2023 MAWA ANNUAL REPORT

The Mathematical Association of Western Australia Inc.

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MAWA 2023 ANNUAL REPORT

MESSAGE FROM THE PRESIDENT

DR JOHN WEST

Like many people I felt a sense of relief towards the end of 2022. While the year served up a number of challenges, not only did we meet and overcome them, once again I feel that MAWA has emerged from the year in a stronger position than it started. Of course, this doesn't mean we can afford to be complacent – the current operating environment remains challenging – but I would like to commend to you some of the notable achievements for 2022.

MAWA ran its full suite of student activities and family events despite having to postpone some Have Sum Fun Face-To-Face competition rounds and the Maths Expo until later in the year due to Covid-19. This was a particularly impressive result given that a serious shoulder injury sidelined our Student Programs Coordinator very early in the year. Although we didn't know it at the time, Tom's surgery and subsequent recuperation meant that he would be unable to return to work until September. Despite being short-handed for most of the year, I'm pleased to say the MAWA team did an extraordinary job of managing the student activities portfolio in Tom's absence. Sadly, the events of such a traumatic year took their toll and it was agreed that MAWA and Tom would go their separate ways in 2023.

The WA Mathematics Problem Solving Program (WAMPSP) celebrated its 30th year in 2022. The occasion was marked during the December presentation ceremony at The University of Western Australia. In the years since MAWA assumed responsibility for the program in 2016, we have sought to provide greater access to the program for more students in more locations across WA. We are indebted to the Australian Maths Trust (AMT) for their generous support of these initiatives.

In recognition of MAWA's ongoing stewardship of the program, we are pleased to announce that it will henceforth be known as MAWA's Problem Solving Program (MAWAPSP). In 2023, we are excited to add Bob Hawke College as a new venue and welcome on board a number of new teachers. I would also like to take this opportunity to thank Keren Claassen for delivering face-to-face classes at Bunbury Cathedral Grammar School over the past three years (2020-2022).

Having to postpone a number of events made for a busy second half of the year in the MAWA office, meant that we were very pleased to welcome Layla Anson as our new junior office assistant in August. Layla came on board just in time for the postponed Maths Expo and Have Sum Fun competitions, and her help at the Annual WA Maths Conference was very much appreciated. This year also saw some significant additions to the MAWA Board. We were pleased to welcome Mr Alan Sadler, Ms Sheila Griffin and Ms Joli Mendez, who bring a wealth of experience to our Board.

The Annual WA Maths Conference saw attendance back up to pre-pandemic numbers, with Peter Liljedahl and Katherin Cartwright's keynotes being particularly well-received. With the removal of travel restrictions, MAWA was pleased to welcome back presenters, delegates and exhibitors from interstate, making the conference a truly national event. Sadly, in the lead up to the conference, the WA mathematics education community lost one of its most well-loved and respected members, Dr Derek Hurrell. While the conference went ahead in his absence, our hearts went out to his co-presenters, colleagues, friends and family. I'm pleased to say that MAWA is supporting the process of preparing a special publication that will honour Derek's legacy as a mathematics educator.

A highlight of the year was that MAWA's own Mr Rom Cirillo was awarded Honorary Life Membership of the Australian Association of Mathematics Teachers by AAMT CEO Mr Allan Dougan. Life membership was presented to Rom in front of WA educators at our conference. Congratulations Rom!

As always, thank you to all those who have contributed to MAWA's success.

John West
President

REFLECTION FROM THE EXECUTIVE OFFICER

PAULA MCMAHON

As I reflect on the fourth year that I have been Executive Officer for MAWA I am astounded at how much our association achieves with such a small number of paid staff. The MAWA staff are incredible; however, they are not enough, and we rely heavily on our army of volunteers.

2022 saw many of our events being held when scheduled: Maths Empowering Girls Day, Outreach visits, WA Maths Summer School, and the WA Annual Maths Conference. Unfortunately, Have Sum Fun Face-to-Face and the Maths Expo needed to be postponed from March to September to ensure the safety of students and families attending.

The board and staff continue to work towards achieving the targets set out in the 2020–2023 strategic plan. As a member-based association it is important that we continue to grow our membership numbers. Unfortunately, due to a variety of issues our membership numbers declined in 2022. The largest decline was in student memberships, and though there are many reasons one of the main ones we have identified is universities delivering more courses fully online and MAWA changing student memberships to a calendar year rather than rolling. We are excited about the plans we have in place to increase membership numbers in 2023.

Some aspects of our IT infrastructure have improved during 2022 and this has enabled MAWA to facilitate a work-from-home arrangement for the staff. We continue to be frustrated by the client record management system and have been exploring options to improve this for 2023. I would like to thank Murray who has spent many hours solving problems in-house which has resulted in a relatively smooth interface for our customers. During 2022 all emails were changed to an edu domain and this has reduced the likelihood of our communication being identified as spam.

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. More needed.

The Maths Problem Solving Challenge Program (WAMPSP), now known as MAWA's Problem Solving Program (MAWAPSP), celebrated turning 30 in 2022. The Australian Maths Trust continued to support the program and we thank them for doing so.

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 2022. In August we welcomed Layla Anson to the team as a junior office assistant. The MAWA Board have ensured that together we continue to work towards our mission: A Western Australian community that understands and values mathematics.

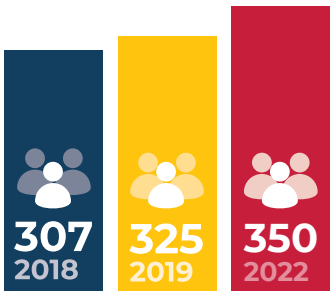
In conclusion, I would like to acknowledge the many individuals whose faces are often not seen but their contribution is massive. These include: Have Sum Fun Face-to-Face coordinators, MCs, supervising teachers and markers, Maths Talent Quest judges, conference committee members, exhibitors, presenters 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 their support throughout the year.

Paula McMahon
Executive Officer

STUDENT ACTIVITIES

HAVE SUM FUN FACE-TO-FACE

DR JACK BANA



The four Have Sum Fun Face-to-face competitions in 2022 were scheduled for the regular times in Term 1 for Years 5-6, 7-8, 9-10, and 11-12. However, they had to be deferred to Term 3 due to COVID restrictions but were still run successfully on the new dates. Over 350 teams participated in the four competitions overall.

The four competitions were held in a total of 18 venues. Our sincere thanks to all those venues for hosting the events, and special thanks to the teachers at each of these schools who managed each event so well. Thanks also to the teachers who organised their teams to participate in the competitions or helped with the judging.

FIRST PLACE STUDENTS AT PENRHOS

STUDENTS AT CAREY BAPTIST

Brandon Docking, Joel Morgan, 10, Tarquin Forwood, 11, Charlie Lonnie, 11, Ngaire Satre, Samuel England, 11, Sam Lonnie, 11 and Kaine Gardner, 11. Picture: Alexander Scott

Six are greater than the sum

ALEXANDER SCOTT

The combination of six maths whizzes from Tambrey Primary School has added up to victory in a competition involving four primary schools in the Karratha region.

The Divisible Diamonds — made up of students Joel Morgan, 10, Tarquin Forwood, 11, Charlie Lonnie, 11, Samuel England, 11, Sam Lonnie, 11, and Kaine Gardner, 11 — took part in the 2022 Have Sum Fun Mathematics Competition on August 27.

Run by the Mathematics Association of WA, the competition was held at the Karratha Senior High School library and featured eight teams from four primary schools testing their mental skills over four rounds of hard problem solving.

