

Annual Report The Mathematical Association 2023

From the President



Yes, the time is near, my Presidency of the Mathematical Association is coming to a close. Now I am required to write this end-of-year report. The kind and brilliant staff of the Mathematical Association have sent me three of the previous Presidential reports to help me.

Reading through them all one of them made this quote;

"For mathematics to be useful in today's society it has to be invisible".

Guess what! Not on my watch! In 2004, I wrote an article called *"Proud to be a mathematician!"* – where a non-mathematician said to me;

"If mathematicians are not proud about their subject, then who on Earth will be!"

The article went on to describe how I in 2003 phoned up a radio station and argued and won a debate about the value of mathematics! This is not a call for arms, it is a call for self-awareness! Yes, first and foremost we do need brilliant mathematics teachers, then after this, we need brilliant mathematics communicators but there is room for those who will stand up, do not apologise for being a mathematician and say that;

"Mathematics is indisputably the greatest subject in the world!"

That is the mathematician I am, and that is the mathematician I will always be! No apology, no hiding the subject, make it visible and shout out loud – I am proud to be a mathematician!

We do not have to look far to find those who question mathematics' usefulness and value. When it's those of mass influence and/or the holders of budgets, then it becomes a problem.

For example, in early 2023, I was invited onto BBC News to talk about the Prime Minister's proposed policy of making mathematics compulsory till pupils turn 18. Mistakenly, they called me the President of The Mathematical Association. When the newsreader, challenged me about the "usefulness of mathematics" and how we could make someone who hated the subject like it – my reply was that

"Everybody knows that - Mathematics is indisputably the greatest subject in the world!"

To the second point, I said this

"If we can show how mathematics is linked and is one of the foundations of a pupil's passion then you will enhance that passion!" The newsreader was left smiling after this!

Throughout my Presidency, I have appeared on national and local radio, championing mathematics to writing articles in the Observer on Christmas Eve.





Science

The 10 biggest science stories of 2023 - chosen by scientists 3.Girls doing hard maths



▲ Ne"Kiya Jackson, left, and Calcea Johnson, right, are given the keys to New Orleans by mayor LaToya Cantrell after the students found a new proof for Pythagoras's theorem. Photograph: @mayorcantrell/ Twitter

Nira Chamberlain OBE is president of the Mathematical Association and a visiting professor at Loughborough University

So, it is not my mission to make mathematics invisible. It is my mission to show the world its beauty, power, and relevance. You will see more of this in my Presidential Address.

However, I do not wish to be complacent. I do not have all the answers. I do wish to hear the views of others. When I started my mathematics communication career, the first question a pupil asked me, is **"What is the Point of Mathematics?"**.



Clearly in my first presentation, my pro-mathematical message had not come across. So, as a regular, I pose the question, "What is the Point of Mathematics" to a diversity of guests. These are made up of mathematicians, maths teachers, lecturers, industrial experts, and stakeholders. The answers have been wide but one common trait is the passion for mathematics. One guest, Dr Sophie Carr said... "The point of mathematics is because it is fun!"

While Dr Anatasia Sofroniou turned the question on its head by saying ... **"What can you do without mathematics!**"

By the end of my Presidency, I am hoping to record 30 VLOGs which I hope will be a resource available to all schoolteachers for a long time to come. One of the most popular VLOGs was Dr Tom Crawford with 7.8K views on X (formerly known as Twitter)

In this interview, Dr Tom Crawford talked about mathematical modelling and explained it in a way that a 13-year-old could understand. Mathematical modelling is such a creative subject, it is one I hope Teachers in Secondary education will explore. One of the articles I wrote for the predecessor of Mathematical Angles was *Mathematical Modelling in the Classroom – How many seats should they be in the School's Canteen?* It is important when doing mathematical modelling to do problems that you can relate to. Why, as there is not necessarily a right or wrong answer but how well your mathematical model mimics reality. To show mathematics as a creative and experimental science is not a bad thing.

