



Maths & Science Re-Matric Project in 2021 [Article Link](#)

NEWS

NMU maths centre develops course to help matrics pass Second Chance exams

BY HERALD REPORTER - 03 MARCH 2021



DIFFICULT SUBJECT: Two pupils make use of a programme developed by the Nelson Mandela University Govan Mbeki Mathematics Development Centre to help matrics who just missed a pass or exemption to succeed in their Second Chance exams

Few things strike fear in the minds of matric pupils as much as mathematics or science – the two dreaded subjects that have often stifled the progress of pupils and thrown their tertiary dreams off course. But thanks to an initiative introduced by the education department called Second Chance, matric pupils have been afforded the opportunity to rewrite their matric exams the following year and improve their marks. To ensure this is not in vain, the Nelson Mandela University Govan Mbeki Mathematics Development Centre has stepped in and developed a ReMatric course aimed specifically at pupils who just missed a pass or exemption.



Each qualifying pupil is given a tablet, preloaded with a special app called TouchTutor® that contains all their course work. The pupils are guided through the curriculum with a facilitator who identifies gaps in their knowledge and helps with processes.

Centre director Prof Werner Olivier said the eight-month programme integrated customised offline and online digital materials that were aligned with the school curriculum.

It also includes many self-assessment opportunities and culminates in a mock exam to prepare the pupil for the real thing.

"When we realised how many matrics failed because of the interruption in schooling – in the Eastern Cape alone, nearly 21 000 learners got less than 30% in their final exams in 2019 – we worked on repurposing our programmes towards helping them pass their Second Chance exams.

"This is a pilot in the Nelson Mandela Bay metro that we are hoping to roll out across the country," Olivier said. However, he warned that the programme required a lot of commitment.

"It is only suitable for young people who have narrowly missed their goal and are prepared to work hard to make it."

Isuzu Motors SA, an existing partner of the centre, is the sponsor of the pilot project. Isuzu corporate communications manager Gishma Johnson said the project fell within their philosophy to provide sustainable solutions in the community by investing in skills development and education.

The Govan Mbeki Mathematics Development Centre will run a second pilot programme in the rural Komani district in partnership with Get Ahead College.

Contact details for the Gqeberha pilot programme are: WhatsApp: 064-044-0717; e-mail: gmmdc.mathsci.rematric@gmail.com; Facebook: <https://www.facebook.com/groups/778988723031387/?ref=share>

Re-writing matric maths and physical sciences just got a whole lot easier.

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26/02/2021

The two subjects that most matric learners fear and dread are mathematics and science – and often these are the two subjects that cause learners either to fail their year, or miss out on a university pass. The Department of Basic Education has created an initiative called Second Chance: where matric learners are given the opportunity to re-write their matric exams in the following year and improve their marks.

Some Second Chance matric learners sign up to a private college that tutors them through the revision process... but how do learners manage who cannot afford to re-do their exams through a private college? What resources are available to the financially-challenged matriculant who needs support?

That is where the Nelson Mandela University Govan Mbeki Mathematics Development Centre (GMMDC) has been able to step in.

The centre has developed a ReMatric course, aimed specifically at matric learners who just missed a pass or exemption. Based on their highly successful Technology-Assisted After-School Support programme (TAPS), which was developed over ten years to help high school learners navigate maths and science, the GMMDC Maths & Science ReMatric programme is aimed at the talented learner who deserves a second chance.

The ReMatric programme is sponsored by Isuzu Motors South Africa (ISUA) in 2021 and runs over eight months. The programme integrates customised offline and online digital materials that are interactive and fully aligned with the school curriculum. It also includes many self-assessment opportunities and culminates in a mock 'exam' to prepare the learner for the real thing. Each qualifying learner is given a tablet that is pre-loaded with a special app called TouchTutor® that contains all their course-work, and they are guided through the curriculum with a facilitator who identifies gaps in their knowledge and helps with processes.

