, we thank you for your continued support in achieving our shared vision of a WA community that understands and values mathematics.



John West
President

REFLECTION FROM THE EXECUTIVE OFFICER

PAULA MCMAHON

As I begin to reflect on 2021 many things come to mind about the state of play in Western Australia. These include how things can change at a moment's notice, new words have entered everyday conversation, virtual meetings are the norm and not the exception. How fortunate we have been in WA and how incredibly resilient educators are.

2021 saw many of our events being held when scheduled. These include Have Sum Fun Face-to-Face, Maths Expo, Outreach visits, WA Maths Summer School, and the WA Annual Maths Conference. Unfortunately, Maths Empowering Girls Day needed to be postponed from June to November.

The board and staff continue to work towards achieving the targets set out in the 2020 – 2023 strategic plan. It has been pleasing to see the number of MAWA institutional members return to the 2019 number after declining substantial in 2020. There has been a large increase in pre-service teacher and family memberships in 2021.

We have continued to work to fine tune the IT infrastructure throughout 2021. It is pleasing that we are now able to complete much of the work in-house and this has had a flow on effect on the finances. Our aim in 2022 is to integrate the client management system and Have Sum Fun Online whilst having local on-site support and training. MAWA has applied for an edu domain and we look forward to updating our email addresses in 2022. This will ensure that sector firewalls are less likely to consider our emails and communications as spam.

In 2021 MAWA appointed a part-time Student Programs Coordinator, Tom Love. Tom's commitment and enthusiasm saw the numbers of participants in our student activities increase. MAWA certainly benefited with Tom's affiliation with The Australian Maths Trust, and this was most evident with AMT mathematicians keynoting at the WAMPSP presentation evenings.

Our professional learning calendar is always kicked off with a January workshop and we are delighted that MAWA Life Member, Dr Paul Swan, supports us with this workshop. We trialled a year-long spaced PL on multiplicative thinking which proved very successful for the attendees and their schools. MAWA continues to offer a variety of face-to-face and virtual workshops using a WA and interstate presenters.

The WA Maths Problem Solving Program (WAMPSP) will celebrate being 30 in 2022. With reaching this milestone Dr Norm Hoffman, WAMPSP Founder, retired and his passion and dedication to the program was celebrated at the December presentation evening. The Australian Maths Trust continued to support the WA Maths Problem Solving Program and we thank them for their continued support.

I am very fortunate to work with a wonderful staff and cannot thank them enough for all they have done to help the Association thrive during another difficult year. The MAWA Board have ensured that together we continue to work towards our mission: A Western Australian community that understands and values mathematics.

In conclusion, I would like to acknowledge the many individuals whose faces are often not seen but their contribution is massive. These include: Have Sum Fun Face-to-Face coordinators, MCs, supervising teachers and markers, Maths Talent Quest judges, conference committee members, exhibitors, presenters and bag preparers, National Maths Summer School committee members, sharers of social media, proof-readers, authors and our amazing members. I would like to thank the executive committee of John West, Rom Cirillo and Shannon Taylor for the support throughout the year.



Paula McMahon
Executive Officer

STUDENT ACTIVITIES

HAVE SUM FUN FACE-TO-FACE

JACK BANA

Four separate competitions were conducted in March, as in previous years, for teams of six, as follows: Years 5-6, Years 7-8, Years 9-10 and Years 11-12. An additional Metropolitan venue was established for each of the Years 7-8, 9-10 and 11-12 competitions. In all, there were 18 competitions held at 13 venues – five of which were outside the Metropolitan area. A total of 370 teams participated, compared to 300 teams in 2020.



YEARS 11 - 12 COMPETITION, BUNBURY



YEARS 7 - 8 COMPETITION, KARRATHA SHS



YEARS 7 - 8 COMPETITION, BUNBURY

STUDENT ACTIVITIES

HAVE SUM FUN ONLINE

JACK BANA

The schedule was changed for the first time, so that there was no HSFOL in Term 1, which was reserved for the HSF Face-to-Face competitions. The schedule for Terms 2&3 remained the same as follows: Term 2, Years 5-10; Term 3, Years 3-10. In Term 4 the competitions were run for all Years 3-10; so that there was an extra competition for Years 3&4; and one for Years 5&6, instead of being normally held in Term 1. There was a one-third increase in numbers over the previous year, with a total of 1283 teams. However, it was noted that a very small number of high schools entered teams.

Individual competitions ran alongside the team competitions for this second year. While there were 262 entrants in 2020, there were only 221 entrants over all competitions in 2021. Numbers were small and not really viable, but It was decided to run them all again in 2022, before deciding if some competitions needed to be cancelled.



HSFOL WEBSITE



HAVE SOME FUN ONLINE CERTIFICATES

STUDENT ACTIVITIES

HAVE SUM FUN LIVE

TOM LOVE

Have Sum Fun LIVE was a pilot project concept that follows the same format as the long-running face-to-face competition. In 2021 we held it through live video conference hosted from the MAWA Office. To ensure maximum participation for the trial schools in regional WA, they were given complimentary entry.



The event was held during school hours as the evening format for regional schools is logistically challenging – to the point of impossibility for many.

All competitions were held simultaneously, with 12 teams competing from four schools in the 5-6 competition. 6 teams competing from two schools in the 7-8 and 6 from those high schools in the 9-10 competition as well.

PARTICIPANTS:

- Mount Barker, North Albany, Wagin (Great Southern)
- Bunbury Baptist College
- Tambrey Primary School (Pilbara)

The feedback from schools was very positive as indicated from the HoLA at Mount Barker Community College. “Thank you for organising this. After the event I announced the winners over the PA system. The students really enjoyed the event and were very excited.”

Our plan for 2022 is to grow Have Sum Fun Live so that more regional schools can participate to ensure they can get a taster through the live format, for what makes Have Sum Fun such a successful evening of maths quizzing.

STUDENT ACTIVITIES

MATHS EMPOWERING GIRLS DAY

SHANNON TAYLOR

The Maths Empowering Girls Day continues to be a well-attended event that is also gaining popularity amongst WA schools and was an enormous success in 2021. With 240 girls attending and sponsorship from School of Education/PL Hub Curtin University, Penrhos College, and Spudshed Morley, we were able to keep costs to schools to a minimum. We also wish to acknowledge and give thanks to our first ever shirt sponsor, IETPL - the home of Numero. Each year we provide a shirt to every girl attending. The shirt is a mirrogram shirt designed by the very talented Andrew Lorimer-Derham from Think Square, and it says, "Like a girl" on the front. However when you look in the mirror it says, "Like a Boss". These shirts are very popular with the girls and encompass the meaning of Maths Empowering Girls Day.



