

# MathArt MUGS

Gift Set Collection



## GMMDC

Govan Mbeki Mathematics  
Development Centre  
*empowering young minds*

The GMMDC is an engagement entity of the Nelson Mandela University, dedicated to the promotion of quality Mathematics and Physical Sciences teaching and learning in South Africa.

Using Techno-Blended Models and a STEAM education approach, the Centre offers a range of critical skills development and support projects for teachers and learners nationwide.

The GMMDC is completely self-funded and relies on sponsorships for all the work it does to empower the minds of young South Africans for a better tomorrow!

 Follow our channel  
**GMMDC NMU**

## The GMMDC National MathArt COMPETITION

is an annual project that develops trans-disciplinary problem solving skills amongst South African youth by

*inspiring  
creative connections  
with Maths*



The Competition has promoted active STEAM Education activities in South African schools since 2018.

The MathArt mugs showcase selected learner entries from 2018 to 2021. All proceeds go towards sustaining the MathArt Competition project.

### ABOUT THE COMPETITION

Learners from Grade 7 to 12 are given the challenge of taking a new theme each year, to investigate and consider for themselves.

$$(m^{\text{aths}} + a_{\text{rt}} + \text{THEME}_{\text{(per annum)}}) \text{Cre8tivity} = \text{?}$$

Learners create a visual artwork that integrates their interpretation of the theme and mathematics in an original and creative way.

They explain their ideas and process by answering questions that accompany their submission.

Visit our website for more information.

[www.mathart.co.za](http://www.mathart.co.za)

## GMMDC National MathArt COMPETITION



**NELSON MANDELA**  
UNIVERSITY



# MathArt MUGS

## "Vibrant Ethnic" Collection



**Look Beyond**  
Chelsea de Beer, Gr 12

"The number of triangles in each row of the pyramid on the hat gets doubled each and every time until it reaches the base (2, 4, 8, 16, 32). The eyebrows consist of a  $-\sin x$  graphs; the upper and lower lips are the graphs of  $\cos x$  and  $-\cos x$  respectively. The face is symmetrical..."



**Ithumbo**  
Busiswe Mbonani, Gr 12

"The artwork is creating a flower-like illusion. The Blue background represents water and the details within the 'flower' are inspired by the handmade Ndebele patterns"



**The wonders of math during Lockdown**  
Kim Davids, Gr 7

"Maths is beautiful; so is Art. Using a combination of tessellations, angles, expressions and equations, geometric shapes, lines and symmetry, I have managed to create a masterpiece. Every artistic element highlights the beauty and perfection of Maths."



**Heritage Mandala**  
Caitlin Wilde, Gr 8

"[I used] unique shapes and patterns that identify with African tribe art and Zulu culture. I tried to showcase the richness in heritage through dark, blended colours and how we all fit together as a nation. (geometric shapes)"



**Ngesivini**  
Hano Nieuwoud, Gr 8

"The Human nature is to be the best, to be the fastest... Nature motivated Atlas Aircraft Corporation, now Denel, to make the fastest fighter aircraft jet. They used the cheetah as a metaphor... They invented the fastest fighter aircraft on earth in 1986 ... the Cheetah fighter aircraft jet."



**Math in Culture**  
Lorna Curran, Gr 10

"I used various types [of mathematics] for this artwork... mostly geometry, symmetry and simple equations to show how these are used in culture especially in many African cultures and how beautiful it can look."



**The Minted Mrs**  
Amkitha Fetsha, Gr 9

"I used [geometry] to create patterns, perspective and to give the artwork some aspect of cubism. I also used tessellation in the background by using the same shape over and over again and creating a pattern. Measuring was used the most in the artwork it helped give the artwork a sharp look."



**Matheolosis**  
Bongi Ngoma, Gr 8

"The Space of the artwork is occupied by algebraic articulations...[I chose to make the Rubix cube]... a planet because solving a Rubix cube is no different to doing Maths. In order to do Maths you need to concentrate and think outside of the box..."





