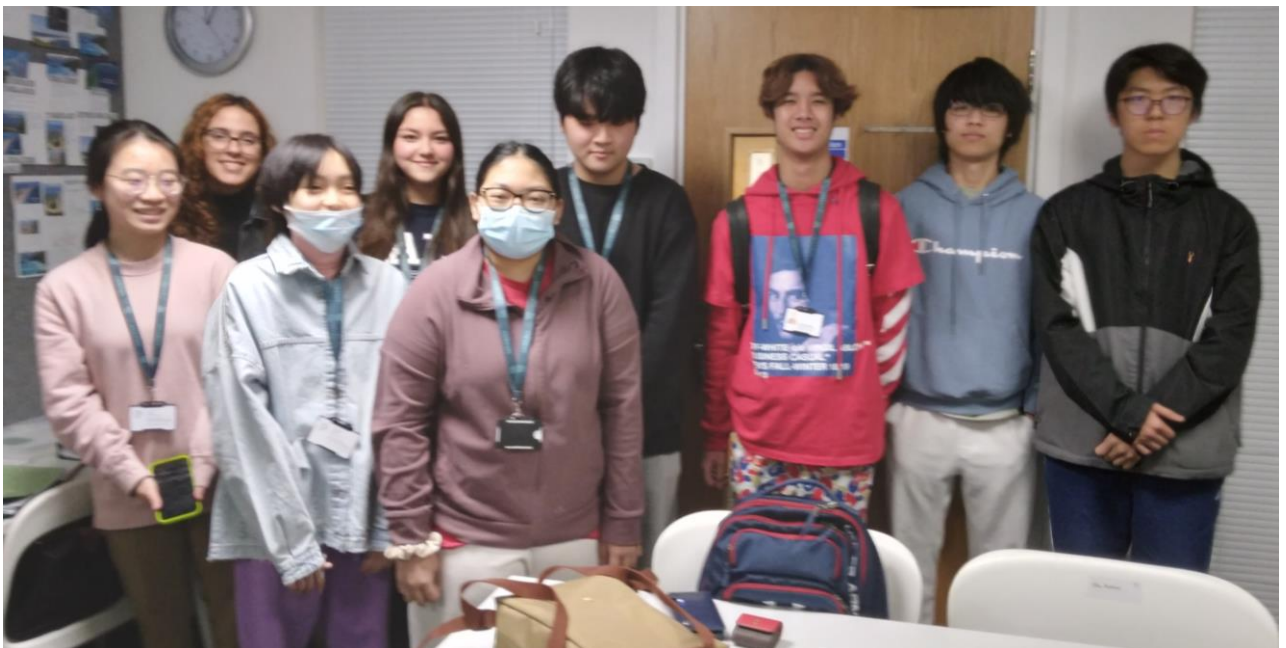


# Newsletter

*"I think we're going to the moon because it's in the nature of the human being to face challenges."*  
Neil Armstrong

Week 23 2022-23

## TIGER HOUSE STUDENTS FACE DOWN MATHS CHALLENGE



# UK Mathematical Trust Intermediate Maths Challenge

CATS Cambridge once again entered students for the UKMT Intermediate Maths Challenge.

The Intermediate Mathematical Challenge is a 60-minute, multiple-choice Challenge. It encourages mathematical reasoning, precision of thought, and fluency in using basic mathematical techniques to solve interesting problems. The problems on the Intermediate Mathematical Challenge are designed to make students think. Most are accessible, yet still challenge those with more experience.

Once again, our students did extremely well, scoring in Bronze, Silver, and Gold awards. Ruiheng and Liangyu go on to take part in the Pink Kangaroo on the 16<sup>th</sup> March; another grueling 60-minute, multiple-choice Challenge consisting of 25 problems.