M.E.G DAY SHIRTS

The focus of the day is to engage Year 9 girls with university and industry professionals involved in STEM or mathematics. The girls participated in four hands-on workshops. Penrhos Year 12 Maths Mentor Captains Nahyun and Aleta introduced the day by explaining the history of this day. Our keynote speakers Renee Gardiner, Principal – Directional Studies, BHP Iron Ore and Cheryl E Praeger AC, Emeritus Professor of Mathematics, University of Western Australia provided an insight to how mathematics is used in their careers.

The overall feedback was very positive, and included some suggestions for improvements for 2022. We have met with Curtin University representatives to share feedback.



Year 9 Student Comment:

Maths is often overlooked, but it is a bridge to many subjects, and without it, we wouldn't be anywhere.

Year 9 Student Comment:

You are smarter than you think, and women are completely capable of doing the same jobs as men.

We would like to thank the many volunteers who made the day a huge success. Curtin organised a large group of volunteers who were shuttling and supporting the students and teachers from every school, throughout the day.

Due to the overwhelming success of Maths Empowering Girls Day in November, and after consultation with stakeholders (Curtin and the attending schools) we have moved the 2022 event to November as well.



Independent Education & Training Pty Ltd
The home of Numero®

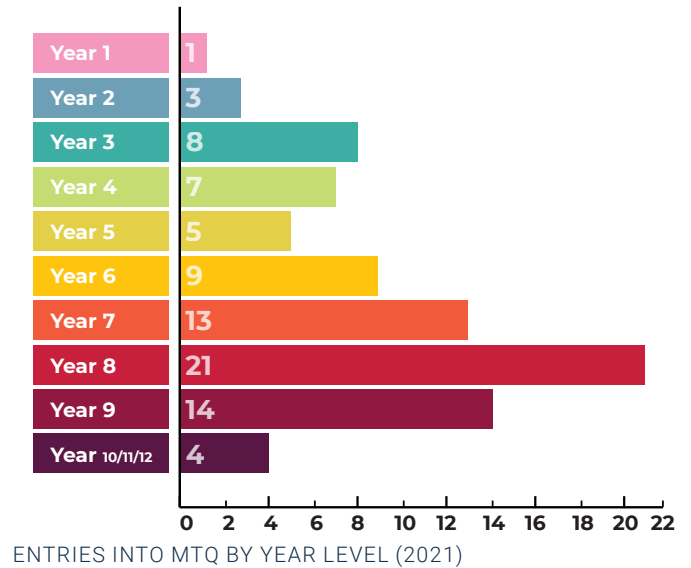


STUDENT ACTIVITIES

MATHS TALENT QUEST

DONNA BUCKLEY

The focus of Maths Talent Quest is on the process of mathematical investigations and models. Once again in 2021 the MTQ was impacted by obstacles, however, the level of entries was outstanding. The number of entries increased from 47 in 2020 to 85 in 2021, which is nearly back to pre-pandemic numbers. The increases were seen in both primary and secondary school entries, however, the number of schools participating increased by one.



2021 MTQ RESULTS

Fairness and Equity Information

- Low ICSEA schools are well represented in the state and national quest
- Digital entries ensures that location within WA is not a barrier for students or teachers
- The 12-week time framework encourages deep slow mathematical thinking
- Individual, group, and class entries encourages supportive inclusive mathematical learning environments
- Relevant to learners as topics are selected by the students

Outstanding school in 2021 was Ashdale Primary School.



Again in 2021 National Maths Talent Quest (NMTQ) judging was hosted by MAWA with entries from nearly all Australian states and territories. We would like to thank the state coordinators and the many judges. We congratulate the following who were national winners:

Year 1 Class
How big is my soft toy? – Ashdale Primary School

Year 4 Class
Fluffy fun with pom poms – Coolbellup Community School

Year 4 Group
What size popcorn is the best value? – Ashdale Primary School

Year 8 Group
If the Moon were made of cheese – Mount Lawley Senior High School



MAWA would like to thank John Curtin College of the Arts for hosting the 2021 MTQ Presentation, the teachers and MAWA members who judged and Allan Dougan, AAMT CEO and Lauren Beams AAMT President who joined us for the virtual presentation.

WIDTH AND LENGTH OF PARTS OF MY SOFT TOY

- We used our knowledge of how to measure accurately and effectively to measure parts of our soft toys. We went to the measurement shop to choose our units for measuring.

ENTRY FROM ASHDALE PS - YEAR 1

FINDINGS

Based on my experiment results:

- I found that shooting at 45° went the furthest. Had the largest min and max distances.
- I found that shooting at 20° was better than shooting flat at 0° but not as good as shooting at 70°
- I found that shooting straight up at 90° was the worst and sometimes went backwards.

ENTRY FROM NORTH HARRISDALE - YEAR 2

Results

Angles	Min	Max	Median	Mean
0°	826	1543	1124.5	1185.6
20°	1140	1701	1461	1431.7
45°	1700	2321	1901.5	1949.4
70°	1595	2096	1910.5	1871.8
90°	-185	440	206	190.8

Measurements in Centimetres (cm)

Analysis of the Predictions

- Most students in the school predicted that the template with the largest inner circle would make the largest pom pom.
- More than double the number of students voted for the large inner circle over the small inner circle.
- Just one more than double the number of students voted for the small inner circle over the medium inner circle.
- People who did not know was only two fewer than the number of people who voted for the medium inner circle.
- Only four people voted that they would all be the same size. It was the least amount.

ENTRY FROM COOLBELLUP COMMUNITY SCHOOL - YEAR 3/4

Pitch/Aim/Question

We want to find out how much would it cost to build and run a successful, sustainable ice-cream truck for a summer? We aim to find out where the van would make the most profit, from selling ice-creams. Our group will conduct a survey, asking 50 people what their favorite ice-cream flavor is. This will determine what flavors we have must stock up on. Also, we will find out the volume of a single average scoop to find out how many tubs of ice-cream we would need to buy, based on the popularity of the flavor. We will factor in the costs of equipment, insurance, permits, tax and the vehicle to see how much profit would be made.

ENTRY FROM CARINE SHS - YEAR 7

CALCULATIONS

The Arctic sea ice is decreasing at 13.1% per decade. The current sea ice mass is 7.95 million m³.

So at this rate, $(7.95 \times 0.131) = 1.04$ million km³ will disappear in the next decade.

The loss of reflection therefore will be $(1.04 \text{ M} \times 381) = 396$ less Megawatts reflected.

A Stanford mirror could increase reflection from 70% to 97%

The reflection from sea ice is at 70% = 381 Megawatts per km². The reflection from a Stanford mirror is 97% (= 0.97). If the mirror was in the Arctic, it would reflect 97% of 548 Megawatts per km² of sun energy (544 x 0.97 = 528) which equals 528 Megawatts per km². This could be an increase of 153 Megawatts per km² (544 - 381) of energy.