In the end, Tambrey Primary School's Divisible Diamonds came home in first on 24 points ahead of St Paul's Primary School's The Math Saints on 19 and Tambrey's Crazy Calculus rounding out the top three on 16.

Tambrey Primary School teacher Ngaire Satre said it was a close competition this year.

"It's done by the Mathematics Association of Western Australia and it's held every year regionally and in the city as well for primary schools, and they also have an MAWA high school competition as well," Ms Satre said.

Ms Satre said the competitors had a great time testing themselves.

"They were very, very excited and were very tired at the end of it after the four rounds of questions," she said.

She said to have eight teams taking part was amazing.

PILBARA STUDENTS MAKE THE PAPER

STUDENTS IN KARRATHA

STUDENTS AT JOHN CURTIN

STUDENT ACTIVITIES

HAVE SUM FUN ONLINE

DR JACK BANA

The Have Sum Fun Online team competitions were held as follows: Term 2, Years 5-10; Term 3, Years 3-10; and Term 4, Years 3-10. This amounted to 22 separate team competitions, each with a total of 30 problems in three rounds, and with a balanced representation of the curriculum. There were 1328 participating teams, which was a slight increase on 2021 numbers. It was also pleasing to have 10 teams involved from the eastern States.

Individual competitions were run alongside the team competitions using the same sets of problems. These were initiated to cater for home schooling, especially due to COVID. However, the number of participants has fallen away since 2020.

HSFOL WEBSITE

HAVE SOME FUN ONLINE CERTIFICATES

STUDENT ACTIVITIES

HAVE SUM FUN LIVE

SHANNON TAYLOR

Following on from the great success of the piloted Have Sum Fun Live competitions in 2021, we saw fantastic growth across all competitions in 2022.

We started in September with the Years 5-6 competition which saw 22 teams (132 students) from across Australia competing for the title of HSF Champion!

We were pleased to award the following top four finishers as follows:

1st place - South Kal Mathmagicians – South Kalgoorlie Primary School

2nd place - Big Brains – Maitland Christian School

3rd place - Kendenup – Kendenup Primary School

4th place - MidWest Maths Kids – Geraldton Combined Schools

Then in December we ran the Years 7-8 and Years 9-10 competitions which saw teams from Derby SHS in the north, down to Margaret River SHS in the south and Sathya Sai College all the way over in NSW competing. We had 20 and 12 teams competing respectively, which made it a very close comp! We were also lucky to have the Naval Shipbuilding College on board as HSF Live Sponsors of both comps in December.

The winners for the Years 7-8 competition were:

1st place – Nagle 1 (Nagle Catholic College)

2nd place – Nagle Nerds 2 (Nagle Catholic College)

3rd place – Baba Team 1 (Sathya Sai College)

4th place – CNC 4 (Cape Naturaliste College)

And the winners for the Years 9-10 competition were:

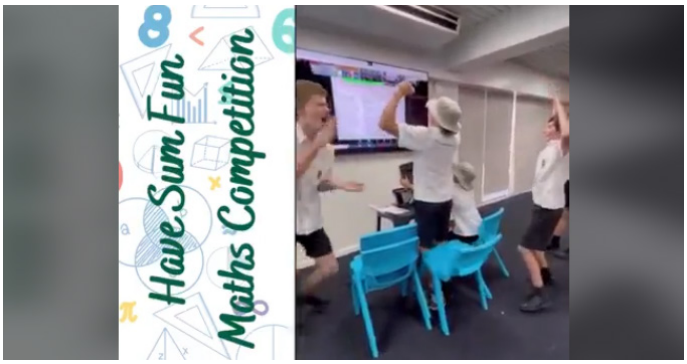
1st place - MRSHS 10.1 (Margaret River Senior High School)

2nd place - MRSHS 10.2 (Margaret River Senior High School)

3rd place - Broads Beans (Nagle Catholic College)

4th place - CIDHS (Pi)rates (Christmas Island DHS)

One of the competing schools, Nagle Catholic College, even posted a wonderful video accompanied with music on their Facebook page that really encompassed the excitement of their students who took part. It certainly helped to reassure us that HSF Live is valuable to our regional and remote schools and will continued to be enjoyed by students into the future.



NSC NAVAL SHIPBUILDING COLLEGE

STUDENT ACTIVITIES

MATHS EMPOWERING GIRLS' DAY

SHANNON TAYLOR

The Maths Empowering Girls Day continues to be a well-attended and extremely popular event. We reached our 240-capacity limit within a few weeks of advertising the event and therefore made the decision to increase the numbers to 280 students. Again, we were assisted with the generous sponsorship from School of Education/ Professional Learning Hub Curtin University, Penrhos College, and Spudshed Morley which helped us keep the registration costs the same as 2021. We would like to acknowledge and give thanks to our shirt sponsor, IETPL - the home of Numero who supported this event for a second year. Each year we provide a shirt to every girl attending. The mirrorgram "Like a girl, like a boss" shirts from Think Square are a huge hit with the girls and encompass the meaning of Maths Empowering Girls Day.

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 sessions throughout the day which included hands-on workshops and/or Speed Meets with industry professionals. We were delighted to have Indigenous Leader Rikara Taylor attend and deliver the Welcome to Country, followed by Penrhos 2023 Maths Mentor Captains Kennice and Athalya who introduced the day and explained the history of this day.

Our keynote speaker, Natasha Hurley-Walker, an award-winning radio astronomer was unfortunately unwell. However, she brilliantly had her colleague attend and deliver an insight into how mathematics is used in their careers.

The overall feedback was very positive and again provided some suggestions for 2023.

Year 9 Student Comment:

"Maths only opens doors to opportunities and never closes them because you use Maths in everything."

Year 9 Student Comment:

"Study above what you think you need and do it to the best of your ability so that you will succeed at whatever you try."

We would like to thank the many volunteers who made the day a huge success.

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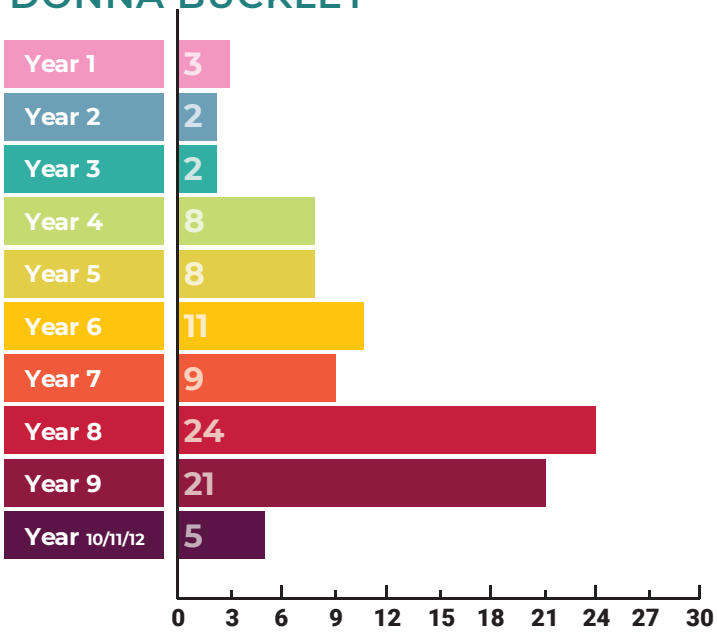
STUDENT ACTIVITIES

MATHS TALENT QUEST

DONNA BUCKLEY



ENTRIES INTO MTQ BY YEAR LEVEL (2022)

The focus of Maths Talent Quest is on the process of mathematical investigations and models. The 2022 entries were of an outstanding level and we were delighted with the level of variety and mathematical thought seen in the projects. The number of entries increased from 85 in 2021 to 91 in 2022. The increases were seen in both primary and secondary school entries with 14 schools submitting entries. Initial discussions have occurred seeking a national sponsor for Maths Talent Quest.