We're sure you'll join us in congratulating all the participants listed below:

## Gold

Liangyu Cao  
Ruiheng Zhu

## Silver

Su Myat Thant Zin  
Hyeonho Nam  
Yaretzi Quetzalli Vazquez Garcia

## Bronze

Banchachan Neesang  
Manuela Dantas Gusmao  
King Him Cheung  
Ei Hnin Khaing Zin Thant



## Also participated:

Hanna Anyanwu Butsch  
Melissa Cansiz  
Yuxuan Li  
Malika Rzagaziyeva  
Kseniia Surova  
Julia Suzanne Jeanne Paclot  
Veerawich Tadalimawat  
Thaw Zin  
Antonio Carneiro Leao Ribeiro  
Yeva Deineka  
Dylan Erken Ibram  
Oyku Guzel  
Vu Hoang Anh Nguyen  
Eruchi Joan Chidi-Lloyd  
Pavel Kosinskii  
Maria Luiza Assuncao Silvestre  
Deren Mert Ungoren  
Arsenii Nikitin  
Nehir Ozdagli  
Gustavo Paccola Pauli  
Danylo Parkhomenko  
Naz Sezis  
Alua Shalabayeva  
Quinlan Sophia Lillis  
Hale Tasci  
Trieu Vy Dinh  
Hae-Won Yoon



United Kingdom  
Mathematics Trust

If you want to learn more about the range of competitions offered by the UKMT go here: <https://www.ukmt.org.uk/>

## Generous Gesture: Student Donates Turkmen Carpet



The making of Turkmen carpets is a traditional and cultural heritage passed down from generation to generation, with evidence of carpet-weaving in the region dating back to the 6th Century. It is not only a form of art, but also a way of life for the Turkmen people. The carpet-weaving process is often a collective effort, with women and men working together in a group. This creates a sense of community and camaraderie among the weavers, and it's not uncommon for carpets to take months or even years to complete!

Turkmen carpets are not only beautiful, but they also play an important role in the lives of the people who make them. They are used for a variety of purposes, including as floor coverings, as wall hangings, and as ceremonial objects. However, in the 6th century, Turkmen people used carpets as a calendar. They have also been used as a form of currency and have played an important role in the economy of the region.

One of the most distinctive features of Turkmen carpets are their bold geometric patterns. These geometric patterns are often inspired by nature and include symbols such as stars, crosses, and diamonds. These are usually arranged in a symmetrical manner, creating a sense of balance and harmony in the overall design. The colours used are vibrant and striking, with reds, blues, and greens being particularly common.

The tradition of making Turkmen carpets is a unique part of the cultural heritage of the Turkmen people, and it continues to play an important role in the lives of many people today. However, it wasn't until the 19th Century that Turkmen carpets began to gain international recognition. The intricate designs and high-quality craftsmanship of these carpets now make them some of the most valuable and highly sought-after carpets collected by collectors and art lovers around the world

Arslan Batyrov

*This Turkman carpet was kindly donated to CATS Cambridge by Arslan Batyrov (A-Level student - above) in 2023 as he wished for fellow Turkmen to get a sense of home. It had quite a journey, travelling from Mary, Turkmenistan, through Ashgabat then Istanbul, Turkey, before shipping to London, UK, and finally arriving in its new home here in Cambridge. You can find the carpet hanging in the central stairwell in the Hub.*



# Life Drawing



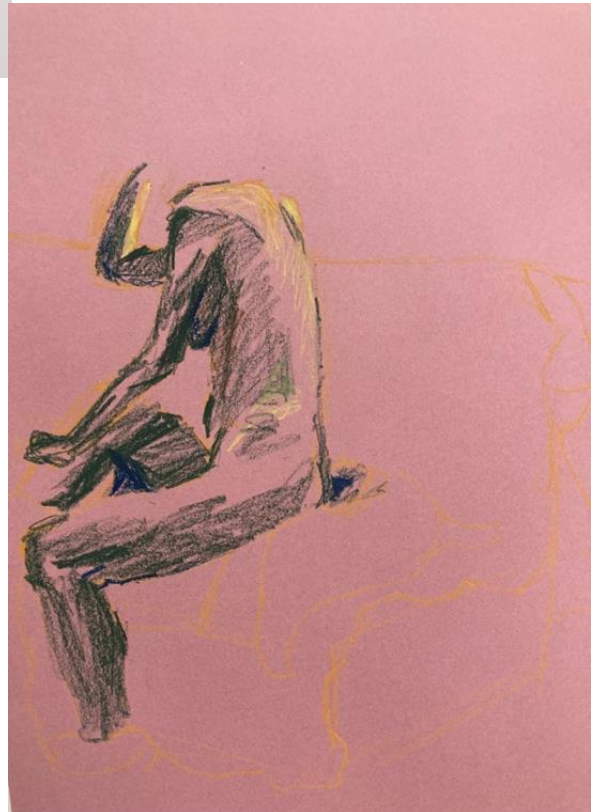
The Visual Arts Department held a Life Drawing workshop over a couple of days in February for all students studying on the Fine Art programme.