"We learnt many new and creative ways to assist learners using technology," says Centre director Prof Werner Olivier, "and we also had to adapt our techno-blended model to long-distance learning in a very short time since the lockdown started. We discovered that our successful Incubation Support Programme lent itself very well to long-distance learning. When we realised how many matrics failed because of the interruption in schooling – in the Eastern Cape alone, nearly 21 000 learners got less than 30% in their final exams in 2019 – we worked on repurposing our programmes towards helping them pass their Second Chance exams."

ISUA, an existing partner of the GMMDC, is pleased to be involved with the roll out of this pilot programme that aims to provide a viable model at scale to assist with the skills crisis and youth employability in the country.

"Our aim is to provide sustainable solutions in the community by investing in skills development and education. We are cognisant that mathematics and science are critical subjects in the fields of science and engineering and we support the need to improve these skills," said Gishma Johnson, Isuzu's Corporate Communications Manager.

"This is a pilot in Nelson Mandela Bay Metro that we are hoping to roll out across the country," continues Olivier, "and so there are limited places available. Anyone is welcome to apply for this technology-assisted Maths or Physical Sciences ReMatric tutoring programme and to go through the assessment and pre-selection process. However," he warns, "this requires a lot of commitment. It is only suitable for young people who have narrowly missed their goal, and are prepared to work hard to make it. Just like our sponsor slogan, we need learners who will be with us for the long run."

Further good news: the GMMDC is able to confirm that a second pilot programme will be launched in the rural Komani district in partnership with Get Ahead College. This pilot will be sponsored by the BK Board.

Contact details for the Gqeberha (Port Elizabeth) pilot programme:

If you wrote matric in 2020 (or 2019) and need to improve your maths and/or science marks, here are the contact details: Whatsapp: 064 044 0717; e-mail: gmmdc.mathsci.rematric@gmail.com; Facebook: <https://www.facebook.com/groups/778988723031387/?ref=share>

Contact details for the Komani pilot programme will be posted to our the above facebook link in the next weeks.



Re-writing matric maths and science

25 Feb 2021



Learners engaged in a GMMDC programme early in 2020 (see sidebar) Photo: SUPPLIED

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Some Second Chance matric learners sign up to a private college that tutors them through the revision process. But how do learners manage who cannot afford to re-do their exams through a private college? What resources are available to the financially-challenged matriculant who needs support?

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According to Gishma Johnson, Isuzu's Corporate Communications Manager, they are cognizant that mathematics and science are critical subjects in the fields of science and engineering.

"We support the need to improve these skills," said Johnson.

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NMU's Maths-Art Competition adding up in unexpected ways

A Math-Art Competition for schools that was started to encourage pupils' interest in maths and to stimulate creativity, critical thinking and problem-solving, has had a number of unanticipated and powerful outcomes.

Run nationally for the past four years by Nelson Mandela University's Govan Mbeki Mathematics Development Centre (GMMDC), the competition has started to break down barriers between maths and art departments in schools and universities, attracted interest internationally and from the most remote corners of SA, and become an outlet for pupils to express their deepest emotions, and be heard.

Each year, the competition introduces a different theme, ranging from maths in human designs or nature to "my universe" to "beautiful mathematics", with pupils submitting artworks, supported by written explanations.

What has emerged every year are a broad range of exquisite artworks, some looking at the mathematical patterns found in nature, in the leaves of a succulent, the symmetry of a human face to architecture.

The work has been incredi-

ble, but it is the outpouring of emotion and the engagement between people that has added extra flavour.

The pupils have not just shared their feelings about maths, their passion or frustration for the subject, or surprise in discovering mathematics all around them, but also their feelings and questions about other aspects of life.

With maths defining perfect proportions, some of the artworks have also become an outlet for girls to talk about their bodies, the pressures they face to meet the world's expectations of perfection and size.

Those who have looked at maths and machines have shared an excitement for the future and how fast the world is moving.

In the midst of the ongoing Covid-19 pandemic, and the violent riots in parts of SA earlier in 2021, teachers and pupils shared how the competition gave them something positive to focus on.

It is also important to understand where the competition comes from.

For many years, GMMDC has been working with under-resourced schools across the country, using a mix of technology and conventional



In My View

WERNER OLIVIER, CARINE STEYN and VICTORIA SHEZI

teaching to help pupils improve their maths and science marks, to gain access to university.