Outstanding school in 2022 was North Harrisdale Primary School

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

Maths Association of South Australia hosted the National Maths Quest judging in 2022. MAWA sent 11 entries ranging from Year 1 to Year 12. We congratulate the following who were national winners and highly commended:

WINNERS

Year 4 Individual – Electric cars vs petrol cars – North Harrisdale Primary School

Year 10 Group – Reach for Mars! – Willetton Senior High School

Year 12 Individual – An analytical method for determining equations of rotated parabolas – Willetton Senior High School

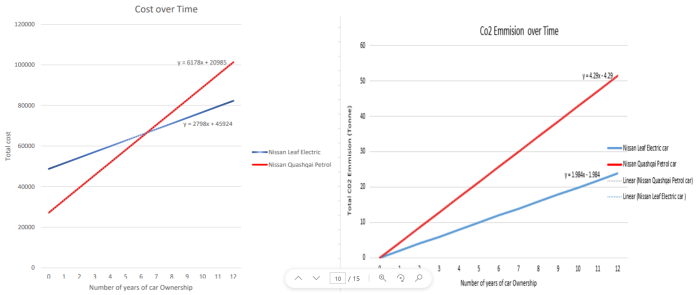
HIGHLY COMMENDED

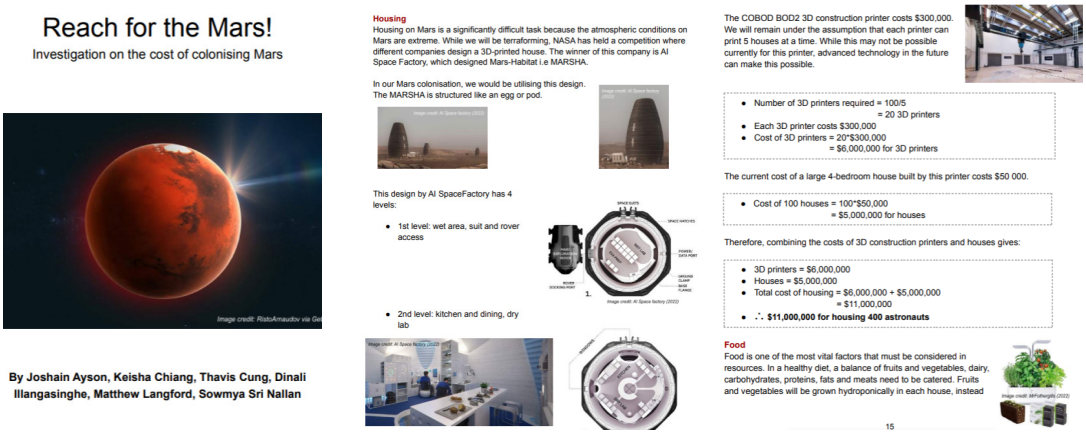
Year 5 Group – what are the costs of fuel at different petrol stations – Ashdale Primary School

MAWA would like to thank Carine Senior High School for hosting the 2022 MTQ Presentation, the teachers and MAWA members who judged, and also Allan Dougan, AAMT CEO who joined us for the virtual national presentation.

YEAR 4 ENTRY - THIVAIN KORALAGE: ELECTRIC CARDS VS PETROL CARS

Using excel I formed up graphs. I learned how to display equation on the graph. I found that it is same as pattern I found which is 6178x+20985 and 2798X+45924. with this pattern I can get the costs for any number of years you use the car by substituting any number to x which I found very useful.





YEAR 10 ENTRY (GROUP) - REACH FOR THE MARS! - MARS COLONISATION COSTS

STUDENT ACTIVITIES

WA MATHEMATICS SUMMER SCHOOL

PAULA MCMAHON

The WA Maths Summer School was held Sunday 15 January to Saturday 21 January 2023. We welcomed 13 students, 4 girls and 9 boys from a variety of Perth and regional schools. We expanded the school to include students who will be heading into Year 11 in 2023. We were delighted with the calibre of students' mathematical knowledge and commitment to a residential university experience. In preparation for the closing presentation the students collaboratively worked on this speech that was delivered by Beatrice and Ishika.

Over the past week we have been exposed to various concepts including Number Theory, Forensic Mathematics and Graph Theory as well as gained some invaluable insight into the university experience. To top this, camp has given us the rare opportunity to forge friendships with like-minded students across Western Australia who share similar interests in mathematics. We'll never forget all the fun bubble tea and milkshake expeditions we went on!

Of course, none of this would have been possible without the help of our lecturers Dr Gamble, Dr Pearce and Professor Valdinoci who gave up their time to introduce us to a multitude of mathematical ideas relevant to their fields. We would also like to thank our tutors Micah, Becky and Darryl who have been supportive throughout the program. A warm thanks to UWA liaison Dr Giudici for showing us around the Crawley Campus and giving us a glimpse of university life. Thank you to Edric from the Pawsey Centre for breaking down quantum computing and to Robyn for her inspiring speech. Thank you to day supervisors Donna Buckley, Amanda Gardiner, Rachel Theunissen and Joan Burfitt for overseeing the lectures and classes each day. Also Michael Dean and Paula McMahon for spending every night ensuring that we did our study and went to bed at a reasonable hour!

Thank you to Woodside for showing us their robotics lab and giving us an enriched understanding of careers in STEM. We also enjoyed the valuable hands-on experience with Woodside's Boston Dynamics Spot Robots, worth $74500 USD. They even let us remotely control them upstairs and pick up objects.

Overall, the WA Maths Summer School was a memorable experience that we will treasure for many years to come.

2023 WAMSS Students

WAMSS GROUP AT UWA ROBOTICS LAB

STUDENT ACTIVITIES

NATIONAL MATHEMATICS SUMMER SCHOOL

PAULA MCMAHON

The National Maths Summer School (NMSS) was held in January 2023 and returned to an in-person school at the Australian National University in Canberra. Seven WA students joined 77 students from other states and terriorties for this invaluable experience.

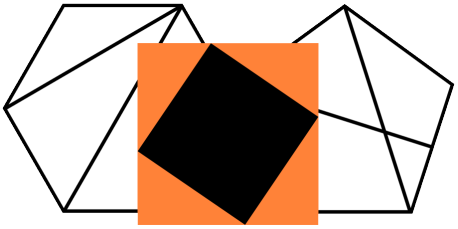
We thank Max for the information about the school.

Over the course of NMSS we learnt about many fascinating concepts such as Turing machines, algorithms, homogenous co-ordinates, and abstract algebra, however despite the large volume of content, the focus in NMSS was really on problem-solving and the process of discovering things for yourself. In school, maths is often taught as an algorithm – when presented with a certain type of problem, you are told to recognise what it is asking and apply the appropriate formula or procedure. Of course in NMSS we were writing algorithms! NMSS is about going beyond this familiar process of applying solutions to a set of known problems, and providing a taste of what real maths is like; venturing into the mathematical unknown to conjecture, fail, prove, disprove and ultimately confuse yourself to the point where you need a nap!