ENTRY FROM FREMANTLE COLLEGE - YEAR 7

Here I have taken the average percentage increase from the last ten years and multiplied it to the price of a Bitcoin this month and kept on repeating for ten years

Month & year	Method	Future price of 1 Bitcoin
Jun-21		\$18,050,720,025
Jun-20		\$3,596,014,246
Jun-19		\$906,861,607
Jun-18		\$273,024,801
Jun-17		\$75,250,021
Jun-16		\$50,729,091
Jun-15	last yrs price x 362.92% = new yrs price	\$5,711,293
Jun-14		\$15,573,832
Jun-13		\$493,658
Jun-12		\$119,491
Jun-11		\$32,925

FORECASTED PRICE OF A SINGLE BITCOIN

ENTRY FROM JOHN CURTIN COLLEGE OF THE ARTS - YEAR 8

STUDENT ACTIVITIES

WA MATHEMATICS SUMMER SCHOOL

MARK WHITE



WAMSS GROUP AT UWA ROBOTICS LAB

The WA Maths Summer School was held Sunday 16 January to Saturday 22 January 2022. 16 students stayed at Trinity Residential College for six nights. This year, the whole cohort were boys. One girl withdrew in November, and a further girl withdrew in the week leading up to summer school. This latter girl is Indigenous and from Geraldton, and unfortunately her circumstance had changed meaning she was unable to attend.

Two of the WAMSS students had just completed Year 9, four had just completed Year 10. The remainder had just completed Year 11. Through the five days of mathematics, there were five morning sessions with Dr Greg Gamble in Number Theory. Two afternoon sessions with Professor Erico Valdinocci in Forensic Mathematics, and three afternoon sessions with Dr Geoffrey Pearce in Modular Origami and an introduction to Group Theory. WAMSS also had two guest lectures. One from 4CDA, a Data Analytics company, and the Head of Mathematics at UWA, Professor Serena Dipierro. Professor Michael Guidici also gave his evening for a highly informative Q&A session with the students.

MAWA would like to thank University of Western Australia School of Physics, Mathematics and Computing for their support with lecturers and rooms. We would also like to thank Lauren Stafford from Woodside for organising the visit to the robotics lab. WAMSS couldn't run without our volunteers and tutors and we are grateful to have their support.

WAMSS has been considered a success by all parties involved, and further progress on WAMSS 2021. As a result of the feedback, MAWA plans to expand WAMSS for 2023.

"It would be awesome to see more girls involved, I would happily volunteer my time to help with this, if I can be useful in any capacity before the next summer school please let me know." WAMSS Tutor

"I enjoyed giving the talk at UWA on Tuesday, I was impressed with the level of engagement and quality of questions from the students." Dr Matthew Ambrose 4CDA

STUDENT ACTIVITIES

NATIONAL MATHEMATICS SUMMER SCHOOL

PAULA MCMAHON

The National Maths Summer School (NMSS) was held in late January 2022 and due to COVID was held online over 8 days. Eight students from WA were selected all from Year 11: five boys and three girls. Our thanks to the NMSS selection committee for their work in reviewing applications

We thank Thyler and Ethan for the information below.

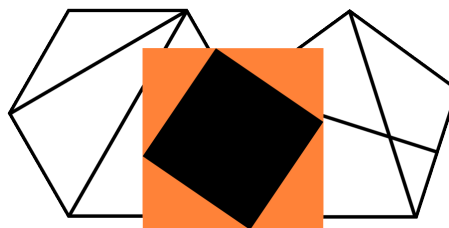
NMSS is described on the website as a program for the discovery and development of mathematically gifted and talented students. The intensive mathematical experience was as advertised; however, what we gained in those two weeks was worth much more. These included the life-long friends as well as fresh perspectives and insights attained through the guidance of the amazing lecturers and tutors as well as experienced group (EGs) and other kind staff.

Typically held on the Australian National University(ANU) campus in Canberra as a fully immersive experience with like-minded participants and mentors. News of the travel restrictions was initially a roadblock but the organisers did not disappoint! Packages were sent directly to our homes filled with question sets, puzzles and other surprises such as memorabilia and of course the 54th edition of the official NMSS T-shirts. Each day consisted of lectures, workshops and tutorials.

Past NMSS student Isabel Longbottom's, a fellow West Australian, led our tutorial group. The questions that were presented are very different to the kind one would find in a typical school textbook. The questions stretched the mind in terms of depth of thought requiring a lot of creativity and lateral thinking.

Though NMSS was online there was plenty of opportunities for students and tutors to socialise and participate in games and an online quiz event. At NMSS, we met new friends and made new connections in the mathematics scene from across the country.

We would highly recommend this programme to any and all aspiring math students and encourage teachers to share the information.



STUDENT ACTIVITIES

WA MATHEMATICS PROBLEM SOLVING PROGRAM



AUSTRALIAN MATHS TRUST

SPONSOR AND PARTNER - AUSTRALIAN MATHS TRUST

RACHEL THEUNISSEN



PRESENTATION OF MATHS CHALLENGE CERTIFICATES

The Western Australian Mathematics Problem Solving Program (WAMPSP) continued to break records in 2021 with 401 students, a 12.5% increase from 2020. For the first time, the program included online courses offered at every level (Praeger – Noether). Despite the continued impact of COVID-19, the program continued to expand, with some classes conducted Live Online and returning to face-to-face once community transmission had ceased.

A presentation ceremony was conducted in August to award Challenge certificates, as well as Hoffman and AMT scholarships. Dr Chris Wetherell recorded an excellent keynote for the August presentation, which overflowed into a whole lesson of problem solving for all the classes in WAMPSP. The December presentation ceremony, doubled as an evening to recognise the service of Dr Nathan (Norm) Hoffman – founder of WAMPSP, as he retired from teaching in WAMPSP’s 30th year and his 90th. The program also listed testimonials for Dr Norm Hoffman, and he was very proud to receive a formal letter for recognition of service from CEO of AMT, Nathan Ford, presented by Rachel Theunissen. Professor Cheryl Praeger, MAWA’s Patron, delivered a keynote address and WAMPSP Alumni Dr Jasmine Begovich spoke and

presented awards to students.

In 2021, MAWA held two information evenings for prospective parents. These events were held live online, with over 100 attendees across both. Based on the success of these evenings we plan to offer them in 2022 - both face-to-face and live online.

WAMPSP students, Year 5 to Year 10, participate in the AMT Maths for Young Australians Challenge and Enrichment competitions. We thank AMT for their continued in-kind and financial support for this student activity.