Part of this has also been preparing pupils for careers in the Fourth Industrial Revolution — where digital literacy is key.

But just as important is creative problem-solving — a skill that's not always taught in classrooms.

This is one of the reasons GMMDC has adopted STEAM (Science, Technology, Engineering, Art and Mathematics) education as a key focus area.

It's a shift away from STEM, a trend that is growing overseas, to challenge pupils to understand themselves and the world around them, and to use their experiences and creativity to develop solutions that address the world's chal-

lenges.

The Math-Art Competition is STEAM in action, with creativity linking education to real-life experience.

GMMDC has strong links with an international STEAM study group, which includes participants from Finland, Austria, England and the US.

This has opened doors to deliver presentations about the competition at international conferences and to publish a book chapter and several articles, but the scope for further research and analysis remains enormous.

There is a plan to turn each year's submissions into a book, so the work remains accessible.

What has become clear from the competition is it's not only the pupils whose minds have been opened.

Art teachers — who have expressed reluctance to be involved in a maths competition — have seen how bringing a more creative approach into the classroom has changed pupils' enjoyment of the subject.

A number of schools are encouraging pupils to enter the competition annually.

But not all those participating come from these schools.

One pupil, from a deep rural area, saw the competition advertised on a website and submitted his artwork on his own.

One of GMMDC's fundamental principles is that the competition is accessible to everyone.

All that is needed to enter is a pencil and paper, and though the first round of judging takes place online, GMMDC has ensured this process uses little data.

When this pupil was selected to submit his artwork, it took GMMDC several attempts to get a courier to his community to collect his artwork — and deliver it to the university for the second round of judging.

The competition's judges come from a broad range of disciplines, including maths, art, architecture and educa-

tion, both here and abroad — stimulating new conversations and building bridges between hard sciences and social sciences, another key aim of the STEAM approach.

Competition partners over the years have included the Western and Eastern Cape departments of education, Umalusi (Council for Quality Assurance in General and Further Education and Training), South African Mathematics Foundation (SAMF), Centre for the Advancement of Science and Mathematics Education (CASME), University of the Free State, Kuthwanong Centre for Maths, Science and Technology, SA Agency for Science and Technology Advancement (SAASTA), Independent Schools Association of SA (ISASA), and Curro Schools.

But GMMDC is always on the lookout to find other strategic partners to grow the project even more.

● Prof Werner Olivier is the director of the Govan Mbeki Mathematics Development Centre (GMMDC) at Nelson Mandela University. Carine Steyn is the academic project coordinator at GMMDC and the project leader of the Math-Art Competition. Victoria Shezi is the administrative officer of the Math-Art Competition.

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The Govan Mbeki Maths Development Centre (GMMDC) has launched a free access YouTube Channel containing a range of resources that school learners can download. Check out their channel on the link below!

VaalFM - importance of science and maths interview with Prof Muronga - 15 Nov21



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'Beautiful maths' competition inspires SA's learners

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07/09/2021

The symmetry of a face, the angles of a city skyline, the way fireflies start flickering in unison: Mathematical shapes and patterns are all around us – and they can take our breath away.

"Beautiful mathematics" was the theme of this year's MathArt Competition, run annually by Nelson Mandela University's Govan Mbeki's Mathematics Development Centre (GMMDC) – and it drew more than 350 successful submissions from Grade 7 to 12 learners across the country, from Okiep to Nelspruit, Mthatha to Paarl, Durban to Gqeberha.

"The MathArt competition aims to create awareness of the connections between mathematics and art, and is central to the vision and mandate of our centre to promote creative problem-solving and STEAM education," said GMMDC Director Prof Werner Olivier.

STEAM is the acronym for Science, Technology, Engineering, Art and Mathematics Education – a shift away from traditional STEM education, and a movement that has been embraced overseas, recognising the valuable role of creativity in the sciences in the Fourth Industrial Revolution.

Fifty judges working in national and international art, educational and mathematical fields had the gruelling task of selecting the top 20 finalists in each grade.