Aside from the academic program there was also a large amount of free time around the meals and an extensive social program, which ensured we had all made many good friends over the course of the camp. There were also many social activities organised primarily by the experienced group, who were returning students from the previous camp with a separate academic program. This included quiz nights, letters and numbers and "NMSSMO" or the NMSS Maths Olympiad; a team-based problem-solving relay which featured such mathematical tasks as "War is peace, freedom is slavery, ignorance is strength. Discuss (100 points)". My personal highlight from the social program was the final concert; a series of acts from various students where I recited the first 150 digits of e (which I had learnt the day before). At the end of the first week we also enjoyed two days of excursions where we had the opportunity to explore Canberra both ourselves and as part of a group, visiting such locations as Questacon and the national museum, and partaking in such activities as ice-skating and escape rooms.

It's not often that one has the opportunity to gather in such a welcoming and productive environment with so many like-minded peers, and so I am grateful to NMSS for providing this very special experience.

If this sounds like something that would interest you,



consider applying through the MAWA website in May when applications open. Prior experience with problem solving helps, but all that is really needed is an enthusiasm for maths.

The MAWA board would like to thank Mark White, Chair of the Maths Summer School selection committee, and the wonderful volunteers who shortlist the applications for WAMSS and NMSS.

STUDENTS ENJOY AN NMSS LECTURE

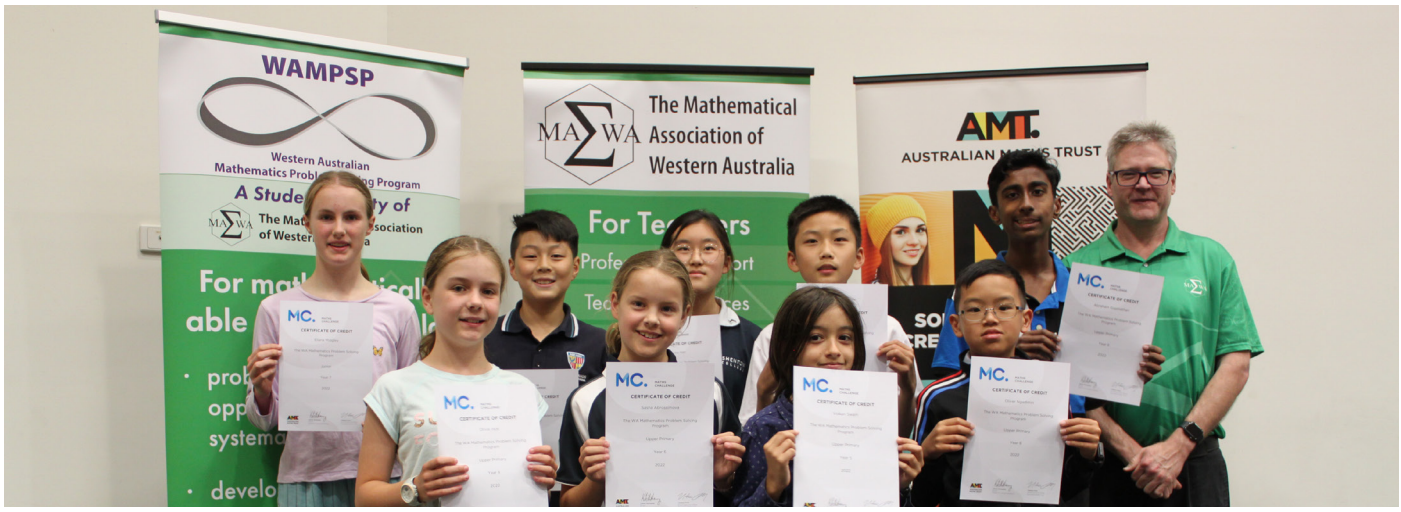
STUDENT ACTIVITIES

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) saw another growth year in 2022, with 442 students enrolled, a 10.0% increase from 2021. The program included face-to-face and online courses at every level from Praeger – Noether and online only for Polya. COVID-19 continued to have an impact during the year and as such the final date for competition entries to AMT was adjusted. There was also an impact on student attendance at several periods through the year. Despite this the program continued to expand.

A presentation ceremony was conducted on 6 December 2022, to award Challenge and Enrichment certificates, as well as Hoffman and AMT scholarships. There was a celebration before the presentation for WAMPSP teachers, MAWA staff and other invited guests to celebrate 30 years of WAMPSP. Paula McMahon addressed those assembled at the start of the ceremony, giving a brief history of the 30 years of the program.

In 2022 MAWA held parent information evenings, both face-to-face and online via Zoom, for existing and prospective parents, with over 150 attendees across both. Based on the success of these evenings we plan to offer a live online meeting in 2023, with the recording available to any parents who can't attend.

WAMPSP students, Year 3 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:

High Distinction: 12%

Distinction: 31%

Credit: 28%

Participation: 29%

ENRICHMENT RESULTS

High Distinction: 10%

Distinction: 15%

Credit: 29%

Participation: 46%

In 2023 WAMPSP will change it's name to the MAWA Problem Solving Program.

MAWAPSP
THE MATHEMATICAL ASSOCIATION OF WA
PROBLEM SOLVING PROGRAM

WA ANNUAL MATHS CONFERENCE

SHANNON TAYLOR

The WA Annual Conference was held at the Crown Convention Centre from 16-18 November. The theme "Maths – A journey, not a destination" highlighted that mathematics should be about the processes and not the product.

MAWA was pleased to have two highly respected educators, Dr. Peter Liljedahl and Dr. Katherin Cartwright, deliver the keynotes. Peter delivering his keynote virtually from Canada and Katherin delivering her keynote in person. The HOLA Forum included presentations and small-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 silver sponsors, the Australian Maths Trust, Education Perfect, Casio Education and Edrolo, and to all other exhibitors and presenters for their support. We welcomed a total of 25 exhibitors, four of which were new to MAWA and several who have returned post-COVID. Further thanks to committee members and office personnel for their valuable assistance in planning and hosting this event. We were happy to see attendance improve on the previous year as we emerge from COVID times. MAWA is committed to fulfilling our aim of delivering high quality professional learning that meets the needs of our members and the committee is to be commended on another successful event.

ATTENDANCE:

Total of **852** delegates over the three days

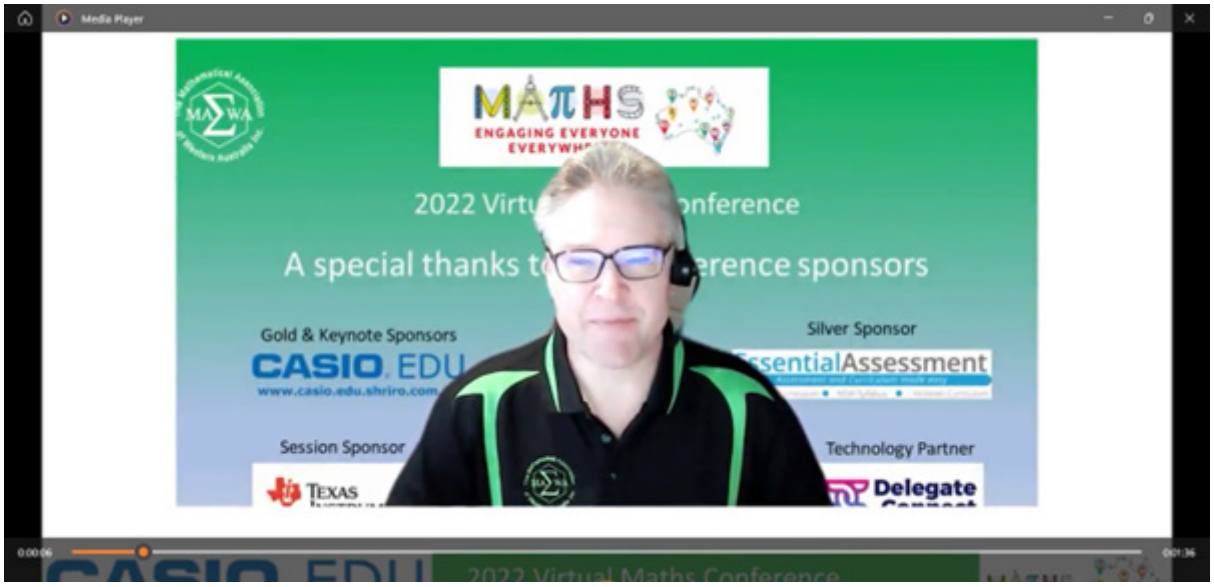
HOLA Forum (Wednesday): **169** delegates