My final article for Mathematical Angle is *The Mathematics of Tomorrow.*

In this article, I state that

In the future, it may be possible those who know a little bit of maths will argue with numbers to make big decisions about our lives. It is already happening. With the rise of AI (Artificial Intelligence), will this occur even more?

For the mathematics of tomorrow, mathematics will become a way for the student to challenge and validate decisions made about themselves where these decisions may have a big influence on their lives. To me, this is the point of mathematics.



Finally, I wish to address the article I wrote for Mathematical Angle – called Mathematics and the Value of Representation. Here, I quoted Dr Aris Wenger CEO of Mathematical Enrichment for Diversity and Learning, USA who said

You can't say that mathematics comprehension and aptitude are so important to the health of a nation and have so many underrepresentation populations and not label it a crisis!

The world is becoming more smaller, more data driven as well as becoming more diverse. There are complex problems we are leaving behind for our future generations to solve. We must believe that mathematics is for everybody and anybody. We must equip future generations with the tools of mathematics and tell them as my dad said to me

"You don't need anybody's permission to be a great mathematician"



Meet the President

m-a.org.uk/meet-the-president

It has been an honour being your President. **Professor Nira Chamberlain OBE**



From the Chair

As Chair of The Mathematical Association, I would like to thank everyone who contributed to the success of our numerous events, publications and journals over the past year.

Highlights for the past year include:

Delivering a successful joint annual conference which attracted over 250 delegates across two days in person. Reaching over 97,000 primary pupils through their participation in the Primary Mathematics Challenge (PMC) and the First Mathematics Challenge (FMC).

Organising a successful and well attended programme of professional development webinars, including a series specifically aimed at supporting special educational needs.

Adding two new books to our publication's portfolio.

Launching our new member magazine 'Mathematical Angles'.

Increasing our engagement through X/Twitter to over 34,600 followers

Relocating our HQ to Loughborough University

These would not have been possible without so many members volunteering to share their time and expertise with their fellow members, ably supported by our excellent team at MA HQ. Thank you all for your efforts.

It's also been another busy year for our various journals. Huge thanks should be given to everyone who contributed towards the following:

• three editions of The Mathematical Gazette* (the Association's general interest mathematical journal)

- five editions of Mathematics in School* (aimed at teachers working in secondary schools)
- three editions of Primary Mathematics
- three editions of Equals Online (a valuable resource for those working to ensure that pupils with Special Educational Needs benefit from mathematics).

We also have a new official magazine combining all the best bits of SYMmetryPlus, Mathematical Pie and our members' newsletter, the MA News, entitled 'Mathematical Angles'. The first issue was released in October and was very positively received.

Don't forget that our online newsletter, E-News, is circulated on a monthly basis to both members and nonmembers who sign up to receive it.

I hope you agree that this has been an incredibly busy and highly rewarding year for everyone involved in The Mathematical Association. It would not have been possible without so many members volunteering to share their time and expertise with their fellow members, ably supported by our excellent team at MA HQ. Thank you all for your efforts.

If you feel that you may be able to help out too, please do get in let us know, we'd love to hear from you.

Dr Ems Lord Chair of The Mathematical Association

*Please note that issues more than five years old of both The Mathematical Gazette and Mathematics in School are also available online through JSTOR, and the Association receives a royalty income from JSTOR.

From the Treasurer

The Association's expenditure exceeded income by $\pounds 125,596$ in 2023. This figure includes expenditure of just under $\pounds 90,000$ on special projects, covering costs associated with the relocation of our offices, and the investment in a market research project designed to help improve the value we provide to members and increase renewal rates.

Excluding this expenditure on special projects, the Association still ran a deficit. At a time of increased costs of goods and services, this deficit represents a pleasing performance, and is testament to the excellent work of the Association's staff. This result was achieved despite notable drops in a few income streams. Postponement of the Equals conference, for example, meant that income that was expected during 2023 will now materialise in early 2024 instead.

Following the withdrawal of banking services by one of our banks, the Association was forced to undertake the transfer of just under 500 members who paid by direct debit to a different bank account. This process resulted in the loss of just under 300 members. We recognise the importance of our membership base, hence the investment in the aforementioned research project.

