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# FOREWORD

*Professor Kerstin Jordaan*

It is a pleasure to once again write to you about the activities of the South African Mathematics Foundation (SAMF). The highlight of the first quarter was without a doubt the International Day of Mathematics (IDM) that took place on 14 March. The United Nations Educational, Scientific and Cultural Organization (UNESCO) declared the day at their General Conference last year to observe the beauty and significance of mathematics and its crucial role in everyday life.

People and organisations hosted over 900 events in celebration of the IDM. We, at the SAMF, decided to host the first rounds of our two national mathematics competitions during the same week as the IDM. The Old Mutual South African Mathematics Olympiad (SAMO) first round was on 12 March and the Nestlé Nespray South African Mathematics Challenge (SAMC) from 9 to 13 March.

The theme for this year's IDM was 'Mathematics is Everywhere', and it highlighted the importance of mathematics in day-to-day life. Let's look at some daily areas where mathematics applies:

- Mathematics help to shape and achieve industrial and cultural systems facilitating sustainable management of resources.
- Travellers explore the world guided by exact mathematical calculations based on the location of the sun, stars and GPS satellites.
- Doctors examine the interior of the human body with CT scans and MRI, producing images out of binary data through mathematical algorithms.
- Developers learn how human reasoning works by creating AI software that can study and make choices through models.
- Scientists recorded a black hole and continue investigating the boundaries of the universe with mathematics.



# FOREWORD

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Nelson Mandela said that "Education is the most powerful weapon which you can use to change the world." SAMF aims to influence the standard of mathematics teaching and learning positively. Through our competitions, we strive to build a mathematically enabling environment, which affords opportunities for all learners to grow to their fullest potential. Together with our various stakeholders, we further promote research in mathematics and mathematics education. With the help of our sponsors, we enable mathematics educators to engage in co-curricular programmes to fit them with the essential skills and confidence to meet the hurdles of curriculum shifts.

With your help - the teacher, the parent, the business person - we can instil a culture of mathematics among South Africans. It is my genuine wish that you find the content of our newsletter informative and valuable.

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Apply today - visit [www.thuthukabursaryfund.co.za](http://www.thuthukabursaryfund.co.za).



## IMPORTANT DATES FOR REST OF THE YEAR

Due to the COVID-19 epidemic some of our activities will have to be rescheduled pending on the reworked school calendar.

### Old Mutual South African Mathematics Olympiad (SAMO)

Round 2: to be announced

Round 3: 23 July

### NESTLÉ NESPRAY South African Mathematics Challenge

Round 2: to be announced

Round 3: 28 July

### International Mathematical Olympiad (IMO) (to be announced)

### Pan African Mathematics Olympiad (PAMO) (to be announced)

### ASSA South African Mathematics Team Competition 5 September

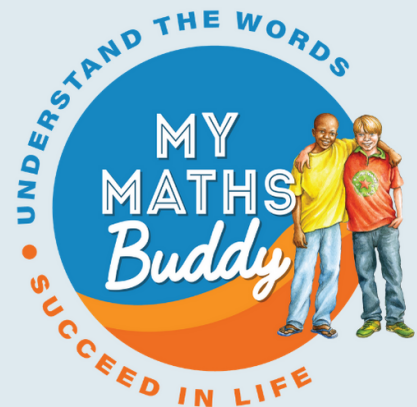
For more events, visit our  
website.

## AMESA CONGRESS POSTPONED

As per the recent address (Sunday, 15 March 2020) by State President Cyril Ramaphosa, Coronavirus Disease 2019 (COVID-19) is declared a national disaster and gatherings of more than 100 people are prohibited. In support of our South African Government initiative and measures to vigorously curtail and contain the spread of the coronavirus, we as AMESA National Council in association with the AMESA 2020 Congress LOC have therefore decided to postpone the AMESA 2020 Congress. We will be rescheduling the AMESA Congress at a much later date and will communicate the new date as soon as we are able to.



"I was not improving. I used to be level 4. But now I am passing Maths at level 6! Thanks My Maths Buddy for everything!"



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# LOOKING BACK ON THE INTERNATIONAL DAY OF MATHEMATICS

*by Staff Writer*

On Saturday, 14 March, the world celebrated the International Day of Mathematics (IDM). The United Nations Educational, Scientific and Cultural Organization (UNESCO) proclaimed the IDM at their General Conference last year. 14 March was chosen as the date for the IDM because many countries observe it as Pi Day (written as 3/14) and because the mathematical constant Pi is roughly 3.14.

Led by the International Mathematical Union (IMU) more than 900 international and regional organisations, from all over the world, held events in line with this year's theme that was "Mathematics is everywhere".

The South African Mathematics Foundation (SAMF) joined in the global effort to observe the beauty and significance of mathematics and its essential role in everyday life.