Secondary Conference (Thursday): **382** delegates

Primary and Secondary Conference (Friday): **469** delegates

WA VIRTUAL MATHS CONFERENCE

SHANNON TAYLOR



The WA Virtual Maths Conference that we hosted on Monday 28 March 2022 ran with great success and initial feedback has all been very positive and 100% of those that provided feedback have indicated that MAWA should continue to offer a virtual conference option.

We had a total of 126 delegates sign-up for the conference and 15 school's register for the upgrade to have 12 months' access to the recordings. Our keynote Tom Crawford was a hit with the delegates, and I arranged a 'thank you' hamper that was delivered to him in the fortnight following.

We were fortunate enough to curate a diverse all–star line–up of mathematics greats - twenty in fact - offering their time and sharing their knowledge with our delegates.

We welcomed four sponsors: GOLD sponsor and Keynote sponsor Casio Education; our SILVER sponsor Essential Assessment; our Session sponsor Texas Instruments; and our Exhibitor Bit Maths (Firefly Education).

MAWA President-John West, MAWA Board Director-Rachael Whitney-Smith, and MAWA Office-Associate, Murray Wallis were our outstanding team of room moderators. Their efforts and expertise certainly put the polished edge on the conference delivery and have since been recognised with a small token of thanks.

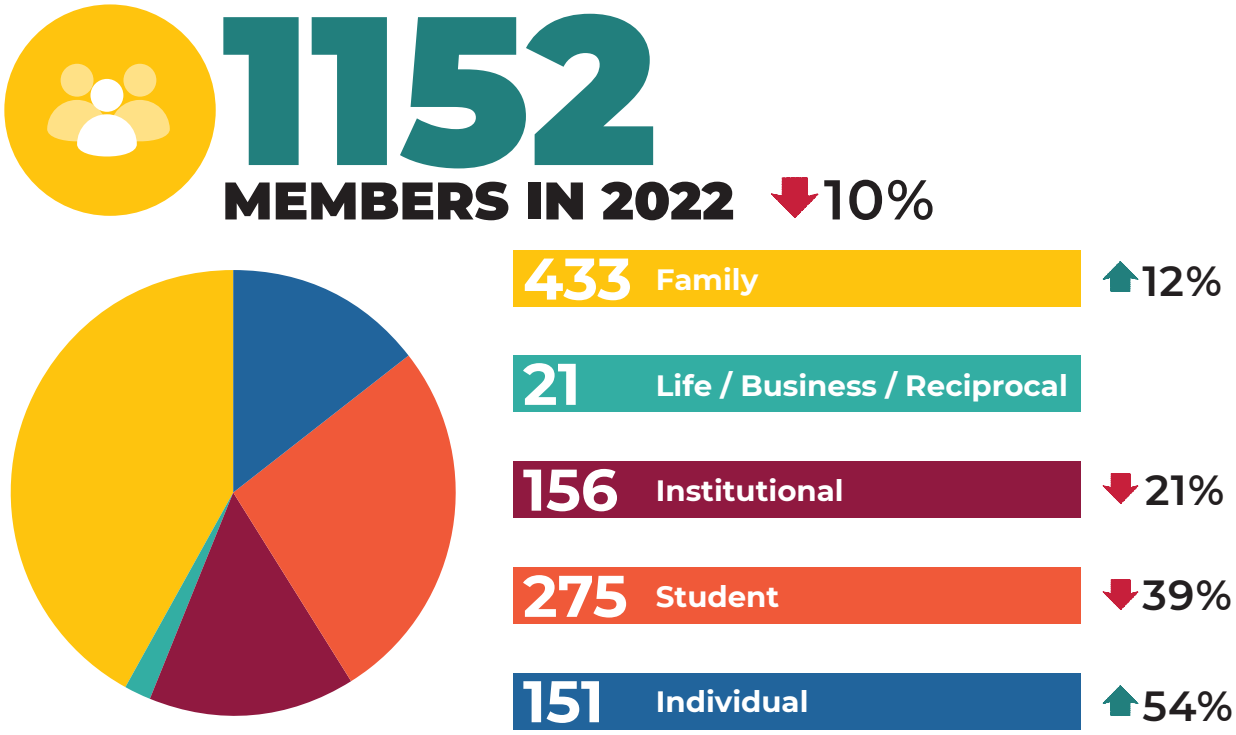
Although we had more delegates than we initially budgeted for (which would have seen a loss of approx. $5100), we suffered an overall loss of approx. $10,000 due to a decision to lower the registration fees in the hope of driving up numbers. It worked but not as well as we had hoped. Please note, that the Delegate Connect fees were paid in 2021 so for the 2022 financial year that will make our position look favourable as we absorbed the loss the previous year.

Nevertheless, after analysing the feedback we have decided to offer a virtual conference bi-annually and I am hoping to present a scaled-back virtual conference/PL offering to the Conference Committee for 2024 that would see our expenses reduced significantly, whilst still being able to provide a valuable service to the mathematics community.

MEMBERSHIPS

PAULA MCMAHON

During 2022 we worked hard to ensure that membership renewal is an automated process for the office, and we are pleased that we have mostly achieved this. With rolling memberships we are still seeing the bulk of membership renewals occurring in the months preceding the WA Annual Maths Conference.



As a member-based organisation it is important that we continue to grow our membership and provide quality services and benefits to members. We are very pleased with the increase in individual members, most of these are primary school teachers. To simplify the enrolment process for parents we have included family membership with WAMPSP registration.

In 2021 we saw an increase of 50 institutional members, however, in 2022 there was a decrease of 40. As a result of this we have developed a variety of strategies to increase institutional membership and renewals. 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
- Discounts in The Maths Store

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 individuals and schools, automating the membership renewal process and development of strategies to increase membership.

SOCIAL MEDIA ADVERTISING

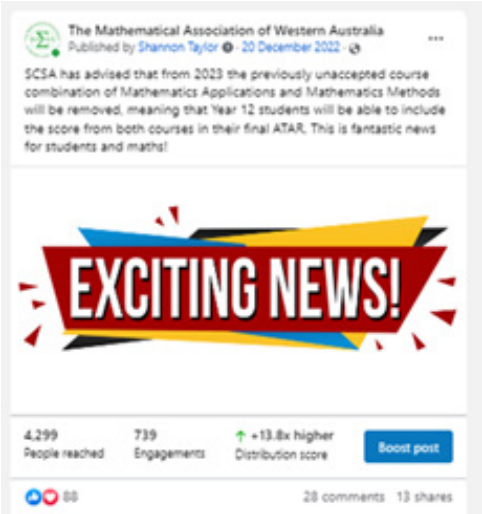
SHANNON TAYLOR AND RACHAEL WHITNEY-SMITH

3653 FOLLOWERS ↑11%
676 FOLLOWERS ↑38%
360 FOLLOWERS ↑21%
419 CONNECTIONS ↑257%

MAWA has a presence on four social media platforms – Facebook, Instagram, Twitter, and now LinkedIn.