The Challenges have been key success stories in 2023, with both the Primary and First Maths Challenges seeing growth in the numbers of schools and pupils taking part. The other major story from the year was the sale of the old Leicester headquarters and move to new offices in Loughborough.



The Association's net assets at 31

December 2023 stood at £653,973 compared to £459,332 in 2022—though it must be noted that the 2022 figure is based on a 2019 valuation of the Leicester property. The Association's cash balance, including mediumand long-term investments, was in excess of £700,000 at the end of 2023, with most of this having come from the sale of the property. A portion of the proceeds from the sale was put towards the market research project, and a further amount is earmarked for much-needed upgrades to IT systems that will unlock future growth.

The majority of the cash balance has been responsibly invested across a range of interest-paying accounts. This helps offset the loss of rental income and property appreciation previously enjoyed by the Association when it owned the Leicester property.

> Sudeep Gokarakanda Treasurer

THE MATHEMATICAL ASSOCIATION ANNUAL REPORT 2023



Membership

In 2023, we simplified our subscription offerings for Primary, Secondary, and Gazette Memberships, with an option for Membership Plus for those who want extra benefits. Members can choose the journals they wish to receive and pay annually or monthly.

We started a campaign in May, offering 16 months for the price of 12 for schools and organisations, and recruited thirty-two new organisations between May and August. We ran a similar campaign for personal members in September and recruited twenty-four new members over four months.

Teaching Committee

The Teaching Committee met virtually three times this calendar year. Our two subcommittees, the Joint MA/ATM Primary Group and the 11-18 subcommittee, also met termly.

During the year, the Teaching Committee received presentations from Catherine Boulton of The Royal Society on the 'Mathematical Futures' programme, Steve Wren of Ofsted on the 'Ofsted mathematics subject report' and Liz Woodham and Charlie Gilderdale from NRICH on their task development process.

Our output included:

- A response to the Ofsted mathematics subject report
- Guidance on Assessment in Key Stage 1
- Two responses to the Mathematical Futures discussion paper

These documents can be found in the 'We Say' area of our website.

We are always looking for new members, either for the Committee itself or our subcommittees. We are particularly keen to improve representations from Wales and Northern Ireland. To find out more or to express an interest in volunteering, please email: tc-chair@m-a.org.uk



David Miles Chair of Teaching Committee

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Once again, we offered an online-only membership to Teach First, a teacher training program; we also welcomed 161 scholars from the LMS supported, Mathematics Teacher Training Scholarships for secondary mathematics teachers.

Towards the end of the year, we hired Membership Matters to conduct an extensive study of our membership program. The results were positive and showed that members value the journals we produce and the professional development we offer. We will incorporate these findings into our membership offerings for 2024.

Our membership numbers: 4.7k Facebook followers, 34.4k X followers (formerly known as Twitter), 2k non-members, and 2.5k members signed up for our monthly e-newsletter.

Jemma Sherwood, Chair of Membership

Annual Conference

Finding the Common Factors

The conference this year was a joint conference of the five mathematical associations – AMET, ATM, MA, NAMA and NANAMIC. This year marked the return to a residential conference that took place over two days (3-4 April 2023) at Warwick University, with around 250 delegates attending.

Keynotes from Tony Cotton, who explored "More in Common: Educational Journeys through Mathematical Activity", and from Dr Colin Foster (giving the MA President's speech) who explored the idea that sometimes 'Less is More: Improving by removing". Both keynotes were very well received and left attendees with plenty to reflect on.

With 65 different talks and workshops available from Anne Watson's 'Changes in the Meaning of 'Number' throughout the Curriculum', and Richard Perring's 'Exploring Structure'; to practical teaching ideas from Jo Morgan, Robert Smith and Tom Francome; sessions on neurodiversity and mathematics from Alison Kiddle and Karen Skilling; to exploring the history of mathematics with Jim Simons; there was truly something for everyone in the programme!