CHALLENGE RESULTS (411 STUDENTS)

High Distinction	Distinction	Credit	Participation
14%	27%	24%	35%

ENRICHMENT RESULTS (411 STUDENTS)

High Distinction	Distinction	Credit	Participation
11%	20%	28%	41%

WA ANNUAL MATHS CONFERENCE

WENDY PERO

The WA Annual Conference was held at the Crown Convention Centre from 17-19 November. The theme “Maths - Leading the Way” highlighted the role of mathematics in preparing students for jobs and technologies that don’t yet exist in a rapidly changing world.

MAWA was pleased to have two highly respected educators, Catherine Attard and James Tanton, deliver keynotes virtually from Sydney, NSW and Phoenix, Arizona respectively. The HOLA Forum included presentations and group discussions. The conference offered a varied program and delegates were able to choose from 80 different workshops covering a broad range of topics delivered by quality presenters.

Thank you to gold & keynote sponsor, Casio, and silver sponsor, the Australian Maths Trust, and to all other exhibitors and presenters for their support. Despite border closures, we welcomed a total of 13 exhibitors.

We were fortunate to secure funding for the second year in a row from Business Events Perth, for which we are extremely grateful. Further thanks to committee members and office personnel for their valuable assistance in planning and hosting this event. As the conference evolves and despite some challenges posed by COVID-19 that affected the planning, we were happy to see attendance improve on the previous year. MAWA is committed to fulfilling our aim of delivering high quality professional learning that meets the needs

ATTENDANCE:

Total of 696 delegates over the three days:

HOLA Forum (Wednesday): 105 delegates

Secondary Conference (Thursday): 342 delegates

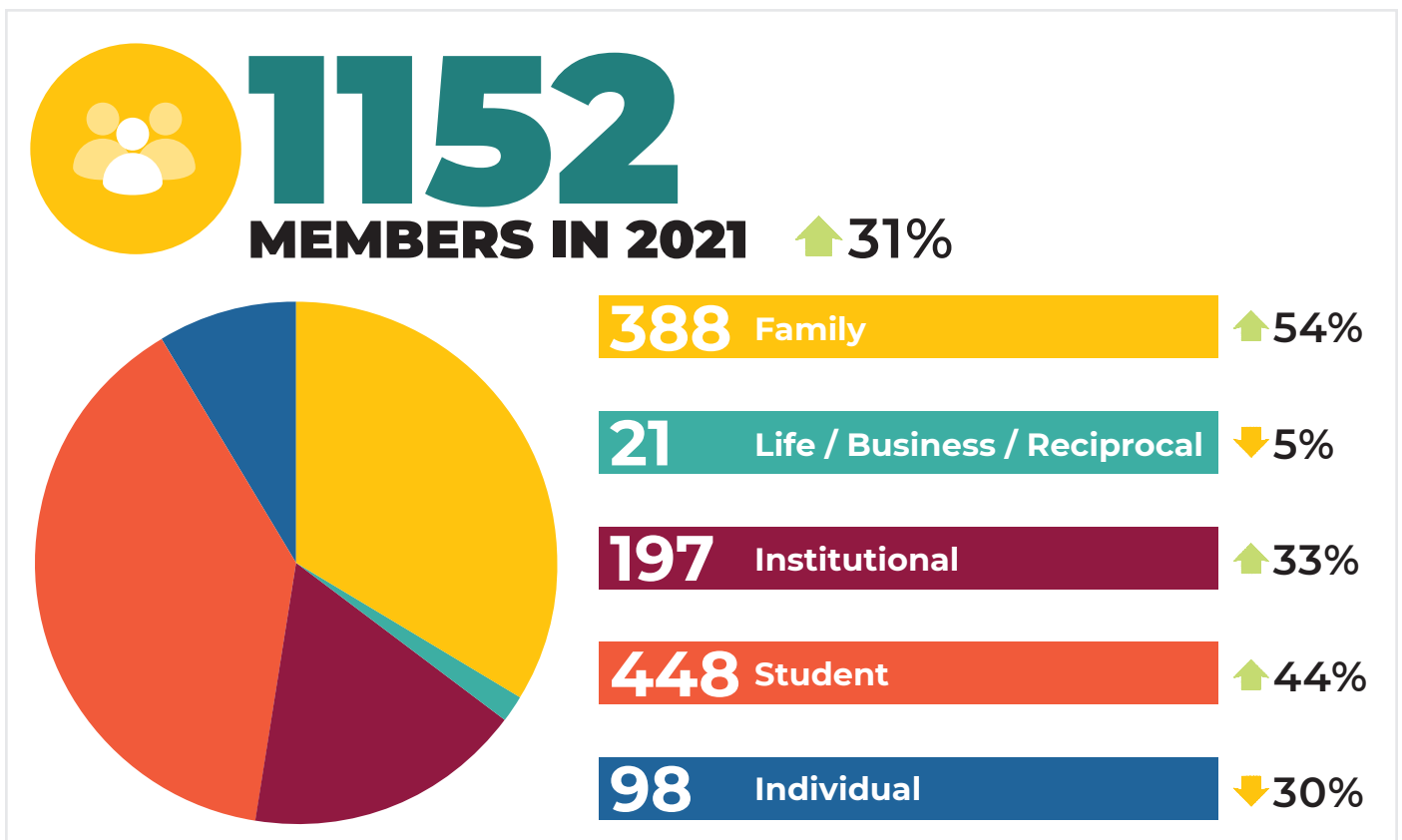
Primary and Secondary Conference (Friday): 382 delegates



MEMBERSHIPS

PAULA MCMAHON

Following the implementation of the Customer Relationship Management (CiviCRM) software we have had some teething problems with automating membership renewals. With rolling memberships we are still seeing the bulk of membership renewals occurring in the months preceding the WA Annual Maths Conference.



It is pleasing to see that we have returned to and in fact exceeded the 2019 total membership numbers. The largest growth in 2021 was in student memberships and family memberships. This is due to the support of the universities in advertising the benefits of MAWA membership and for families the discounted rates for WAMPSP fees.

Though the number of individual members has dropped, the number of institutional members has increased by nearly 50 schools, some of these are due to our 2021 Outreach program. There are substantial benefits for schools to be a member including member prices for:

- All student activities

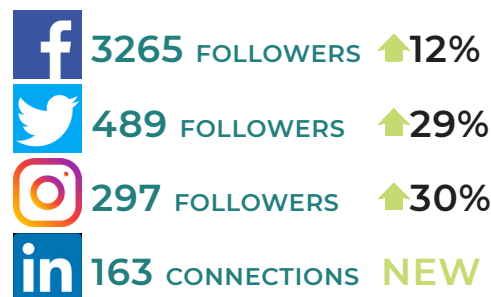
- WA Annual Maths Conference for all staff
- Professional learning workshops
- Free Classroom Corner registrations

The new member dashboard allows institutional members to upload a csv file of current staff members and the email addresses. We have encouraged and supported schools to use this facility as it will minimise the time spent sharing MAWA email campaigns as they are delivered to individuals directly.