MAWA Facebook page continues to be a good source of communication, advertising and engagement with our members and the public at large. We have continued to increase our followers in the last 12 months;

Posts that we share fall into the categories of informative, advocacy, interest, and advertising. A number of posts, relevant to a Western Australian teaching, learning and assessing of mathematics, have been well received, such as the following that prompted 28 comments, 13 shares and a reach of 4299.

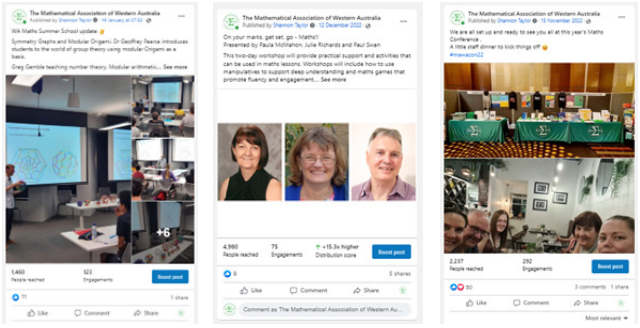


"Interestingly, from the new functionality of the Meta business suite that assists with the pages' data analytics, you can see that we have had over 207 people, while not regular followers, view our page and react to posts.". This would indicate that MAWA posts are being shared beyond our regular Facebook following.

We have continued to advertise through Facebook and again with revised analytics we can review the successfulness of an ad campaign with the following type of data provided.

Over the past 12 months we have also seen an increase in the number of recruitment style posts being requested or shared with MAWA.

Our most popular posts that produce the largest reach, tend to be our MAWA professional learning and student events posts that are shared with other users.



The challenge with Facebook's revised algorithms is to maintain presence on our followers' feeds. This requires interaction and so perhaps we need to create more posts that encourage viewers to add comments, prompting discourse to boost both the reach and potential engagement. Please continue to engage with us and like posts so we can continue to provide you with the type of posts you enjoy.

MAWA Instagram has seen continued growth throughout the past year. We now have 360 followers which is up by 21% since last year.

45% of are Instragram audience are female, with most of our followers between the ages of 25-54. We have 43% of our followers from Perth with another 13% of followers from Sydney and Melbourne.

Here's a snapshot of some of the Instagram posts this year!

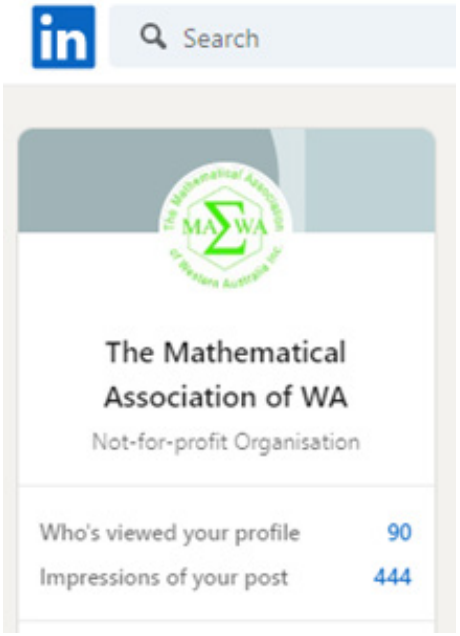
Analytics tell us that the best time to engage our audience is in the evenings between 6pm-8pm, so will will continue posting and engaging with our Instagram audience throughout 2023 and hopefully build on our following and advertising reach.

MAWA Twitter has continued to grow throughout 2022 and now has 676 followers which is an increase of 187 since December 2021. During 2022, we had a total of 17313 tweet impressions, 244 mentions and 2983 profile visits. There was a distinct spike in engagements and impressions during the WA Virtual Maths Conference in March and the WA Annual Maths Conference in November.

The post that received the highest tweet impressions was our conference preparation post after receiving the devastating news of Derek Hurrell's sudden passing. That post and a number of others saw the mathematics community rally around and support each other through a very difficult time.

Twitter remains 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.

MAWA LinkedIn has experienced steady growth throughout 2022 and currently has 419 followers. As LinkedIn is a professional social media platform we have been selective in the posts we share in an attempt to attract interest from industry professionals and unlock potential sponsorship opportunities.



Just in the past 90 days we have had 90 profile views, 444 post impressions and have appeared in 7 searches. Since January 2022 we have had a total of 8214 post impressions.

MAWA's social media strategy sees several hashtags created for major events which are shared on flyers or digitally. In recent years the sharing of our social media posts has been included in many of MAWA's memorandums of understanding with a variety of businesses and partners.

OUTREACH REPORT

PAULA MCMAHON

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 the West Australian Junior Mathematics Olympiad. MAWA was delighted to support University Notre Dame Australia by contributing to the Derek Hurrell Award with professional learning and resources.

It was difficult to expand our outreach program in 2022 due to staff issues and government restriction on school visits. However, despite all the obstacles we conducted some very success professional learning workshops in Albany and Geraldton. In Albany we supported the Have Sum Fun Face-to-Face competition, conducted a successful Maths Meet and a workshop on Bond Blocks for over 60 teachers. Thank you to Rob Berwick, MAWA Great Southern Ambassador, for assisting with some of the organisation and Great Southern Grammar for hosting the PL workshop.

In Geraldton we conducted a workshop on maths strategies, a Maths Meet focusing on using cards for problem solving and another huge Bond Blocks workshop. Thank you to Geraldton SHS and Waggrakine Primary School for hosting these events.

Our partnership with Independent Education and Teaching Pty Ltd strengthened in 2022 with a MAWA representative attending some of the 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, which celebrated 25 years this year.

In 2022 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.

MAWA would like to thank our regional ambassadors, Rob, Beth, Ashleigh, Jennifer, Belinda, Brandon and Ngaire, for the work they have done in promoting MAWA and MAWA events in their region.

PUBLICATIONS

PAULA MCMAHON

One of the major additions to the MAWA publications is resources that support multiplicative thinking. With the support of researchers and authors, Dr Derek Hurrell and Dr Chris Hurst, we now have an extensive product, much of which is free on our website. There is yearly subscription to access the suite of electronic resources that include diagnostic tasks, student activities, teacher notes and investigations. All of this is supported by a document that links multiplicative thinking to the P – Year 10 curriculum. Each year new resources will be added and linked to the Australian Curriculum Version 9 during 2023.

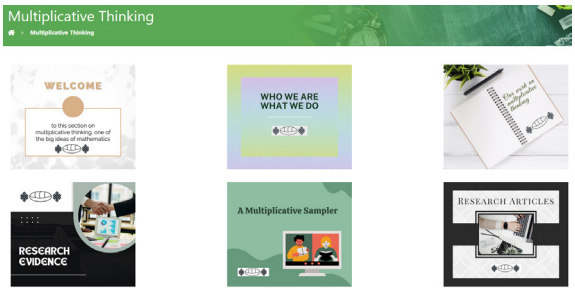
We have increased our range of mathematical games, with each game being reviewed before being added to the shop. In 2022 the games added include ones that target addition and subtraction for junior primary students. Also added is Footy Feud Rookie, once again target audience is junior primary. Several new books by Dr Paul Swan on problem solving and the Pre-Foundation and Foundation Bond Block books by Narelle Rice are now available through MAWA.

