Summer Edition– Term 3

Bournemouth School's Student

# NEWSPAPER

Current Affairs | Science | Maths| Humanities | Languages

## Moore House win Sports Day

### Moore's sports day win takes then 2nd in the House Championship

With over 1/3 of all students competing and even more competing in Teambuilding events, Moore decisively won a highly competitive sports day for the first time in their 6-year history. This Year's sports day was particularly memorable as 9 school records were broken, and also featuring the first-ever all female 100m race.

This victory helped Moore finish the house championship in second, behind Turner house who have also had an incredible year.

# CHEMISTRY

## How the SERN Super Collider made Gold (briefly)

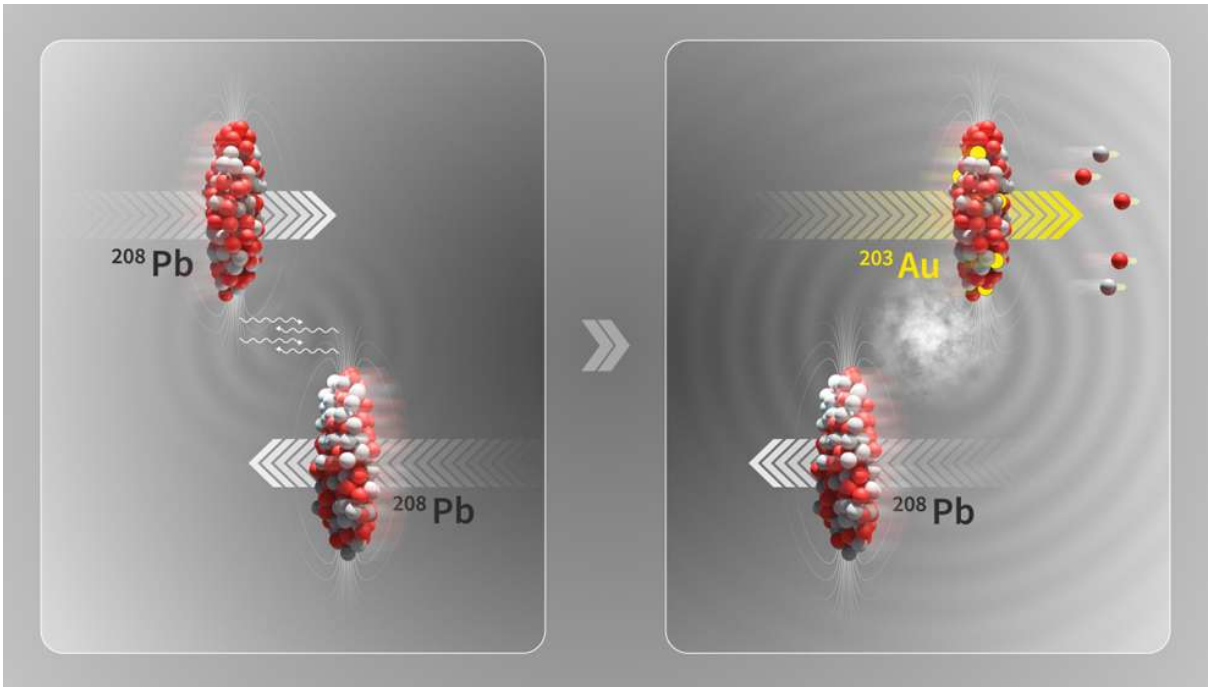
For centuries, alchemists dreamed of transforming base metals like lead into gold. Despite elaborate attempts and persistent effort, their methods failed—alchemy lacked the scientific foundation needed for such a transformation.

Recently, however, scientists at the CERN supercollider have succeeded in doing what earlier alchemists could not: they turned lead into gold, even if it was only for a microsecond.

In the collider, lead ions are fired at each other at nearly the speed of light. In some instances, ions collide head-on, but the real breakthrough occurred during near-miss interactions. When lead ions narrowly miss each other, their electromagnetic fields interact with extraordinary intensity. This interaction can cause a phenomenon known as electromagnetic dissociation, in which the vibrating nucleus of a lead atom sheds three of its protons. This momentarily turns it into a gold atom.

The only reason this works is because of the similar physical properties between lead and gold, including atomic mass: lead has 82 protons in the nuclei of its atoms, while gold has 79.

Between 2015 and 2018, researchers estimate that roughly 86 billion gold nuclei were produced across four major experiments, amounting to about 29 trillionths of a gram. While it was a very successful experiment, the practicality has been futile.