As well as the core sessions there was also time to rest, relax and spend time with friends old and new through the social aspects of the programme including the keenly fought quiz.

It was a great pleasure to help bring together so many people to talk about mathematics and

mathematics education, from across the five associations, and provide an opportunity for us to share our experiences and find out our own common factors.

> Dr Andy Kemp Chair of Conferences



From the Editor in Chief

This year saw several significant changes and advancements in our journals, and I would like to sincerely thank all of our editors and associated staff for working so hard to ensure that we continue to publish high-quality articles and features in each of our publications.

I would like to draw attention specifically to Mathematical Angles, which amalgamates several publications into one modern and sleek magazine and has recognisably taken a lot of effort to accomplish. It has been very well received and we have been sent numerous positive comments from members. I am personally very pleased with such a positive step and would like to extend my thanks and congratulations to all involved in such an exciting development. Revitalising already strong outputs will, I am sure, encourage even more readership in 2024.

Article submissions are strong across all of our publications, with both the Gazette and Mathematics in School having a healthy surplus of content taking us well into 2024. As always, we seek to ensure that articles appeal to and represent our membership, and I am delighted that we conducted surveys with members this year to help inform future editions and help us adapt where necessary.

Teaching is a challenging profession, particularly at the



moment, and we strive to be as useful and practically applicable as possible.

Our relationship with Media Shed continues to work very well, and we are working closely with Cambridge University Press to ensure that renewals and renegotiations work favourably for the MA. We are currently exploring the best options to preserve and advance the Gazette in 2024/5.

Primary Mathematics and Equals continue to thrive as the only available publications in their respective sectors, highlighting the innovations and opportunities we have taken to shine lights on such important facets of mathematics education, and I look forward to seeing their growth and successes in 2024, including another Equals conference breaking new ground in that area.

It was great to have a joint conference in 2023, which generated further interest in our publications both for readers and contributors, and I look forward to another great conference in 2024. Such events are excellent opportunities to continue to strengthen our ties with our colleagues at NANAMIC, NAMA, AMET and ATM.

Ed Southall Editor in Chief

Challenges

First Mathematics Challenge (FMC)

The FMC continues to grow, reaching over 31,000 pupils. The number of participating schools rose from 570 in 2022 to 634 in 2022, an increase of 11%.

The Challenge took place between 12th and 23rd June 2023, and once again the feedback was overwhelmingly positive. Some of the comments include:



Dr Amanda Moon Chair of FMC



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The PMC took place over two weeks 6th- 17th November, allowing our schools taking part online plenty of time to get involved.

The 2023 Primary Maths Challenge paper was fantastic, the results we received reflected this and there has been our

largest intake for the Bonus Round in 2024 yet.

We saw an increase in the participation of schools by 6% from 1280 in 2022 to 1355 in 2023. Which led to an

increase of pupil participation from 57, 000 in 2022 to 65,000 pupils in 2023.

We were pleased to invite those who scored 20 and above to take part in the Bonus Round in February 2024 which resulted in 4500 invites. Making it the highest number of pupils invited to the Bonus Round ever.

The PMC team continues the search for a lead volunteer to take on the construction of the PMC paper. We hope any interested parties will be in touch with MA HQ.

The favourite questions from the November 2023 paper were:

Mario bakes a circular pizza and cuts a slice which makes an angle of 72° at the centre of the pizza. What fraction of the pizza is left?

A $\frac{1}{2}$	B $\frac{2}{3}$	c $\frac{3}{4}$	D $\frac{4}{5}$	E $\frac{5}{6}$
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How many different sizes of squares can be made by choosing four dots in a 4 by 4 square array and then joining them up?

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> Katherine Milner Chair of PMC

Publications

The Committee continued to focus on generating high-quality publications, that reflect the appetite of MA members and the mathematics community. We are committed to publishing books that we believe will sell well.