- We hosted the Old Mutual South African Mathematics Olympiad (SAMO) and the Nestlé Nespray South African Mathematics Challenge (SAMC) first rounds during the IDM-week.
- Soshan Soobramoney, a member of the SAMF board and actuarial science lecturer at the University of Johannesburg, spoke to [eNCA viewers](#) about how mathematics is about the study of patterns and how stakeholders can work together to improve mathematics education.
- Patrick Rasehwete, project manager at the SAMF, addressed delegates at a seminar held by the Association for Mathematics Education of South Africa (AMESA) in Rustenburg.
- Linked with the theme of the IDM Mathematics is Everywhere Aaron Pearlman, 2019 SAMC silver medallist, from King David Linksfield demonstrated the use of symmetry in Ndebele art.

"The programmes we run at the SAMF are so much more than competitions with top achievers. It stimulates interest in the subject and identifies and develops mathematical ability. It makes a difference in the lives of people living in the real world. However, to make a difference in the lives of others, we need partners on both sides of the equation. We, therefore, request professionals and other people with interest in mathematics to support us by becoming a Mathematics Guardian," says Soshan Soobramoney, qualified actuary and Board member of SAMF.

## WAYS TO ASSIST

Get a **MYSCHOOL/MYVILLAGE/MYPLANET** card and make SAMF your beneficiary. Every time you shop and swipe we benefit. [www.myschool.co.za](http://www.myschool.co.za)

- You can either get the card online
- Email [ellie@samf.ac.za](mailto:ellie@samf.ac.za) and she will email you the form
- Download the Virtual MySchool Card for FREE on App Store or Google Play Store, sign in and scan your virtual card at till points to give back every time you shop

### Become a Mathematics Guardian

The time to act in order to improve mathematics education is now! Become a Mathematics Guardian today by committing R100 per month. Donating is quick, safe and easy. Guardians will receive a section 18A tax deduction certificate. Donate via PayFast - <https://www.payfast.co.za/donate/go/southafricanmathematicsfoundation>

# PROFILE: SALLY GOLDMAN

*by Staff Writer*

Sally Goldman is the latest member on the Problem Solving Committee of the Nestlé Nespray South African Mathematics Challenge (SAMC). She holds a Bachelor of Arts and a Higher Diploma in Education and has been teaching mathematics for Grades 4 to 8 since 1982. Sally is also the co-author of Maths Fundi Study Guides and Workbooks for Grades 4 to 7. As a member of the Problem Solving Committee, she is accountable for setting papers for the SAMC.

We met with Sally to find out more about the person behind the professional who has a passion for instilling a love for, and excitement about, mathematics in young people.



## **Where did your love for mathematics start?**

Actually, I really didn't enjoy Maths at school! I think it's because I lacked confidence in the subject and had teachers who never really affirmed me in it or made me see the relevance. Only when I studied my post-graduate teaching course and had to learn to teach it, did I discover that not only was I good at it but that it held all sorts of wonders.

## **What is the highlight of your career?**

Being Head of Maths in the Senior Primary section at Durban Girls' College allowed me to be very hands-on in the direction of the department. My phase head at the time believed in the importance of problem-solving and encouraged me in all the Challenges we entered. I had fabulous colleagues who graciously let me teach the most Maths-able classes. Gifted education has always particularly rocked my boat.

## **How do you spend your free time?**

Free time – what free time?! Writing and self-publishing our Maths Study Guides and now the workbooks have been all-consuming these past two years. But when I do take some downtime, I love reading, hiking and just being in the Berg, being involved in our local church, running, Pilates and yoga and spending time with friends and family.

## **Who do you admire most, and why?**

Of the people I actually know, my husband, Rob. I took him to my matric dance, and we have been married for over 37 years. Apart from being my best friend, he is patient, kind, supportive and funny. He was my absolute rock when I was going through cancer treatment about 7 years ago. Of the people I don't know personally, it would have to be Mandela, for how he overcame so many hardships and injustices, yet had love, compassion, forgiveness and vision.

## **Why is it important that schools should participate in the SAMC, and how can teachers incorporate problem-solving in their classrooms?**

Maths is such an essential part of our everyday lives, no matter what career paths we choose. Problem-solving helps develop our thinking skills so that Maths becomes relevant in all decision making. Entering events such as the SAMC gives structure to this and ensures that teachers are devoting time to it. Ideally, problem-solving should be a part of every Maths lesson, not an add-on. I love seeing the excitement and sense of achievement when children get to experiment and manipulate ideas.

**We want to use this opportunity to publicly welcome Sally to the Problem Solving Committee, and we hope that her journey with us will be a rewarding one.**





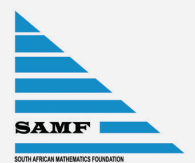
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# GOING BEYOND THE CURRICULUM: SAMF OLYMPIAD PROGRAMMES

by Ellie Olivier

There is a famous anecdote about a renowned mathematician, John von Neumann. A friend of Von Neumann gave him a problem to solve: two cyclist A and B, at a distance of 20 miles apart, were approaching each other, each going at a speed of 10 miles per hour. A bee flew back and forth between A and B at a speed of 15 miles per hour, starting with A and back to A after meeting B, then back to B after meeting A, and so on. By the time the two cyclists met, how far had the bee travelled? To his friend's astonishment von Neumann gave the correct answer in a flash by summing an infinite series.