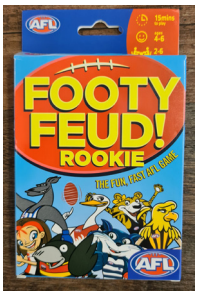
To support professional learning, particularly in country schools, we have developed a virtual PL package. Many of the presenters are well-known Australian mathematics educators or consultants. The package contains over 50 hours of recorded PL that schools have access to for 12 months. Many of the workshops are a perfect length for staff meetings!

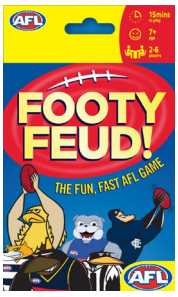
At our annual conference we gifted to teachers complimentary copies of Mathematics Foundation Unit 1, 3 and 4. We still hold a small quantity of printed copies of these. However, electronic copies are available from our partnership suppliers.

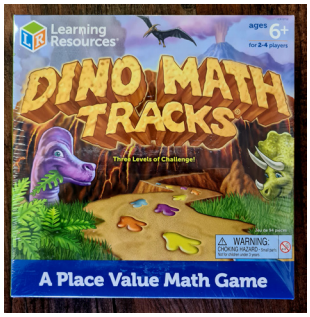
Our partnership with The Australian Association of Mathematics Teachers (AAMT) has continued and they have added several new titles by Peter Sullivan and Doug Clarke.

We would welcome any suggestions for new resources. Please contact helpdesk@mawa.edu.au









PROFESSIONAL LEARNING

PAULA MCMAHON

Delivering professional learning in 2022 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.

The January workshop with Julie Richards and Dr Paul Swan proved popular with the teachers leaving with a bag of resources and many ideas to create a positive attitude towards mathematics. During 2022 we assisted in delivering 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, including reflective workshops for second- and third-year students while on their practicum.

Most short workshops have been delivered by the MAWA Executive Officer, with most schools needing to have multiple presentations due to school level COVID restrictions. We appreciate the professionalism of out outside presenters Derek Hurrell, Chris Hurst, Narelle Rice, Julie Richards and John West who presented wonderful workshops to teachers and parents on behalf of MAWA.

Classroom Corners continued with one per term. Virtual delivery of these has proved most popular and it was wonderful that many country and interstate teachers could participate. Teachers appreciated that they left with an activity they can use in the classroom the next day.

The consultancy aspect of MAWA is slowly increasing with some schools engaging with us to provide support with OLNA preparation. I would like to thank the wonderful band of teachers Rachel, Natalie, Belinda, Jane and Clare for sharing their expertise in this area.

Early in 2022 attendance at interstate conferences was difficult so I engaged with 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.

STATISTICS

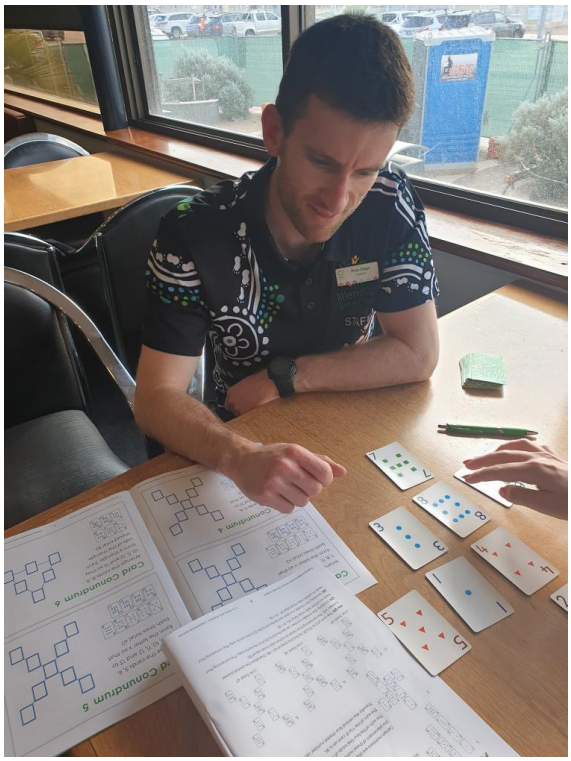
75 sessions at University of Notre Dame,

39 PL workshops,

6 consultancy sessions,

3 parent workshops or information sessions,

6 PL sessions with networks.
7 PL sessions through Outreach Program.



OFFICE REPORT

SHANNON TAYLOR

The MAWA Office started the year expecting that we would be out the other end of all the COVID challenges but how wrong we were! As we navigated ever-changing COVID restrictions, we then had to navigate the world with COVID. We were forced to postpone a few events to later in the year which placed enormous strain on the office in the latter part of the year. All staff engaged in a work-from-home agreement from February and when it was time to return to the office, with the support of the Executive and the Board, all staff were granted the option to continue their work-from-home agreements. This move provided staff with a higher level of job satisfaction and the Executive was satisfied with the productivity amongst the team with this arrangement in place.

We worked through the majority of the year without Tom who was forced to take extended leave after a back injury and in October Tom left MAWA's employ. During that time we employed a Junior Office Support in Layla Anson who commenced with MAWA in August. It was a frantic time to start in a new position but Layla provided some vital support during these busy times.

We enlisted the support of two new regional ambassadors in the South West Region in Ashleigh Webb from Cape Naturaliste College and Beth Thompson. Our regional ambassadors help to link MAWA to teachers, parents, and students in their regions, becoming a voice for their community in identifying needs for MAWA to address through our Outreach Program. We welcome you both and look forward to working with you in 2023.

We hosted our first completely virtual conference on Monday 28 March 2022 which certainly helped meet the needs of many teachers across Australia. The conference was a huge success and we are looking to host them bi-annually going forward.

Our WA Annual Maths Conference was almost back to pre-COVID times with 852 delegates attending across the three days including a record-breaking 169 attending the HoLA Day. We were treated to two very engaging keynotes provided by Dr. Peter Liljedahl on Thursday and Dr. Katherin Cartwright on Friday. The program was made complete with over 70 presenters who supported our conference in delivering sessions over the three days. We welcomed 25 exhibitors to conference, three of which were brand-new to MAWA and several that hadn't attended since 2019 due to border restrictions and the likes. We hope everyone involved enjoyed their time and we look forward to welcoming an even bigger crowd in 2023.

Despite the challenges we have faced over the past few years, MAWA continues to be a vibrant, and progressive organisation. Our small and hardworking team of staff and wonderful volunteers have yet again risen to the challenges and ensured MAWA's events have been a huge success. Thanks to our team for their hard work and dedication, and the wider Maths community for their continued support. We are excited at the possibilities and growth that 2023 may bring!

MAWA MATHS EXPO

SHANNON TAYLOR

MAWA hosted our fourth Maths Expo at Crown Perth on Sunday 18 September 2022. We introduced showbags this year which have a collection of activities and puzzles along with a pack of cards and some dice plus some MAWA merchandise. We were excited for the day given the number of registrations we had. However, the turnout on the day was quite disappointing and nowhere near what we were expecting.

We were particularly thankful to the exhibitors, students and volunteers who gave their time to assist on the day.

We feel there were a number of factors that contributed to the poor attendance which did prompt a further evaluation of the costs, time and effort we put into the expo.

As a result of our evaluation we opted to host the 2023 expo at a community centre which would assist in reducing venue hire costs. We also decided to charge a small fee per family, at $10 for member families and $15 for non-member families. Then upon sign-in on the day, each attending family will receive a $10 voucher to use at the MAWA stand. We also felt that by paying a small fee they are more likely to attend on the day.

We added the showbags to the registration process so families can pre-order which will help eliminate extra time spent on assembling them plus reducing the amount of stuff we have to transport to and from the event.