I would like to thank the MAWA office staff for their tenacity in solving issues of multiple membership profiles for individual and schools and automating the membership renewal process.

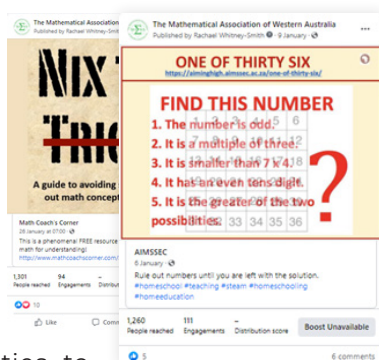
SOCIAL MEDIA ADVERTISING

DION ALFONSI, DONNA BUCKLEY AND RACHAEL WHITNEY-SMITH



MAWA Facebook page has been a good source of communication, advertising and engagement with our members and the general public. Rating – 5 out of 5. Facebook data shows that our Facebook fans are online predominantly between 3 in the afternoon until the early hours of the morning.

The type of posts that our Facebook followers react to and share are videos and photos, however, links to quality resources such as the AIMSSEC free resources (AIMSSEC is a non-for-profit that extends educational opportunities to disadvantaged communities in South Africa) have high engagement, shares and reactions. Reach is your potential audience on the social media platform, engagement is how many people are viewing, commenting or talking about the post and the amplification is where people share the post on their platforms.



Type	Average Reach	Average Engagement
Video	1,882	237
Photo	633	34
Shared Video	417	12
Link	400	22
Status	326	4

We spend a minimal amount \$220 over the year to boost advertising of key events such as WAMPSP registrations and conference. This saw an increase in reach, engagements and link clicks.

MAWA Instagram has seen some steady growth throughout the past year. We now have 297 followers which is up by 8.3% just since November.

77% of Instagram audience are female, with most of our followers between the ages of 25-54. We have 46% of our followers from Perth with another 10% of followers from Sydney and Melbourne.

There is still a lot more that can be done in the Instagram space and as we post more and see more engagement, we should be able to unlock some serious reach and advertising potential.

Analytics tell us that the best time to engage our audience is in the evenings between 5pm-7pm, particularly on Friday and Saturday's.

MAWA Twitter has been a growing source of communication throughout 2020. In the time period March to December, we had 691 engagements and 35400 tweet impressions or reaches. There was a distinct spike in engagements and impressions during the WA Annual Maths Conference in November.

The highest Tweet impressions were the launch of the STEM Learning Project resources and the Women in Maths slide from Amie Albrecht's keynote at the conference.



Twitter is the preferred social media platform for educators; however, Facebook gives us most success in terms of advertising for events and converting this to registrations, sales or engagement with MAWA activities. We recognise that LinkedIn is professional social media platform and as such, an avenue worth exploring for sponsorship prospects. Over the next year, we endeavour to expand our presence and reach via Instagram and diversify our social media audience.

As part of the social media strategy MAWA has created a number of hashtags for major events and advertise these through printed and digital means. In the past two years MAWA has developed memorandums of understanding with a variety of businesses, and the sharing of our social media posts has been included.

PUBLICATIONS

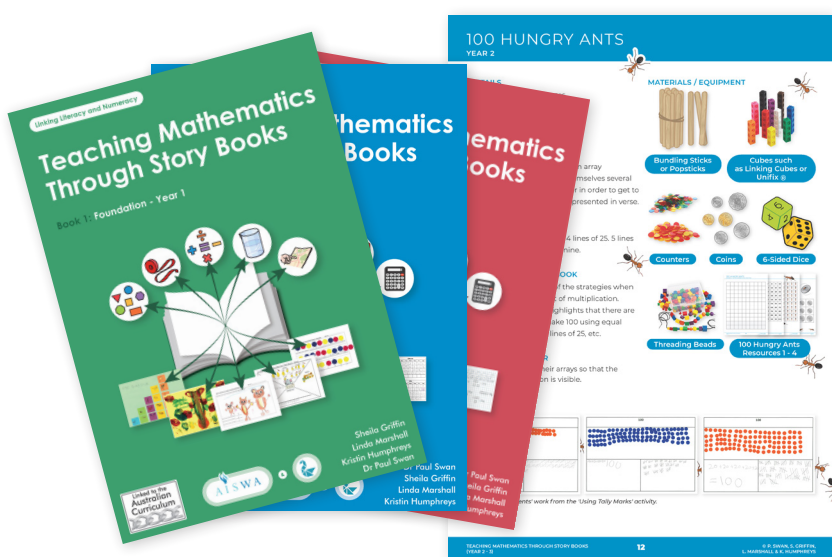
PAULA MCMAHON AND LESLEY STOFFELS

The re-establishment of a MAWA publications committee was a highlight for 2021. The eight members have worked very hard to review and recommend new resources for The Maths Store.

Late in 2020 Interleaved Maths Essential Connections 11 was a new addition to The Maths Store. The student book and teacher guide were reviewed by several WA teachers and the feedback was very positive. We now have the Year 12 student book and teacher guide added to our collection. This along with many of our other new additions are from WA based authors and/or developers. We are pleased to have established or strengthened partnerships with Bond Blocks and Numero and support first time authors such as Sheila Griffin with her 'Teaching Mathematics Through Story Books'

MAWA is delighted to have added a variety of new games to our collection, I sea 10! and Multi. Both have been well received. Our aim for 2022 and 2023 is to increase our electronic resources for teachers, including assessments for the Foundation Maths and Essential Mathematics courses.

In partnership with The Australian Association of Mathematics Teachers (AAMT) we have created a joint online shop 'The Maths Store' in 2020 with resources being shipped from either Perth or Canberra. During 2021 we entered into an agreement that now sees all The Maths Store resources stored and shipping from Perth. This has ensured a smoother, cheaper and better experience for our customers.



TEACHING MATHEMATICS THROUGH STORY BOOKS SERIES



I SEA 10! AND MULTI GAMES

PROFESSIONAL LEARNING

PAULA MCMAHON

Delivering professional learning in 2021 was again impacted by COVID-19 and an acute shortage of casual relief teachers. MAWA continues to develop its range of professional learning workshops and delivers both face-to-face and virtually. A small area in the office has been set up as a recording and presentation space for virtual workshops.

In 2021 we engaged the services of Dr Derek Hurrell and Dr Chris Hurst to deliver a year-long program of workshops on Developing multiplicative thinking in the middle years. Ten teachers signed up for the program and the feedback was very positive.