This was an excellent opportunity for the students to gain an understanding of the human figure and form during which the model was instructed to hold a variety of short poses, students were able to improve upon their observational skills, become more familiar with the shapes and proportions of the body whilst learning to use different medium, pencil, charcoal and collage in the workshops. At the end of the two-day workshops all the students had produced excellent work and really gained in confidence and thoroughly enjoyed themselves.

Students applying for an Art's Degree will have the benefit of being able to use their work for their portfolios for University applications.

“The two days in which we were given the opportunity to draw from a live model have been so valuable for the progression of mine and many other art students work, it has developed our hand eye coordination skills, our ability to understand dimensions and form and has been a really good way to bring people together to create and learn from each other through peer review. By having the time constraints of each pose, it allowed for a freedom of expression which brought out some amazing pieces from everyone who was a part of it with many people making drastic improvements on their skills in just these two days. I made many friendships and strengthened others during these two days, and I hope to be able to involve this unique experience again in future.”

Alix Edwards (A-Level Fine Art)

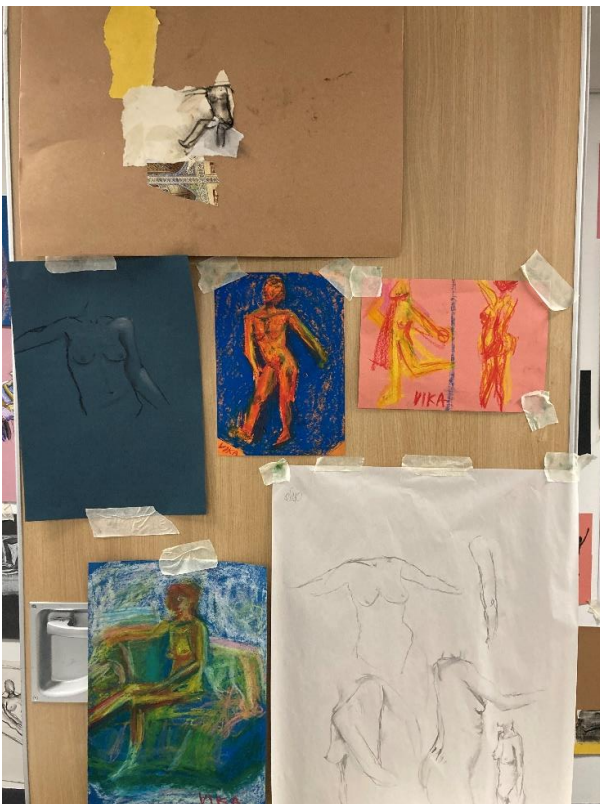
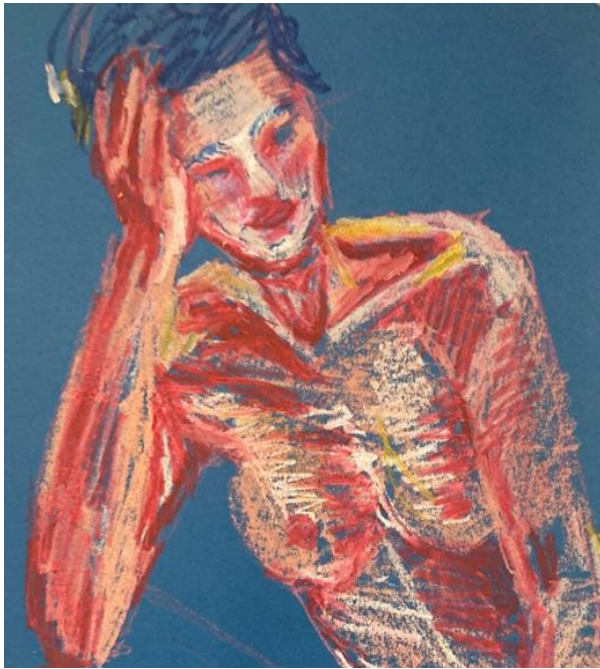