By Sami Babiker-Moore

# New String Theory Model May Solve Huge Problem for Physicists

Since its inception, string theory has remained at the epicentre of scientific debate amongst theoretical physicists. While it began as a possible explanation for the phenomenon of quantum gravity (otherwise unexplained by our existing models), it has repeatedly been incompatible with various other observations within our universe.

Namely, string theorists have struggled to incorporate predictions of dark energy within their work, the energy that drives the acceleration of the very expansion of our universe. Dark energy, like dark matter, is something that hasn't been viewed directly, though our observations of its effect all point to a mechanism that needs to be properly accounted for in any serious model of the universe. One such hypothesis is that empty space contains energy (even vacuums!) due to quantum fluctuations known as virtual particles, which pop into existence and then annihilate one another before the universe can 'notice' (thus not breaking any conservation laws like the conservation of energy). Although this is just one possibility, string theory – in order to be credited – should have its own description of the phenomenon, efforts that have until recently been largely unsuccessful.

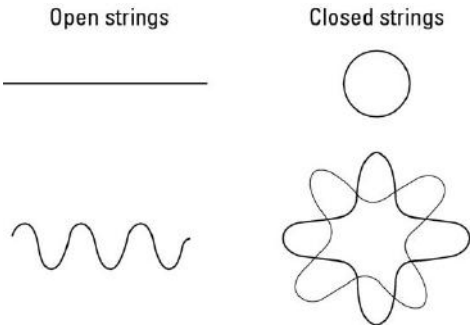



*Figure 1: An illustration of particles modelled as strings*

Rather than describing objects as particles, string theory posits that everything on the fundamental level is made up of tiny vibrating strings. These strings may be open (like a small thread) or closed (like a loop). The modes of vibration of these strings distinguish between different particles: strings which vibrate one way may have the properties of an electron, where strings vibrating another way may better resemble a quark. A feature all these strings share however is tension, a parameter which string theorists have long treated as a constant, tweaking it to best fit our observed universe.

A new study by Eduardo Guendelman has switched up the status quo by instead treating tension in strings as dynamic, continuously changing based on the state of the strings. This research has proven promising as it relieves much of the disagreement that string theory models have had with dark energy, providing new opportunities for theories which better match with reality.

All this research is very novel, and as such it is important to recognise that as exciting as it is, it will need to be studied further to determine whether or not the resulting models are consistent with our expectations.

Regardless, it seems to be a step in the right direction for string theory, a field that has promised to provide much-awaited answers for physicists. Meanwhile, various unrelated models of the universe will continue to develop alongside it, each hoping to provide the true theory of everything.

Article by Rory Sims

# The Role of Hypnosis as a possible cure for Anxiety, Addiction and other mental illnesses

When people think of hypnosis, they may think of people being mind-controlled and made to do silly things such as believing they are a chicken. It is this sensationalised view of hypnosis that has led to the widespread notion that it is somewhat of a joke and could never in any way be used for something as serious as mental health problems. However, this assumption would be very wrong. The hypnosis most people think of, the one that has been portrayed by the media, is not the same as clinical hypnosis, which has been shown to be a relaxing and effective technique for anxiety management.

During hypnosis, patients are asked to lie down and simply do nothing. They can even fall asleep if they wish to. Whilst this happens, the hypnotherapist simply speaks, not to them, but to their unconscious. By doing so, they are aiming to solve mental health problems at a much deeper level, which can have improved effects on the patient. It is a much more relaxing experience, and also requires minimal effort on behalf of the person receiving the therapy. Not only that, but there have been several studies supporting hypnosis, most notably in a 2019 analysis of research, where it was found that people who received hypnosis reduced their anxiety levels by more than 79% on average compared to participants who didn't receive hypnosis.

Despite this, there are some downsides to hypnosis. For example, it has the possibility of causing side effects such as headaches, dizziness and nausea, however, these are only minor and may be outweighed by the benefits patients receive. As hypnotherapy is relatively uncommon, it can cost a lot of money, and may be hard for people in need of treatment to find a reputable practitioner near them, meaning some people may not be able to get the help they need. On top of all this, it is unknown as of now whether hypnotherapy can be used to treat all kinds of anxiety.

However, whilst people may be very sceptical about hypnotherapy and its use as a solution to anxiety, this is an area that should definitely be studied a lot further. This is a much less distressing form of treatment which can lead to significant improvements, and is also incredibly interesting from a psychological perspective, in terms of accessing the unconscious, even whilst you are asleep. The idea that our symptoms can improve, without us even feeling like we are doing anything is fascinating, and of which people should become more aware.