In 2023 we launched 'If I Could Tell You

Another Thing' edited by David Miles. This was an eagerly anticipated sequel to the popular 2022 publication 'If I Could Tell You One Thing' edited by Ed Southall. Chapters have been commissioned from mathematical educators who have professional expertise in secondary and post-16 settings. Early career teachers will find wisdom and guidance to implement in their classrooms.

'Focus on the Visual' by Chris Pritchard was also released, which contains essays on mathematics and its teaching.

New book launches have been marketed in several ways including adverts in journals, email campaigns and social media to reach a wider audience.

2023 also saw the rebranding of the book covers for the popular '*Challenge Your Pupils*' series in line with the Primary Mathematics Challenge branding. The '*Challenge Your Pupils*' series was also promoted alongside the Primary Mathematics Challenge in email campaigns and on social media. The Publications Committee remains keen to continue to offer new and high-quality books whilst remaining open to alternative options for the development of resources allowing us flexibility to keep costs to a minimum whilst also not sacrificing our access to potential publications.

Jill Trinder Chair of Publications







FOCUS ON THE VISUAL Essays on Mathematics and its Teaching Chris Pritchard Foreword by Colin Foster

Professional Development

I have very much enjoyed joining the Mathematical Association Council as the chair of the Professional Development Committee this year. The committee meet virtually, every term, meeting twice so far, during my time as chair.

The Committee continued its focus on building engagement with the maths community through scheduled webinars. These have been regular since the beginning of the year, and we plan to continue offering webinars throughout the year.

We were forced to postpone our Equals conference; Access for All, but we are pleased to be able to pick it back up again in 2024.

After securing fantastic speakers and having engaged with a larger number of our members, we are ready to explore additional ideas to reach more maths educators and

strengthen our professional development offering to the maths community.



Earlier in 2023 the MA undertook a membership survey. Prompting discussion around how we can build

on the webinar programme and offer a broader selection of professional development via digital channels including shorter, bitesize sessions.

The Professional Development Committee remains committed to engaging with members and the wider maths community to support their professional development. We aim to do this for all phases of education and continue to look for and experiment with new ways in which to offer professional development to our members and the wider maths community.

Louise Pennington Chair of Professional Development

Branches

The Branches' bursary for the 2023 MA joint conference for the two days at Warwick University was advertised on the MA website and an email was sent to all branch secretaries alerting them to this offer. Despite this there has only been one enquiry, who got funding from her employer to attend and no other applicants. The Branches committee meeting was at the end of the excellent Joint Conference in April at Warwick. It was good to see people face to face again, though disappointing that so few branches were represented.

MA headquarters were pleased with the return of financial details from Branches and the auditors have asked for bank statements from branches to confirm that their financial positions are correct. Although subsidies are no longer given any new branches that need financial support to get established can apply for a subsidy.

The Branches Committee advertised for someone to report on youth activities within the network of Branches and the MA on a twice-yearly basis, April and October. A notice was placed in December's and January's editions of e-news and MA News as well as being sent to branch secretaries. There were two enquiries as to what the position involved but no further acknowledgement. It was decided that each Branch could report on any Youth activities connected to their Branch. Several Branches do Masterclasses including the Sussex branch and the Yorkshire branch

It has been pleasing to see a few more meetings appearing on the calendar. I too have had several email conversations with MA members as a result of Colin Foster's article in October's MA News concerning getting members of a branch to lead a session and not feel the need to go for the 'big names' When branches are thinking of their next year's programme of talks it may be good to look at the skills within the branch as well as seeking speakers from outside. All Branches are asked to send their programme or any meetings they are having either to me or to



headquarters to advertise the events being held.

Branches where meetings have been held include Yorkshire, Cambridge, Stoke and Staffordshire Liverpool. The volunteers who organise meetings for their local branches deserve many thanks for all the work they do in arranging the smooth running of these events whether they are online or in person. Thanks also goes to those at MA HQ who update the Branches sections of the MA website very quickly and efficiently, the E-newsletter, which goes out to recipients monthly as well as MA News (which is now Mathematical Angles), of which there are three editions, containing branch news during the year.