# Life Drawing





# Life Drawing



# Thursday Afternoon Chemistry with Mike

Dr. Mike Liptrot runs a Chemistry Club for interested and inspired students on a Thursday evening. Anyone is welcome and it seems that everyone got that message! We've asked Mike what he's getting up to in his science lab:

"Last Thursday I showed the skeletal structure of NanoKid and asked how they could quickly work out the molecular formula ( $C_{39}H_{42}O_2$ ). NanoKid was first synthesised in 2003 and is part of a group of molecules called NanoPutians, which are, put simply, people shaped molecules. A related question appeared in the 2005 U.K. Chemistry Olympiad.

Starting with the general formula for a saturated non-cyclic hydrocarbon, I got them to count the rings and  $\pi$ -bonds - multiply this by 2 - and subtract this number from what you would expect the formula to be for a saturated non-cyclic hydrocarbon.

A quick calculation on how to determine the empirical formula followed.

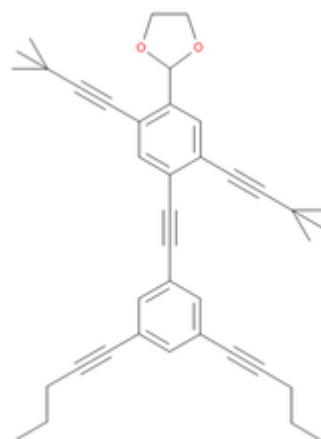
The remainder of the session was spent on an introduction to Nuclear Magnetic Resonance... always the last question in the Chemistry paper 2. Hydrogen atoms, along with Carbon-13 and Phosphorus-31 nuclei possess nuclear spin. When they rotate about an axis, due to the proximity of electrons, this spin generates a tiny magnetic field.

The students were also introduced to different hydrogen environments and the number of different hydrogen environments correlated to the number of lines seen. The relative intensity of this line corresponded to the number of the hydrogen atoms in each chemical environment.

For the next session, I promised to talk about the chemical shift (the  $\delta$  value) along the x-axis and what this can tell you about the structure.

I was so happy to see students crammed into the lab ... standing room only".

The field of nanotechnology has many future possibilities in areas such as medicine where nanodevices could be used to deliver drugs, to precise areas of the body, to monitor vital signs or perform delicate operations. A nanoscale coating on glass could help turn the sun's energy into electricity, and nanotech could also help make light bulbs more efficient.



**NanoKid**



Dr. Mike up to his usual tricks.