It has strengthened and clarified my delivery of many things ... I will definitely be using all of the methods above to help students consolidate their understanding.
- Primary Teacher

The January workshop with Dr Paul Swan proved popular and this will become a regular feature on the MAWA PL calendar. During 2021 we assisted in developing a short course for The University of Notre Dame Australia addressing mathematical pedagogy in the middle years. I have assisted in the delivery of this course in January and July. Our partnership with the university continues to grow with an increased number of workshops being requested.

Most short workshops have been delivered by the MAWA Executive Officer. However, we were delighted with our outside presenters, Tom Moore, Narelle Rice and Will Tomlinson. Will's workshop on 'Rejecting summative percentages for grading with judging standards' was the highest attended virtual PL ever. A directory of professional learning presenters has been established and we anticipate continuing to engage with a variety of outside presenters.

Classroom Corners, one per term, was a new initiative for 2020 and the numbers have steadily grown during 2021. MAWA members attend Classroom Corners for free as part

of their member benefits. These workshops are offered both face-to-face and virtually each term. It is pleasing to see the number of country teachers participating.

STATISTICS



70 sessions at University of Notre Dame, (up from 57)

41 PL workshops, (up from 40)

3 student workshops,

6 parent workshops or information sessions,

6 PL sessions with networks.

5 PL sessions through Outreach Program.

In 2021 we trialed parent workshops at Manning Primary School. The workshops K – Year 2 and Year 3 – Year 6 were well attended with over 25 parents at each one. The focus of the workshops is to highlight that maths is about process and not just the final answer. Parent left with many ideas about how their child could practise basic facts whilst engaged in a game or problem-solving activity.

During the ACARA Curriculum Review period MAWA, with the assistance of Rachael Whitney-Smith and Anne-Marie Benson, conducted four feedback workshops. These were well attended, and the feedback supplied was incorporated in MAWA's feedback of the proposed curriculum changes.

Though it was not possible to attend interstate conferences during 2021 I engaged with many online professional learning sessions conducted by presenters in Australia, United States and United Kingdom. I strongly believe that though teachers prefer face-to-face professional learning they are becoming aware that virtual workshops can be beneficial and interactive.

OUTREACH REPORT

PAULA MCMAHON AND ROB BERWICK

MAWA has always actively sought opportunities to spread the word about our association. In previous years that has been through supporting awards for the university graduates, presenting and exhibiting at conferences and the Jack Bana Award for WAJO.

2021 saw our Regional Outreach program added to the list.

In May we travelled to the Albany region, in July Karratha and Port Hedland. Whilst in these areas we meet with teachers from primary and secondary schools and provided information about MAWA services and student activities. As a result of our visits, we have added some new members, had PL booked and has schools participate in Have Sum Fun Online and Live. Our regional ambassadors in these regions were helpful in organising a social mentoring event. We thank AMT for their financial support to allow our Student Programs Coordinator to travel as part of this program.

Our partnership with Independent Education and Teaching Pty Ltd strengthened in 2021 with a MAWA representative attending many of the country and metro heats. It was a fantastic opportunity to talk about MAWA with attending teachers. We were delighted to provide three 12-month institutional memberships for the place getters of the Frank Drysdale Secondary Challenge and be a VIP at the AFG Primary Challenge final.

In 2021 we exhibited at the WA Primary Principals Association conference and the WA Assistant Teacher Association conferences. Both gave us excellent opportunities to network with educators.

We will further our outreach program in 2022 with plans to visit schools in Peel, Bunbury, and Geraldton regions.





- PRESENTATION AT THE 2021 AFG INTERSCHOOL NUMERO CHALLENGE
- PRESENTATION AT THE WAPPA CONFERENCE,
- VISITING WAGIN
- SESSION WITH GREAT SOUTHERN NETWORK IN DARKAN.
- EDUCATION ASSISTANTS AT THE WAATA CONFERENCE

OFFICE REPORT

SHANNON TAYLOR

In 2021, the MAWA Office again faced several challenges in relation to covid in navigating the restrictions and requirements to host our main events and activities. Encouragingly the majority of our events ran as scheduled throughout the year. Our homes became our offices on a few occasions throughout the year, but our team was strong and maintained our high level of service to our customers. Sadly, Holly decided to expand her horizons away from MAWA, so we were left with the difficult task of filling her position, however we were fortunate enough to meet Murray Wallis and it was a perfect fit. Murray took on the role of Office Associate to work alongside Tanya, with a focus on the student activities portfolio. Murray has extensive IT skills which has been a welcome relief in managing our new CRM. We also welcomed Tom Love to the MAWA team as our Student Programs Coordinator. He couldn't have joined at a better time and certainly helped free up some office time for our team to work on other tasks that had been on the backburner for a while.

We hosted our third Mathematics Expo at Crown Perth which was very well attended. Our supporters were fabulous in helping us deliver our annual and very popular family day.

With the work that had been completed on The Mathematics Pathways Information recording in 2020, we updated the website page and decided not to run any information evenings for 2021. We will look at ways to develop the webpage further to make it a valuable source of information for parents and students.

We hosted a few Maths Meets as part of our Outreach work in 2021 which were reasonably attended; however, through further discussions it was highlighted that teachers in regional towns would find far more significance from a PL workshop as opposed to the networking opportunity that Math Meets provide. So at this stage it is difficult to report the future of Maths Meets.

In 2021, we enlisted the support of four new Regional Ambassadors including Jennifer George - North Metro

Region, Belinda Miller – Peel Region, and Ngaire Satre and Brandon Docking – Pilbara Region. The role of a regional ambassador is an important one. Helping to link MAWA to teachers, parents, and students in their region, regional ambassadors become a voice for their community in identifying needs for MAWA to address through our Outreach Program. We welcome you all and look forward to working with you in 2022.

We were fortunate to host our WA Annual Maths Conference completely face-to-face without restrictions, despite the looming threat of COVID-19. Attendance increased on 2020 when we had capacity restrictions, however we didn't have the uptake like we experienced in 2019. With so much uncertainty for schools and teachers, not to mention budget cuts to help support schools' COVID-19 responses, it was hardly surprising.

We did have a virtual conference scheduled for the week following the WA Annual Maths Conference. However, we chose to postpone that until Monday 28 March 2022, to allow teachers time to settle into the new year. The virtual conference offers quality PL that is free of the barriers of location and relief costs that impact many schools, so we are expecting a favourable response.

Overall, MAWA continues to be a vibrant, and progressive organisation. This year, rather than grow our offerings, we focused on doing what we do well. We may have faced a few challenges. However, for a very small and hardworking team of staff and wonderful volunteers, we really do a remarkable job with the events and activities we offer to teachers, parents, and students in WA and beyond. Thanks to our team for their hard work and dedication, and I look forward to a positive 2022.

MAWA MATHS EXPO

SHANNON TAYLOR

MAWA hosted our third Maths Expo at Crown Perth on Sunday 14 March 2021. We were delighted to welcome approximately 150 families across the two sessions which was a great response, we doubled the attendance of 2020.