We also changed the event times from a 2-hour AM and PM session to a 3-hour session from 10am to 1pm.

All in all, the staff are looking forward to the 2023 expo in a brand new location and new timeslot.

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

BATTLING IT OUT TO BE THE MABBLE CHAMPION!

MATHS ACTIVE SCHOOLS

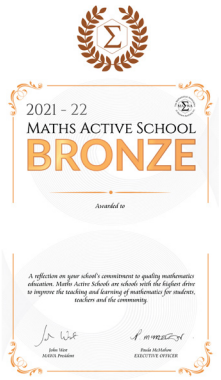
PAULA MCMAHON

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 2022

2021/2022

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

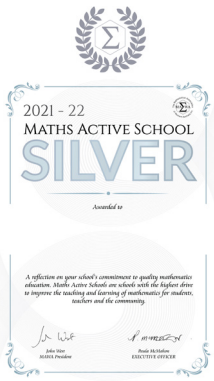
Carine SHS
Churchlands SHS
Georgiana Molloy Anglican School
Karratha SHS
Melville SHS
Mt Barker Community College
Penrhos College



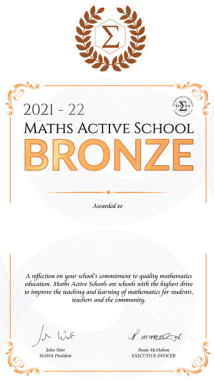
Ashdale Primary School
Bob Hawke College
Fremantle Christian College
Fremantle College
Harrisdale Secondary College
Koondoola Primary School

2022/2023

Carine SHS
Mt Barker Community College



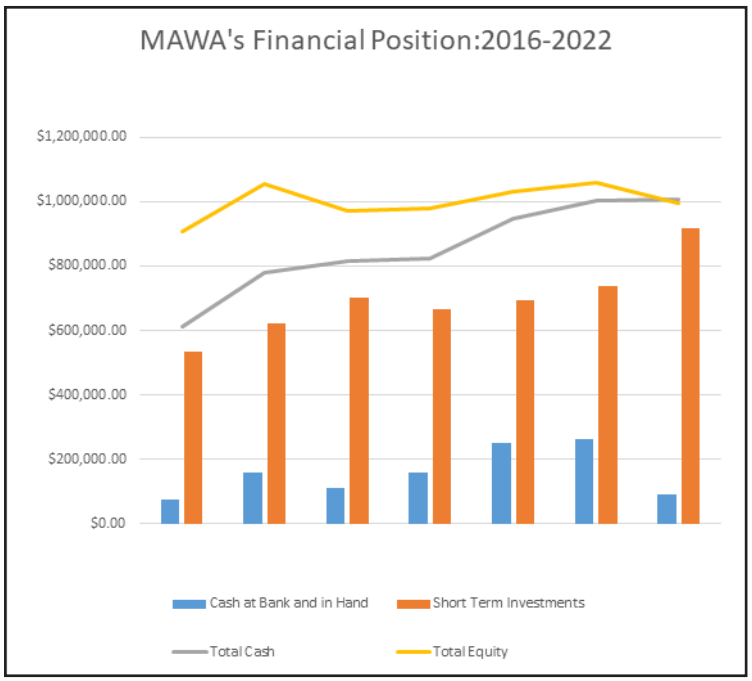
Bannister Creek Primary School
Quintilian School



Alkimos College

FINANCIAL OVERVIEW

ROM CIRILLO



While MAWA continues to be in a sound financial position, 2022 was not a profitable year, the association having recorded a small loss (relative to asset base) for the year. 2022 resulted in a deficit of $60 132, compared with a profit of $28 761 in 2021. Noting that in 2021, $24 355 came from Covid-19 government stimulus and in 2022 an unrealised loss of $25 329 for our investment portfolio, which is included in the loss of $60 132. With the additional expenses related to unexpected staff costs of $28 765 the effective operating loss from MAWA's core business operations was only $6038, a much more palatable figure.

A graphical 'snapshot' of our financial position is illustrated by the graph, comparing our cash position with total equity 2016-2022. As can be seen, there has been no significant improvement in the total equity position over the last 5 years. While it has been a challenging time, I do not believe that such a low return (in fact a negative return over the last 12 months) on member's equity is desirable going forward and the Board has considered alternatives for increasing revenue and reducing expenditure going forward.

It should be noted on the balance sheet the Mirrabooka property is listed at $195 769 and this has not changed since the purchase in 1992. The property is currently insured for $700 000. After receiving financial advice the finance committee decided not to change the property value on the balance sheet. The reason for this decision is once it is changed MAWA would need a professional valvualtion of the property every year, costing over $1 000 per year.

There have been changes in the type of personnel employed due to a variation in the human resources to be provided for student activities in 2023. These and other factors have already been considered in the budget for 2023 which is expected to result in a modest profit in 2023 (~$35 000) to reverse the decline of 2022.

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 2022.

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 (or chair of the finance and risk committee) being much easier than it may otherwise have been.

griffin o'dea partners

Independent Assurance Practitioner's Review Report

The Mathematical Association of Western Australia (Inc)
For the year ended 31 December 2022

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 2022, 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:

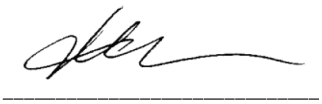
1. giving a true and fair view of the associations financial position as at 31 December 2022 and of its financial performance and cash flows for the year ended on that date; and
2. complying with Australian Accounting Standards to the extent described in Note 1 and Division 60 of the *Australian Charities and Not-for-profits Commission Regulations 2013.*

Independent Assurance Practitioner's Review Report

griffin o'dea partners

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 Bowler
391 Goodwood Rd, Westbourne Park, SA

Dated: 24th April 2023

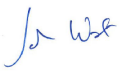
True and Fair Position

The Mathematical Association of Western Australia (Inc)
For the year ended 31 December 2022

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 2022.

Signed: 

Dated: 24 / 04 / 2023

Signed: 

Dated: 24 / 04 / 2023

ORGANISATIONAL STRUCTURE

BOARD AND ASSOCIATION STAFF

BOARD

Position:	Name:
President	John West
Treasurer	Rom Cirillo
Board Directors	Jack Bana
	Robert Berwick
	Sheila Griffin
	Joli Mendez
	Julie Richards
	Alan Sadler
	Rachel Theunissen
	Rachael Whitney-Smith

ASSOCIATION STAFF

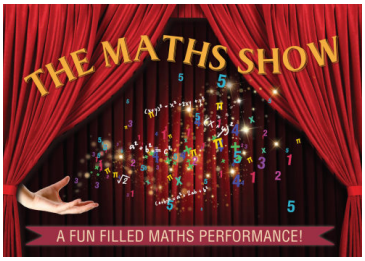
Position:	Name:
Executive Officer	Paula McMahon
Corporate Manager	Shannon Taylor
Student Programs Coordinator	Tom Love
Accounts Adviser	Mario Ravat
Office Associate	Murray Wallis
Office Associate	Tanya Condo
Junior Office Support	Layla Anson
Web Maintenance & Graphic Design	Leighland Swan

OUR PARTNERS AND SPONSORS

We would like to acknowledge the support of our Partners and Sponsors throughout 2022. Thank you all so much for your support and contribution to MAWA! We were thrilled to work with you all during 2022 and recognise the vital contributions you make that assist us in delivering quality products and services to the mathematics community in WA and throughout Australia. We cannot succeed without the generosity of supporters like you.

AMT
AUSTRALIAN MATHS TRUST

Kennedy PRESS



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