# MathArt MUGS

"It's in the Detail" Collection



**Zen (because the woman is relaxed)**  
Zenathi Wanzini  
Gr 7

"I believe Mathematics is a never-ending realm of inventions, made by things around us, that all take shape and can be molded into whatever we humans desire."



**Divinely Proportioned**  
Amoré Snyman  
Gr 9

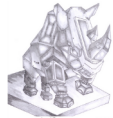
"Throughout my artwork I tried to illustrate the beauty of nature whether in humans, animals and plants. There are so many things in nature that are connected to the 3 theories (Phi, Fibonacci and Pythagoras) that I have used in my artwork."



**Leaning against my Universe**  
Lisha Lovely  
Gr 9

"To me, the universe is all about scale. Here on earth elephants wow us with their sheer size. I'm trying to portray that the elephant is nothing compared to the universe. I've just included our galaxy in my artwork, yet I had to shrink it down by one billion to get it to fit on the paper!"

Shrinking the elephant down by that same amount gives it a length of just 0.00000005! It's amazing that the greatest land animal is completely dwarfed by the galaxy. I was so excited to discover how huge the universe really is using mathematics!"



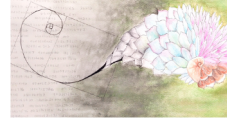
**Same Difference**  
Sibangani Matsa  
Gr 11

"Humans believe that inventing something leads to the improvement of all that interacts with the invention. With this picture I criticize these beliefs, I chose this topic in order to create awareness about the soon to be extinct animal, the rhino."



**Maths Tree**  
Juliette Lombard  
Gr 7

"The trunk of the tree symbolises the basics of maths, the branches symbolise the way in which it becomes increasingly complicated. You must get the basics right so that you can understand the more complex work."



**math is all around us**  
Caitlin Joseph,  
Gr 11

"In my artwork I have combined three different math's concepts - infinity, the Fibonacci sequence and pi. The main concept in my piece is infinity...."

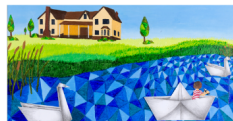
Many mathematical concepts present themselves in nature. I therefore chose to show these concepts in this narrative. My artwork displays the pure wonder, beauty and perfection that is found in nature without any intervention from man. It shows how math's is not just an abstract concept, but presents itself in everyday life."





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## "Dreamy Blues" Collection



**Countryside Swan Gazing**  
Anja Fourie  
Gr 9

"I used the rule of thirds. I used geometry for the water and the origami and the house. The origami has to be measured and folded and the house had to be measured.

I think its interesting how complex origami is. You have to fold it just right or it wont work."



**Unlimited**  
Nicola Nothnagel  
Gr 11

"I emphasized using geometry in space and how everything fits perfectly together. Showing the distance can be seen by a human eye from earth into space and counting objects, stars and entities in the sky. The telescope that I painted helps to magnify, discover and analyse.

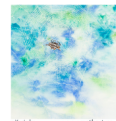
Galileo said, 'Mathematics is the language with which God has written the universe.' Showing his mathematics in the sky showcases his discoveries."



**Pi in the Sky**  
Michael Booysen  
Gr 11

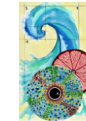
"I used the value of Pi which is 3.141592653589... Math is everywhere, and any object can consist of math therefore the universe being a mathematical object itself is math. The compass I drew creates a circle ... which pi is relevant. The area of a circle is  $(\pi)r^2$ .

Planets, stars, and moons are almost perfect circles therefore it is math."



**Gasteracantha Versicolor**  
Lisha Lovely  
Gr 8

"My drawing links to the theme 'Maths in Nature' in that it depicts one of the most maths-filled natural masterpieces that I could find in my garden. The geometry in the web shows a beautiful, natural link to maths."



**From "Power" to "Sweetness to "Sigh"**  
Faye Breytenbach  
Gr 7

"I am amazed that the orange and the chameleon eye were so cleverly connected to geometry each segment of the orange is 56 degrees and the wave using the Fibonacci sequence fitted so beautifully."