"Learners had to submit their entries online and then the top 20 in each grade had to send their artworks through to us, for final judging," said GMMDC competition leader Carine Steyn.

In addition to their artworks, which could be A4 to A2 size, and make use of any media on paper, from pencil to paint to embroidery and collage, the learners had to send written answers to three questions: What maths did you use? How does your artwork show "Beautiful Mathematics"? Explain why your artwork is creative and original.

"Some of our artworks had a COVID-19 theme. For instance, one artwork depicted a nurse and highlighted the beauty of precise measurements of oxygen levels and medicine," said Steyn.

One of the gold winners, Grade 7 learner Kim Davids at Erica Girls Primary in Gqeberha, depicted a learner in a mask and was titled "The wonders of maths during lockdown".

But most learners steered away from the pandemic, with many depicting mathematics in nature or manmade structures – ranging from the Fibonacci spiral in a chameleon's tail, to patterns in the stars, to the intricate architecture of Big Ben.

"As always, we were blown away by the talent of our learners – and how they took this year's topic and really dived into it," said Steyn.

The other gold winners were: Grade 8 learners Kari de Kock from El Shaddai Christian School in Durbanville, Western Cape and Abigail Dollenberg from Penryn College in Nelspruit, Mpumalanga; Grade 9 learner Amore Snyman from Paarl Gymnasium, Western Cape; Grade 10 learner Lukhanyo Gaisa from Harvest Christian School in Gqeberha; Grade 11 learner Annabell Ooshuizen from Andrew Rabie High in Gqeberha; and Grade 12 learner Alisha Atwaru (awarded posthumously) who attended the online Teneo School, and lived in Pietermaritzburg.

Silver winners included Grade 7 Erica Girls learners Phedzi Tyala and Zenathi Manzini, Grade 8 Penryn learner Bongzi Ngoma; Grade 9 learners Amkitha Fetsha from Westering High, Gqeberha and Emma van der Waal from Bridge House School in Franschoek; Grade 10 Paarl Gymnasium learner Hano Nieuwoudt; Grade 11 homeschooler Kaylee Fittock, based in Cape Town; and Grade 12 Okiep High learner Duncan Langdown.

Bronze winners were Grade 7 learners Hendrick Strauss from Calvinia Primary, Northern Cape and Stephen Douglas-Henry from Grey Junior, Gqeberha; Grade 8 Penryn learner Jodi-Lee Clarke; Grade 9 learner Karabo Thovhakale from Mitchell House in Polokwane, Limpopo; Grade 10 Penryn learner Jun-Hee Yoo; Grade 11 Wynberg Girls' High learner Caitlin Joseph; and Grade 12 learner Sapna Pramjee from Eden College in Durban.

Several other learners received "highly-commended" awards for their artworks.



PANDEMIC INSPIRATION: "The wonders of maths during lockdown", created by Grade 7 learner Kim Davids, from Erica Girls' Primary in Gqeberha, won gold in the MathArt competition.



MATHEMATICAL PATTERNS IN NATURE: "Divinely proportioned", by Grade 9 Pearl Gymnasium learner Amore Sryman, received a gold award.



NATURAL BEAUTY: "The infinity bells", by Grade 11 learner Anisbell Dosthuizen from Andrew Rabie High in Gqeberha, received a gold award.



PICASSO-INSPIRED: "The Mixed Mrs.", an artwork by Grade 9 learner Amiksha Fetsha from Westering High in Gqeberha, received a silver award.



PART ART, PART MATHS: "Dichotomy", by Grade 11 Okeup High learner Durcan Langdown, received a silver award.



ALL IN SYNC: "Beauty in spontaneous order", by Grade 12 learner Sapna Pranjee from Eden College in Durban, received a bronze award.



TIMELESS ARCHITECTURE: "Father Time", a study of London's Big Ben by Grade 10 Pwani Gymnasium learner Haro Nkwondu, received a silver award.



SKYLINE PERFECTION: "Therefore Maths = Art", by Grade 8 learner Kari de Rock from El Shaddai Christian School in Durbanville, won a gold award.