By *Matthew Jarvis*

# Rise of protectionism – does this mark the end of globalisation?

Between 2020 and 2024, the number of restrictive trade measures implemented by G20 countries has more than doubled. This represents a fundamental shift in macroeconomic policy away from a system of interdependence and specialisation that globalisation brought about, towards one of independence and economic nationalism where trade is viewed as damaging to domestic industry.

A major factor underpinning this transition is mistrust in a multilateral global trading system following the failures of globalisation. Despite its intents, globalisation has led to widespread discontents across both the developed and developing world as poor regulation and international cooperation created a flawed system that favours large corporations seeking profit often at the expense of society. This has therefore, led the largely unregulated system of international trade to render many unwanted consequences - as it encourages firms to engage in a theoretical race to the bottom, where firms aim to produce goods and services at low costs regardless of the social or environmental cost. This has therefore contributed to greater wealth inequality, poverty and environmental damage in both the developing and developed world. This is especially prominent in Latin America where the emergence of globalisation has hindered countries development through 'premature deindustrialisation' – where manufacturing shrinks as a percentage of the economy before GDP and incomes have adequately risen. Due to this, these countries are unable to gain a comparative advantage in productive and technologically innovative industries and are thus forced into industries such as mining, agriculture and extracting other raw materials. Thus, gaining an advantage in such sectors requires low wages; long hours rather than innovation - leading to greater wealth inequality and worsening of conditions.

This has therefore led to a revival of protectionism as a policy to help workers and domestic industry from the unpredictable nature of free trade. Furthermore, due to the competitive nature of trade, where no country wants to be worse off, tariffs have a cascading effect where one country's tariffs lead to reciprocal tariffs which ultimately culminates in a more hostile global trading network. Yet, does this signal the end of globalisation?

Despite this global shift, the end of globalisation is far from a reality. The established networks of trade on not solely goods and services, but also people and intellectual property has been well-established and despite populist leaders' beliefs this cannot be easily shut down. Systems such as the WTO and IMF, that were established under the birth of globalisation, are aimed at promoting cooperation and trade – and cannot be easily undermined or abandoned. Therefore, protectionism is incapable of offering a world without globalisation yet only one that modifies its course – creating barriers that may slow integration but cannot reverse the fundamental interdependence of the global economy.

By Aden De Silva

MATHS

# A mathematical approach to international relations

In an unstable and unpredictable global political landscape, where conflict and war have become key instruments of diplomacy, a branch of maths called game theory aims to bring clarity to these strategic decisions, revealing how nations calculate risk and pursue an advantage in an increasingly hostile world.

Game theory is a branch of mathematics that studies strategic interactions between rational decision makers. It provides models for 'games' with a finite set of players who are utility-maximising actors that haver perfect knowledge about the game, rules and potential pay-offs.
Game theory's applications to international relations takes the form of models, and although it offering at best a simplified and stylised model of states' interactions – it remains useful in understanding the incentives, constraints, and potential outcomes that shape state behaviour, particularly in areas such as conflict, cooperation, negotiation, and alliance formation.

| | | **Country A** | |
|---|---|---|---|
| | | Free Trade | *tariff* |
| **Country B** | *Free Trade* | 100,100 | 70,120 |
| | *Tariff* | 120,70 | 90,90 |

[where Country B's options are represented by x and country B's decisions by y – values in format (x.y)]

For example, the table above shows a game where country A and B are deciding on a trade agreement and both countries have options to engage in tariffs or to trade freely. Game theory dictates that in any game to maximise utility, each player should play their best response (action which maximises utility independent of the other players response). This therefore leads to both players opting to enforce tariffs as this leaves them better off regardless of the opponents move (as if other player chooses free trade 120>100 and if they choose tariff 90> 70). This therefore forms a Nash equilibrium (point where both players are playing best response) at (tariff, tariff). Yet fundamentally this leaves both players worse off than if they were to cooperate and choose free trade (100>90). Therefore, a rational decision fails to lead to an optimal outcome for both parties – pareto optimality. Thus, despite this model failing to account for the sequential nature of international trade, and the diverse strategies countries are able to take, it can help us understand the complex and nuanced nature of international relations, especially with growing hostilities breaking down elements of 'trust' that proved vital in establishing trade agreements.

Therefore, although game theory heavily simplifies complex and nuanced interactions, it offers insights into incentives and potential outcomes of state's behaviour in conflicts, negotiations and diplomacy.

