

LITTLE HE WRITE VANGLE



Issue 2

Snapshots of nature, learning to fly, a climbing debate, and much more..

Letter from the Editors

Welcome to the second issue of *The Write Angle*, the half-termly official EMS newspaper, and the final issue of 2025! What a year it has been, full of uncertainties, adventure, and new discoveries. What we can guarantee is that even more discoveries await within these pages.

If you are unfamiliar with *The Write Angle*, it is the official Exeter Mathematics School newspaper released at the end of each half term.

The Write Angle is run and maintained by a small group of students with anyone who attends EMS being able to send in an article to be published. As always, a huge amount of work has gone into creating this issue from everyone involved, so we would like to thank you for taking the time to read it.

If you would like to take part, the link to submit an article can be found at the bottom of every issue. Additionally, there will be an open meeting at the beginning of 2026 that anyone will be able to attend. If you would like to learn more about our process, join the team, or ask questions, that will be the best place. We are also looking for more people to do formatting, so any L^AT_EX buffs are welcome to come and learn about the role! More details as to the date, timings, and locations will be released closer to the time.

So with that, as the school term draws to a close, the cold sets in, and the decorations are put up, we invite you to settle in and enjoy the read. From everyone here at *The Write Angle*, we wish you a very merry Christmas and a happy new year!

Upcoming Events

- 16/12/25 Year 12 EMC Christmas Lectures
- 19/12/25 Last day of Autumn Term
- 07/01/26 First day of Spring Term
- 02/02/26 EMS & Reach Academy Festival of Culture

News Round-up

April Tomlinson

This issue's news round-up covers news from the 20th November to the 13th December.

Happy News

From spring 2027, a ban on selling plastic wet wipes will be put into place in England, with the ban coming into effect sooner in Scotland, Wales, and Northern Ireland. This change comes after a consultation revealed 95% of people supported it.

The UK has announced that no new licenses will be issued for drilling for oil and gas in the north sea. Current licenses will remain in effect although the co-executive director of Greenpeace, Areeba Hamid, has said that “Britain has just made history”.

A research group has performed a study with over 300 people and found that a new monthly tezepelumab injection could be used as an alternate treatment for managing severe asthma. The current common treatment of daily steroids has the possibility of leading to other serious health problems, leaving many to look for alternatives.

Two long-lost organ pieces composed by Bach have been performed again for the first time in 320 years. The pieces, originally discovered by Peter Wollny in 1992, took over 30 years to verify. Germany's Minister of Culture, Wolfram Weimer, said that the discovery was a “great moment for the world of music”.

On the 31st October, La Sagrada Familia became the world's tallest church, beating the Ulm Minster in Germany which has held the title since 1890. The church, which was designed by Antoni Gaudí and began construction in 1882, now stands at 162.91 meters tall and the main structure is expected to be finished in 2026 with details added afterwards.

World News

On the 26th November, the Chancellor of the Exchequer, Rachel Reeves, presented the most recent UK budget. Reeves' second budget sets out the plan for taxes and finance across the UK for the next few years. The event was heavily leaked beforehand after the Office for Budget Responsibility (OBR), responsible for analysing the effect of budget policies, released the contents 40 minutes early. The chairman of the OBR has since resigned. Some of the new policies include the removal of the two-child benefit cap, a rise in minimum wage, a new tax on homes valued at £2 million or more, and the freezing of income tax thresholds until 2031. The last policy in particular has faced criticism as it is expected that people could be pushed into higher tax brackets due to inflation.

The UK government has announced its plans for digital IDs to be introduced at the end of the current parliament in 2028. The proposed app based system won't be applied retrospectively, and will instead only be needed when a UK worker applies for a new job. The IDs will be used to verify a person's right to live and work in the UK in an effort to curb illegal immigration. Sir Keir Starmer stated "You will not be able to work in the United Kingdom if you do not have digital ID. It's as simple as that."

Recent government figures have revealed that 91 prisoners across England and Wales have been unintentionally released from prison between April and October. This followed a police manhunt which eventually captured 2 prisoners that had been released from HMP Wandsworth in the same week. The Secretary of Justice, David Lammy, told MPs that the figures were "symptomatic of a prison system under a horrendous strain", further highlighting the current problems and overcrowding in UK prisons.

Catherine Connolly has become the 10th president of Ireland in a landslide vote against her competitors. She is taking over the role from Michael D. Higgins whose term lasted 14 years. While the role means she is head of state, it is a mostly ceremonial and non-executive role. Despite this, Connolly has expressed her belief in a united Ireland.