# Football for all

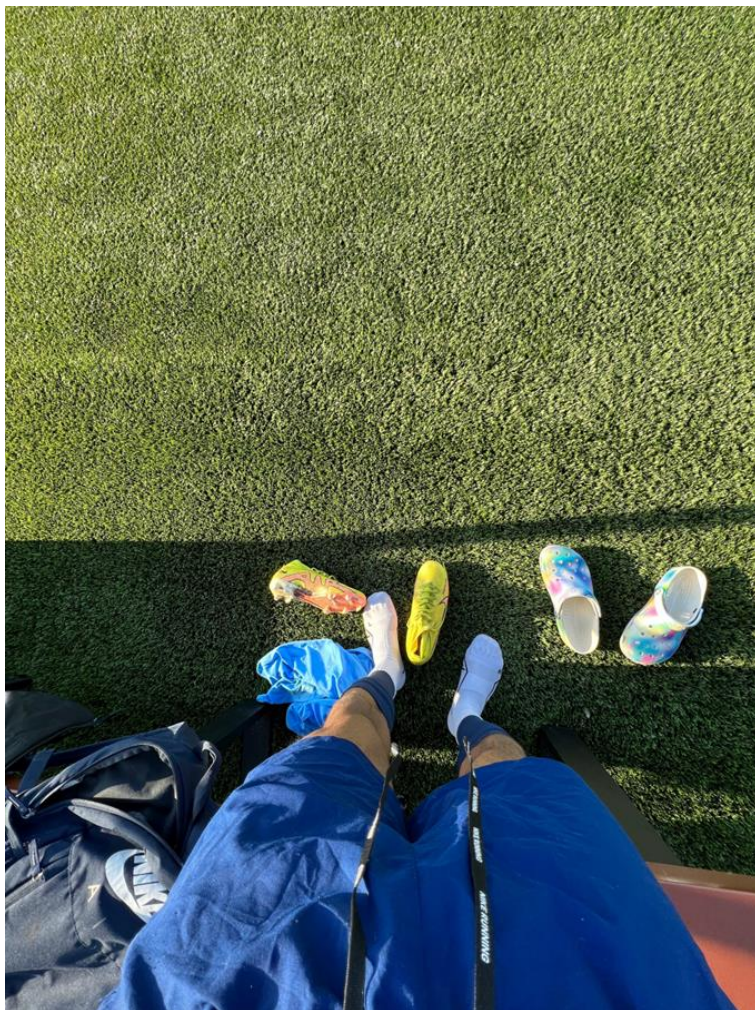
“Football has played a significant role in my wellbeing; I can let out any bottled-up stress or anxiety thanks to the sport's physical activity and adrenaline rush. It has also been crucial for me to feel connected to others and less isolated because of the teamwork and sense of belonging that comes with being a member of one.

In terms of giving me a support system, the friendships I've made through football have also been incredibly beneficial. We not only become friends on the field, but we also support and encourage one another off it as well.

Overall, I've found that playing football has been a helpful coping mechanism.”

Marcelo Da Silva Chagas  
Jaguar House

*Football For All runs on a Monday evening 17:30 to 19:00 with team matches playing most weeks.*







Knowing what you don't know is as important as what you do know.

Dominic Tomalin,  
Principal



This week a colleague passed me a copy of their Financial Times and encouraged me to read the write-up of an interview with Siya Kolisi, the captain of Springboks, South Africa's Rugby Union Team. He is a remarkable man, not least as he has risen to the top of his chosen sport which a mere generation ago was very much an institutional part of the apartheid regime. As Siya writes in his memoir, it wasn't so long ago that a black centre (a team position in rugby) would have thought twice about yelling at a white scrum half (one of the playmaker positions in rugby).

There is no doubt that Siya has found his way to the captaincy on the back of truly epic skills as a player and leader, though his talent was unlikely to have shone through without a sports scholarship to what had, at the time, been a whites only boarding school. For me, his is a standout case for the benefits of positive efforts to recognise potential and determinedly find a way to ensure it is nurtured. In South Africa, both games have been the preserves of the white community in the past, now they both have quotas in place. This has been controversial in terms of team performances, though not seen South Africa fall away from the sporting elite to which it rightfully belongs in both sports. In the mid to long term, it will undoubtedly unlock the sporting potential of the whole nation and with that the strength and depth of the national squad in both teams.

Sporting prowess aside Siya is an impressive human being. He is the very epitome of humility, in my view a cornerstone of effective leadership. Even as an elite sportsman and widely lauded leader Siya recognises that all his achievements belong as much to his teammates and the team that supports them as they do to him – that his success would not be possible without them. I particularly like his acknowledgement that leadership is really all about being very aware of what you don't know, that recognising what you don't know is as important what you do know. Implicit to this is the acceptance that no leader has all the answers; even when they have the answers, their successful application will benefit from the insights of others. Wise words from which we all can learn, not just leaders and those who aspire to leadership.

It comes as no surprise that Siya has been proactive in making the most of status and celebrity to give back to the communities to which he belongs: <https://kolisifoundation.org/>, worth a look

My only disappointment in Siya was his choice of lunch; Caesar Salad and Soup, I for one would certainly be more ambitious when dining on a Financial Times expense account, but then again, I won't be facing down and having to bring down the best and biggest that the Springbok's opponents will certainly be casting in Siya Kolosi's way.