By Aden De Silva

# ENGLISH LITERATURE

## Strangers were never kind: A critique of Tennessee Williams' 'A Streetcar Named Desire.'

A Streetcar Named Desire is a play that follows a 'Southern Belle,' Blanche Dubois, in her transition from fading romanticised Southern values to the hegemonic and capital-driven values of post-world-war two New Orleans. The author, Tennessee Williams, an American playwright known for works like 'The Glass Menagerie' and 'Cat on a Hot Tin Roof' provides a commentary on the changing society of 1947 New Orleans. Once an 'Old Southern' society grounded in gentility and now a society of diversity and opportunity .

Williams provides a clear criticism of the contemporary values growing in New Orleans that fuel the flame of the patriarchy and sell a false 'American Dream.' However, the Southern values that he appears to lament are not so pure as they seem.

Williams uses Blanche as a vehicle to portray the Southern values. Williams uses her actions, therefore, to reflect the morality of the 'Old South.' Therefore, her illicit drinking and hypocritical moral opposition to such an action are among the first indications that her Southern values may not be as pure as they seem. The idea of a 'Southern Belle' not only drinking whiskey but continuing to lie and condemn its consumption in the presence of others would be completely against the values of those who still conformed to the ideology of the 'Old South.' This is therefore suggestive that the nature of these societal values is impure and hypocritical. The embodiment of the South, Blanche, who supposedly exemplifies a true Southern Belle is therefore representative of a hypocritical society which preaches and practices morality in public but secretly contrasts this projection of "truth". It could be suggested that the values of contemporary New Orleans, although driven by capitalism, are honest and consistent. Perhaps a society that does not conceal a lack of morality, but instead outwardly presents their intentions, would favourable for American people.

Although the moral superiority of these values may be valid, perhaps Blanche's hypocrisy was a result of personal fault. In this case, it is pertinent to examine the nature of these values themselves.

Based upon Christian values and those of sophistication, gentility and honour, Blanche strongly implies that her values are far superior to those of contemporary New Orleans. This is partially supported, in fact, by Stanley, who acts as an embodiment of the American dream. He refers to 'pulling (Stella) down off them columns,' immediately conjuring the image of sophisticated plantain architecture. However, the emphasis on sophistication may easily allow one to overlook the foundations that these columns were built upon: slavery. Although the loss of the Confederate war meant that this abhorrent act was no longer legal, the memory of the South is clearly intertwined with this evil. How can a society that claims to hold morality at a higher worth than monetary gain possibly found itself upon this?

The extreme lack of morality present in slavery leads this paper to question what it is that Williams laments. Perhaps the fond memory of his mother, Edwina, who was a Southern Belle herself. Whether he mourned the loss of gentility or the sophistication of society, he provides a fascinating commentary about the reality of this society. Shep Huntleigh, the figure of chivalry that Blanche marks as her saviour remains unseen for the entirety of the play. He functions as nothing more than a projection of Blanche's desire to 'be saved' by a romanticised illusion. This society is microcosmically represented in this relationship: Shep Huntleigh's kindness never existed.

The South itself, therefore, was never something that could be lamented. Williams cannot mourn these values but can a romanticised dream. Therefore, the notion that these values deserve great reverence is false. This paper concludes that society in New Orleans has simply traded one illusion with another - a decaying South built on moral hypocrisy becomes a dream of wealth and power that can never be realised.

By Kate Rosenorn-Lannq

# BIOLOGY

## A deadly fungus found in tombs could be a possible cancer cure.

Once feared as a microbial menace, a notorious fungus is now offering new hope in the fight against cancer.

*Aspergillus flavus*, named for its yellow spores, has long been associated with death and mystery. In the 1920s, after archaeologists opened the tomb of King Tutankhamun, a series of sudden and unexplained deaths among the excavation team sparked rumors of a pharaoh's curse. Decades later, scientists speculated that dormant fungal spores—possibly *A. flavus*—could have contributed to those deaths. The mystery deepened in the 1970s, when 12 scientists explored the tomb of Polish King Casimir IV. Within weeks, 10 of them had died. Investigations eventually identified *A. flavus* in the tomb, a fungus known to produce toxins that can cause serious lung infections, particularly in people with weakened immune systems. Today, in a surprising scientific twist, *A. flavus* is being reimagined—not as a killer, but as a healer. Researchers at the University of Pennsylvania and partner institutions have discovered a powerful new class of molecules inside the fungus called **asperigimycins**. These molecules belong to a rare group of natural products known as **fungal RiPPs** (ribosomally synthesized and post-translationally modified peptides), and they're showing promise as a targeted treatment for leukaemia. By using advanced bioengineering, scientists have enhanced these compounds to disrupt cancer cell division with high precision, while sparing healthy cells.