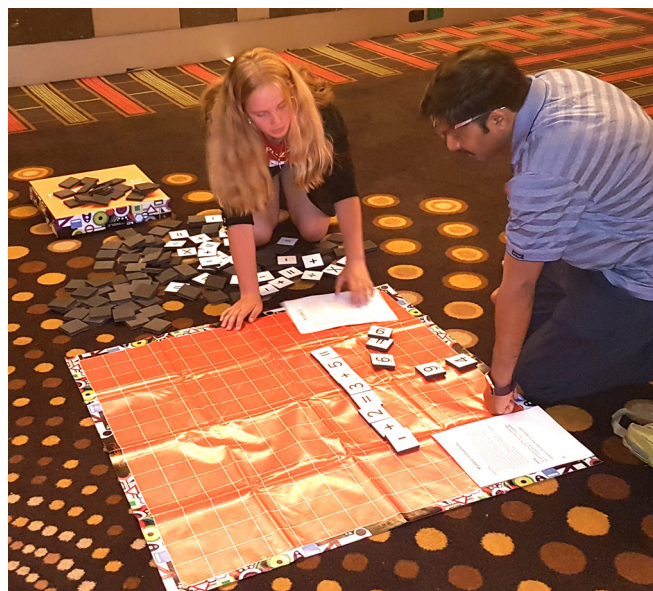
We were particularly thankful to the exhibitors, students and volunteers who helped to make this yet another successful event.

Despite the increased numbers, there was ample opportunity for families to explore the board and card games on display (including Numero, Take Sum Risks, Sum Genius, Rowco and Combo), build and fly paper planes, and hear about the WA Mathematics Problem Solving Program.

We look forward to hosting an even larger event in 2022 as the expo gains popularity with WA families.



DEMONSTRATING ONE OF THE MANY ACTIVITIES THAT CAN BE PLAYED WITH LIGHTNING PLAYING CARDS



BATTLING IT OUT TO BE THE MABBLE CHAMPION!



DEMONSTRATING THE FUN AND ENGAGING GAME OF SUM SWAMP



MATHS ACTIVE SCHOOLS

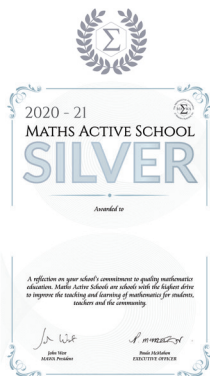
PAULA MCMAHON

The Maths Active Schools Program enables schools to demonstrate that they actively extend students and teachers beyond the normal mathematics classroom. Congratulations to the teachers with the schools who achieved Maths Active Schools status in 2021.

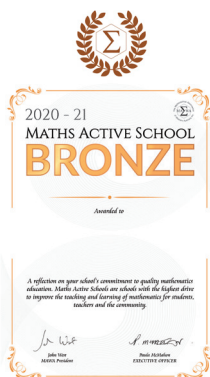
2020/2021



Ellenbrook Secondary College
Iona Presentation College
Santa Maria College
St Norbert College



Churchlands SHS
St Stephen's School

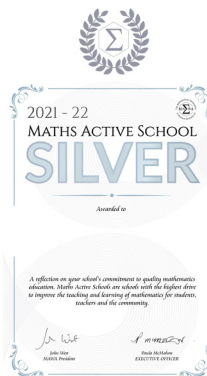


Ashdale Primary School
Bob Hawke College
Como Secondary College
Fremantle College
Harrisdale Secondary College

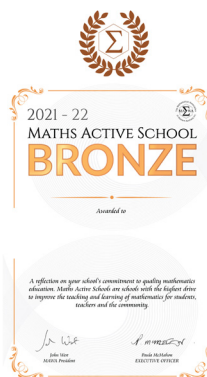
2021/2022



Carine SHS
Ellenbrook Secondary College
Iona Presentation College
Karratha SHS
Penrhos College
Santa Maria College
St Norbert College



Carine SHS
Churchlands SHS
Georgiana Molloy Anglican School
Karratha SHS
Melville SHS
Mt Barker Community College
Penrhos College



Ashdale Primary School
Bob Hawke College
Fremantle Christian College
Fremantle College
Harrisdale Secondary College
Koondoola Primary School

FINANCIAL OVERVIEW

ROM CIRILLO

While MAWA continues to be in a sound financial position and 2021 was a profitable year, this was rather minimal. While showing a small profit of \$28,760, this was down from \$49,466 in 2020. Noting that \$24,355 came from Covid-19 government stimulus and \$18,000 came from invested financial assets, the overall core business activities, returned a loss. This is also highlighted by the net cash flow for the period of approximately -\$62k. Hence the MAWA board will need to consider whether to continue with a similar ratio of expenditure to net revenue. There has been a significant increase in employment expenses due to additional human resources provided for student activities. Unless this is followed by increased revenue, perhaps via an increase in fees and expansion of uptake to increase revenue – the increased level of service may need to be reviewed over the next year or so.

A graphical 'snapshot' of our financial position is illustrated by the graph below, comparing our cash position with total equity 2016-2021. As can be seen, there has been no improvement in the total equity position over the last 5 years. While it has been a challenging time (with a pandemic etc.) I do not believe that such a low static return on member's equity is sustainable going forward and the Board will need to consider alternatives for increasing revenue or reducing expenditure of both.

More 'fine-grain' details may be viewed in the Income and Expenditure statement and the Assets and Liabilities Statement included in the audited financials that follow. It was pleasing to report that our auditors/reviewers certify that the appended financials give a true and fair view of the financial position and performance of The Mathematical Association of Western Australia (Inc) during and at the end of the financial year of the association ending on 31 December 2021.

I would like to thank the members of the Finance Committee:

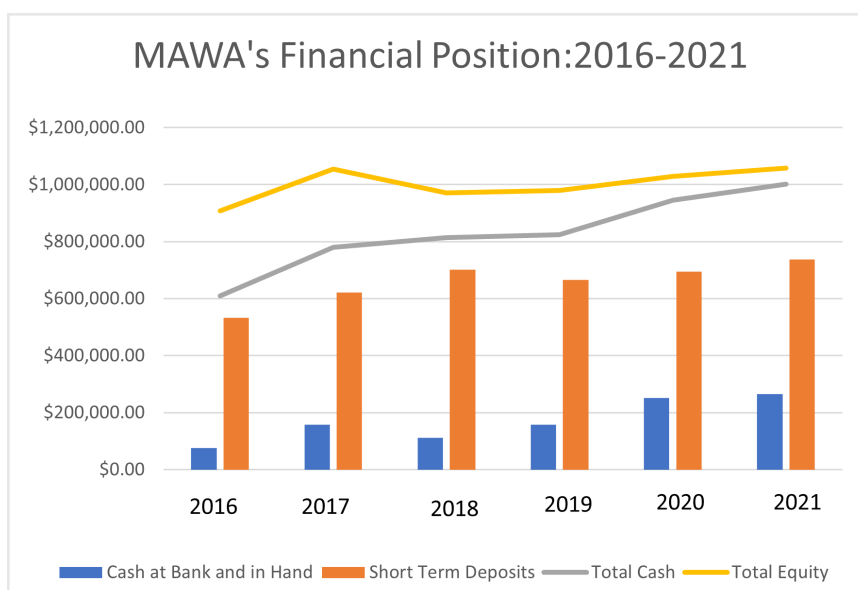
Mario Ravat, Finance Officer,

Shannon Taylor, Corporate Manager,

Paula McMahon, Executive Officer, and

John West, President

for their commitment, dedication and attention to detail. They have collectively contributed to a job well done in monitoring and guiding the financial wellbeing of our Association and this has resulted in the role of Treasurer being much easier than it may otherwise have been.



Independent Assurance Practitioner's Review Report

The Mathematical Association of Western Australia (Inc) For the year ended 31 December 2021

Independent Assurance Practitioner's Review Report to the members of the Association

We have reviewed the accompanying financial report, being a special purpose financial report, of The Mathematical Association of Western Australia Inc (the association), which comprises the board member's report, the assets and liabilities statement as at 31 December 2021, the income and expenditure statement for the year then ended, cash flow statement, notes comprising a summary of significant accounting policies and other explanatory information, and the certification by members of the board on the annual statements giving a true and fair view of the financial position and performance of the association.

Board's Responsibility for the Financial Report

The board of The Mathematical Association of Western Australia Inc is responsible for the preparation and fair presentation of the financial report, and has determined that the basis of preparation described in Note 1 is appropriate to meet the requirements of the *Australian Charities and Not-for-profits Commission Act 2012* (ACNC Act), the *Associations Incorporations Act 2015 (WA)* and is appropriate to meet the needs of the members. The board's responsibility also includes such internal control as the board determines is necessary to enable the preparation and fair presentation of a financial report that is free from material misstatement, whether due to fraud or error.

Assurance Practitioner's Responsibility

Our responsibility is to express a conclusion on the financial report based on our review. We have conducted our review in accordance with Australian Auditing Standards on Review Engagements ASRE 2415: *Reviews of Financial Report: Company Limited by Guarantee or an Entity Reporting under the ACNC Act or other Applicable Legislation or Regulation*. Those standards require us to conclude whether anything has come to our attention that causes us to believe that the financial statements, taken as a whole, are not prepared in all material respects in accordance with the requirements of Division 60 of the *Australian Charities and Not-for-Profits Commission Act 2012* and the *Associations Incorporations Act 2015 (WA)*. This Standard also requires us to comply with relevant ethical requirements relating to review engagements and plan and perform the review to obtain reasonable assurance whether the financial report is free from material misstatement.

A review of financial statements in accordance with ASRE 2415 is a limited assurance engagement. The assurance practitioner performs procedures, primarily consisting of making enquiries of management and others within the entity, as appropriate, and applying analytical procedures, and evaluates the evidence obtained.

The procedures performed in a review are substantially less than those performed in an audit conducted in accordance with Australian Auditing Standards. Accordingly, we do not express an audit opinion on these financial statements.

Independence

In conducting our review we have complied with the independence requirements of the *Australian Charities and Not-for-Profits Commission Act 2012*, *Associations Incorporations Act 2015 (WA)* and any applicable code of professional conduct in relation to the review.

Conclusion

Based on our review, which is not an audit, nothing has come to our attention that causes us to believe that the financial report of association does not satisfy the requirements of Division 60 of the *Australian Charities and Not-for-profits Commission Act 2012* and the *Associations Incorporations Act 2015 (WA)* including:

1. giving a true and fair view of the associations financial position as at 31 December 2021 and of its financial performance and cash flows for the year ended on that date; and
2. complying with Australian Accounting Standards to the extent described in Note 1 and Division 60 of the *Australian Charities and Not-for-profits Commission Regulations 2013*.

Basis of Accounting and Restriction on Distribution

Without modifying our conclusion, we draw attention to Note 1 to the financial statements, which describes the basis of accounting. The financial report has been prepared to assist The Mathematical Association of Western Australia (Inc) to meet the requirements of the *Australian Charities and Not-for-profits Commission Act 2012* and the *Associations Incorporation Act 2015 (WA)*. As a result, the financial report may not be suitable for another purpose.


Michael Ng

Griffin O'Dea Partners
391 Goodwood Rd, Westbourne Park, SA

Dated: 12th April 2022

True and Fair Position

The Mathematical Association of Western Australia (Inc) For the year ended 31 December 2021

Annual Statements Give True and Fair View of Financial Position and Performance of the Association

We, John West, and Rom Cirillo, being members of the board of The Mathematical Association of Western Australia (Inc), certify that –

The statements attached to this certificate give a true and fair view of the financial position and performance of The Mathematical Association of Western Australia (Inc) during and at the end of the financial year of the association ending on 31 December 2021.

Signed:



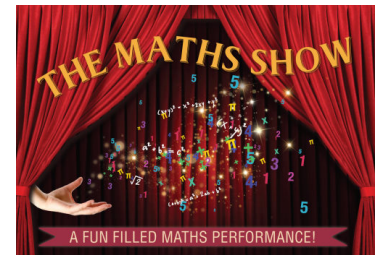
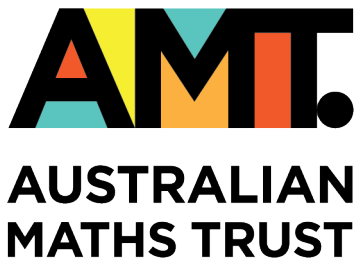
Dated: 21 / 04 / 2022

Signed:



Dated: 21 / 04 / 2022

OUR PARTNERS AND SPONSORS



ORGANISATIONAL STRUCTURE

BOARD AND ASSOCIATION STAFF

BOARD

Position:	Name:
President	John West
Treasurer	Rom Cirillo
Board Directors	Dion Alfonsi
	Jack Bana
	Robert Berwick
	Donna Buckley
	Julie Richards
	Lesley Stoffels
	Rachel Theunissen
	Rachael Whitney-Smith

ASSOCIATION STAFF

Position:	Name:
Executive Officer	Paula McMahon
Corporate Manager	Shannon Taylor
Student Programs Coordinator	Tom Love
Accounts Adviser	Mario Ravat
Office Associate	Murray Wallis
Office Associate	Tanya Condo
Web Maintenance & Graphic Design	Leighland Swan