Prof Man Keung Siu, in his paper, *The good, the bad and the pleasure (not pressure!) of mathematics competitions* apply the story to explain that there are several ways to go about solving a mathematical problem. The process of first calculating when the cyclists met is slick and captures the key point of the problem. The other way of summing the infinite series is slower and goes about systematically solving the problem.

The first method, which has been going on in the classroom of most schools, is to present the subject in a consistently organised and cautiously designed structure complete with exercises and problems. Another approach, which goes on more predominantly in the training of mathematics competitions, is to confront learners with various kinds of problems and to train them to look for multiple ways to solve the problem, thereby acquiring a host of strategies and techniques. Each approach has its separate merit and complements each other.

(continue on next page)



## South African Mathematics Challenge

This competition aims to enhance the quality of teaching and learning, and promotes problem-solving in mathematics education for any learner in Grades 4 – 7.





### ROUND 1

**9 – 13 MARCH**

- ✓ Entry fee (see link below)
- ✓ Singles or doubles
- ✓ Grade 4, 5, 6 or 7

**REGISTRATIONS**  
Closing date:  
28 February 2020



### ROUND 2

**27 MAY**

- ✓ No fee
- ✓ Learners obtaining  $\geq 50\%$
- ✓ Singles only

**REGISTRATIONS**  
Closing date:  
14 May 2020



### ROUND 3

**28 JULY**

- ✓ 432 Learners selected
- ✓ Best provincial performers
- ✓ Singles only  
Juniors (Grades 4 – 5)  
Seniors (Grades 6 – 7)

**ROUND 3 QUALIFIERS IDENTIFIED**  
14 July 2020



**SMART CAMP**



TBC

- ✓ Top 10 learners per division will be invited (20 x kids)
- ✓ Learners will participate in various interesting maths activities

In partnership with SAMF and AMESA



**SAMF**  
SOUTH AFRICAN MATHEMATICS FEDERATION



**AMESA**  
The Association for Mathematics Education of South Africa



**SMART CAMP**



**19 SEP**  
CAPE TOWN

**Junior and senior winners will be awarded:**

- ✓ Overall winner for junior and senior groups
- ✓ 9 x Runners-up for junior and senior groups
- ✓ Top-participating school
- ✓ Best-performing new school
- ✓ Best school per quintile (5 x Schools to be awarded)
- ✓ Best-participating school

For more information, visit our website for the entry form: <http://www.samf.ac.za/sa-mathematics-challenge>



(continued from page 8)

Learners who shine in mathematical Olympiads and competitions are not all-natural problem-solvers, but exceed because they have good teachers/mentors who expose them to problem-solving over some time. The problems in a mathematics competition are more complicated and stimulating than the usual exercises of the classroom, giving promising young mathematicians chances to expand their horizons and show their potential.

Since mathematics provides the foundation for many desired career paths, the improvement of mathematical problem-solving skills is essential for our country's economic growth. We have to empower learners to become independent, creative and critical thinkers to interpret and critically analyse everyday situations and to solve problems and develop future leaders and influencers in the science, engineering, technology, economic, financial, and management sciences space.

It is pleasing to see that many teachers understand and recognise the significance of mathematical competitions giving the fact that more than 176,000 primary and high school learners participated in the first rounds of the Old Mutual South African Mathematics Olympiad (SAMO) and the Nestlé Nespray South African Mathematics Challenge (SAMC). More than 86,000 Grade 8-12 learners from 1,200 schools participated in the SAMO and more than 89,000 Grade 4-7 learners from 1,096 schools participated in the SAMC.

We want to thank teachers for allowing their learners to go beyond the curriculum and the provincial education departments, especially Western Cape, Kwa-Zulu Natal and Mpumalanga, for encouraging schools to participate. Learners who achieved at least 50% in the first rounds will advance to the second rounds in May.

Learners who develop their mathematical problem-solving skills over time have an advantage over learners who only write the different rounds of the competitions. We, therefore, invite learners who have qualified for the second round of the SAMO/SAMC to register for our Olympiad Training Programme - <http://www.samf.ac.za/en/olympiad-training-programme-2>. The ideal outcome is that you foster a genuine interest in mathematics as a subject, but that you should also enjoy the extracurricular activity. I conclude with a poem by Prof Siu:

*The good, the bad and the pleasure of mathematics competitions  
Are to which we should pay our attention.  
Benefit from the good; avoid the bad;  
And soak in the pleasure.  
Then we will find for ourselves satisfaction!*



**Register as an  
online user!**



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- Access to the school profile for authorised SAMO teachers.
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