What was once a symbol of ancient death may soon become a tool in modern medicine—turning a tale of curses and crypts into one of cutting-edge cancer therapy.

*By Risinu Samaraweera*

Below is a sample of Aspergillus flavus cultured in the 'Gao lab', credit: Bella Ciervo

# FPAN (Food Tech)

## What was cooking at the Summer Fancy Food Show?

From June 29th to July 1st at the Javits Centre in New York, the 'Summer Fancy Food Show' took place. It's an annual event that showcases the highest end of artisan food and drink products, and this year was no different! There was a large selection of different, interesting products that I could have picked for this article, but I've narrowed it down the 2 that I found the most intriguing!

Would you spend $395 (or £290) on a pineapple? What if I told you this was no normal pineapple, but instead one crossbred to target the freshest taste possible? The crossbreeding has also led to it to take on a red shell, earning name, the 'Rubyglow Pineapple'. After 16 years of refinement, 'Fresh Del Monte' are selling their 'masterpiece' for the previously mentioned whopping price tag of $395, and it has already sold out! I highly doubt that information has changed your mind (and even if it has, they are only shipping to China and North America currently) as this product is very much for the highest of pineapple enthusiasts, but interesting nonetheless!

Surely alcohol can't be a healthy product, is what I though before I saw the 'Muush Lion's Mane Elixir'. Muush set out on a mission to create a healthy, non-alcoholic beverage that tastes just as good as a normal alcoholic beverage. They did so using only a handful of fruit, roots and functional mushrooms, and claim their drink will boost energy and improve focus and performance. With a fairly consumer friendly price of £32 for a 12 pack if cans, Muush may find themselves slipping their way into many people's hands before you know it!

While many of the products showcased where far too costly to find their way into the mainstream market for food and drink, there were some innovative, hidden gems in the show, like Muush's 'Lion Mane Elixir', that may be paving their path onto to the shelves soon enough!

*By Arlo Garlinge*

The Rubyglow pineapple with its signature red shell

# STUDENT COUNCIL REPORT

**Student Council Structure**

Each form group elects a form captain for the academic year. One of the key responsibilities of a form captain is representing their form in the bi-weekly Student Council meetings.

The Student Council is divided into two groups: Years 7 to 10 meet during tutor time (PM registration) on a Thursday in Week A, while Year 11 and Sixth Form meet at the same time on a Thursday in Week B. This structure ensures that all form groups have the opportunity to suggest ideas and discuss issues with the rest of the Student Council.

Student Council meetings are led by two senior prefects, Kimaya Pickering and Kate Rosenorn-Lanng. They report back to the Senior Leadership Team (SLT) on the key discussions and outcomes of each meeting.

**What has the Student Council done recently to improve student life at Bournemouth School?**

Recently, the school installed a large canopy over the Upper Terrace outside *Le Bistro*. This has led to a significant increase in students socialising and eating in the area during both break and lunchtime, especially as it now provides protection from the elements. The canopy was proposed by the Student Council following the construction of the new building, and the Council is very pleased to have been involved in the planning process.

Last term, a new anti-bullying policy was introduced to further prevent bullying and support students who may experience bullying behaviour—though, fortunately, such instances remain rare. The updated policy was designed to be clearer for the school community and has been displayed on the walls of every classroom.

**How can I get my ideas heard at Student Council?**

If you have any ideas that you believe will make a positive difference and improve your experience at the school and that of your peers, please share any thoughts with your form's Student Council representative. This could be in person, by email or in a whole class discussion. At the next Student Council meeting, we will work upon and develop these ideas if necessary; after a couple of weeks, we will hear back from SLT on their thoughts on your suggestions. Furthermore, your form captain should be able to provide you with information on any queries you have about the school – feel free to enquire about these too!

By Reece Johnson, Miles Haigh (Year 11)

# CREDITS

Thanks to all the students that have contributed to this paper and the teachers that made it possible:

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Fpan – Arlo Garlinge

English Literature – Ebaad Adnan

Psychology – Matthew Jarvis

English Literature – Kate Rosenorn-Laang

Student Council Report – Reece Johnson and Miles Haigh

To get involved in the next edition of the school newspaper (open to any year group) please contact: 19desilvaade@student.bournemouth-school.org