I have had one query from Lisa at the Sheffield Branch who says: 'I wanted to find out if there were any other university branches involved in the MA. If so, I'd be interested in some joint work and discussion about the direction of teacher training, experiences of Ofsted etc,'. This query has been sent around the Branches with Lisa's consent.

I have also had a couple of queries regarding starting up branches in areas at present without one. I hope to see this develop over the coming year.

> **Cindy Hamill** Chair of Branches

Library

Donations and Duplicates:

The two largest donations to the MA since 2020 – Dr AEL Davis's 400 titles and Graham Hoare's 150 titles – have been almost completely catalogued and shelved by the University of Leicester. Around £400 from the disposal of duplicates from donations will be used to fund some additional cataloguing. A special collection of around 500 duplicate titles from all donations has now been accommodated in the new Loughborough office.

Advertising:

Five tweets have been posted on anniversaries for authors of works featured in the MA library: Charles Hutton, 200th on death; John Venn, 100th on death, Blaise Pascal, 400th birthday; Julian Coolidge,150th birthday; Leopold Kronecker, 200th birthday.

A guided tour of all parts of the MA Library in the University of Leicester Library was provided on 28 September for all MA office staff, to raise awareness of the scale and character of our unique historical collection.

MA Headquarters:

After 50 years, the headquarters of the MA in Leicester has been sold and all the contents moved to a rented office at the University of Loughborough and a storage facility in Leicester. The MA Library at the University of Leicester was not part of the move, but the longstanding accommodation at 259 London Road of donated books, waiting for transfer to the University, duplicate titles from donations, and archival materials, including minute books and library card index boxes, have all been affected. The donated books in boxes have all been accommodated in the new office, along with the special book collection mentioned above.

MA Librarianship:

After nearly 25 years, the current MA Librarian, Dr Michael Price, retired at the end of 2023.

Association Articles and Regulations

These documents can be viewed at: www.m-a.org.uk/articles-and-regulations

Presidents

President: Prof Nira Chamberlain **Immediate past president:** Dr Colin Foster **President designate:** Charlie Stripp

Officers

Chair of Council: Dr Ems Lord Honorary Secretary: Dr Paul Harris Treasurer: Sudeep Gokarakonda Branches: Lucinda Hamill Conferences: Dr Andy Kemp Editor-in-Chief: Ed Southall Membership: Jemma Sherwood Publications: Jill Trinder Professional Development: Louise Pennington Teaching Committee: David Miles Challenges: Dr Amanda Moon

Members without Office

Stella Dudzic Charlotte Hawthorne Jo Morgan Cherri Moseley Dr Chris Pritchard Bill Richardson Manina Tyler-Mort

The Mathematical Association

(Registration number: 05729264) Balance Sheet as at 31 December 2023

	2023 £	2022 £
Fixed assets		
Tangible assets	4,484	385,770
Investments	600,000	-
	604,484	385,770
Current assets		
Stocks	12 706	22 155
Debtors	22.067	40 664
Cash at bank and in hand	104.010	40,004
	104,910	100,485
	150,773	164,304
Creditors: Amounts falling due within one year	(80,203)	(60 404)
Net current assets	(80,203)	(00,404)
Total assets less current liabilities	70,570	103,900
Creditors: Amounts falling due after more than one year Net	675,054	489,670
assate	(21,081)	(30,338)
assets	653,973	459,332
Funds of the charity:		
Restricted income funds		
Restricted funds		
Unrestricted income funds	6.500	6.500
Unrestricted funds	0,000	0,000
Total funds	647,473	452,832
	653,973	459,332

For the financial year ending 31 December 2023 the charity was entitled to exemption from audit under section 477 of the Companies Act 2006 relating to small companies.

• The members have not required the charity to obtain an audit of its accounts for the year in question in accordance with section 476; and Directors' responsibilities:

• The directors acknowledge their responsibilities for complying with the requirements of the Act with respect to accounting records and the preparation of accounts.

These financial statements have been prepared in accordance with the special provisions relating to companies subject to the small companies regime within Part 15 of the Companies Act 2006.