The prime minister and government of Bulgaria have resigned ahead of a vote of no confidence after between 50,000 and 100,000 people protested for their resignation in Sofia's central square. This move comes just weeks after a controversial budget plan was withdrawn due to rallies. Bulgaria has been consistently ranked as one of the most corrupt countries in the EU and has also suffered from high political instability with seven parliamentary elections in the last four years.

The Australian government has announced its plans for a new law banning under 16s from making accounts on social media sites such as Snapchat, Instagram, YouTube, and Reddit. Companies will have to take "reasonable steps" to ensure this or risk facing a fine. YouTube's parent company is reportedly still considering whether or not to launch a legal challenge to its inclusion in the ban. Meanwhile, a legal case has been filed in the high court by two teenagers backed by the Digital Freedom Project arguing against the ban.

A leaked internal BBC memo published by The Telegraph has revealed that the BBC doctored footage of a speech made by Donald Trump in January to change the message. The Secretary of Culture, Lisa Nandy, called it a "systemic bias in the way that difficult issues are reported" and said that it was being treated with "the seriousness that this demands". Trump has declared that he will take legal action against the BBC, threatening to sue "anywhere between \$1 billion and \$5 billion".

Concerns were raised around a Russian ship after it started to move to the north of Scotland and shone lasers at pilots flying overhead, a crime in the UK. The supposed 'research vessel' has long been suspected of monitoring and spying on the undersea cables and pipes which NATO has identified as part of the world's critical infrastructure. The UK Defence Secretary responded by threatening Russia saying that if it were to move south into UK waters, "we are ready". This move follows a recent trend of events

with three Russian warplanes entering Estonian airspace without permission in September, and multiple drone sightings across Europe leading to discussions of a ‘drone wall’ to protect against possible drone attacks from Russia.

The Philippines and Vietnam were hit with two typhoons in the span of one week causing more than a million people to be evacuated. The sustained 185km/h winds killed over 200 people across the countries and caused many floods, landslides, and all round destruction. Emergency funds and aid were supplied in the aftermath.

The 30th annual UN climate change conference (COP30) took place during November and was met with criticism after many politicians including Donald Trump did not attend. Sir Keir Starmer did attend the conference. This move by the US follows shortly after a deal that would have reduced global shipping emissions was abandoned by the US and Saudi Arabia, ending discussions in September. No further progress was made on the COP28 agreement to transition away from fossil fuels. The UK Secretary of Energy, Ed Miliband, said that “It’s dry, it’s complicated, it’s anguished, it’s tiring” yet “absolutely necessary”.

Canada has lost its status of being measles free meaning that it has failed to prevent an outbreak for 12 consecutive months. Recent reports have shown that vaccination rates across Canada have dropped below the 95% needed for immunity, with some areas being below 70%. Canada previously held its status for 3 decades. The US is also expected to lose its status unless it stops the current outbreak before January.

On November 12th, the longest US government shutdown ended, lasting 43 days in total. The shutdown, a political event unique to the US, was caused by the government unable to agree on a funding bill. During the shutdown over a million federal workers were left without pay including air traffic controllers, leaving many to call in sick and causing airports to cancel flights. The new funding bill ensures these workers will receive back-pay, although it does not explicitly include an extension of expiring health insurance subsidies, one of the main debated points that caused the disagreement.

The US Secretary of State, Marco Rubio, has called for all weapon supplies to be cut to Sudan paramilitaries. The UAE have been accused of supplying weapons to the Rapid Support Forces who are accused of genocide in el-Fasher and sexual atrocities during the Sudan Civil War. While the UAE have denied being involved, the UN has found evidence suggesting Abu Dhabi of supplying weapons credible. The RSF have agreed to a three month truce followed by a permanent ceasefire and a nine-month transition to civilian rule proposed in September after taking control of el-Fasher.

Deep Dive

80 years on from the founding of the United Nations: is the dream of world peace still achievable? On the 24th October 1945, the United Nations Charter officially came into force with the hope to “save succeeding generations from the scourge of war”. 80 years later, with 193 member states, we are facing a reality with wars between Russia and Ukraine, Palestine and Israel, within Sudan, and many more that are affecting millions of people’s lives every day.

Firstly, the UN covers a very large range of organisations and actions such as UNESCO, UNICEF, the annual Climate Change Conferences, and the World Health Organisation. This deep dive will only be focusing on the core ‘peacekeeping’ purpose of the UN.

So let’s begin with some examples of what the UN has achieved.

In 1948, the Universal Declaration of Human Rights was created to set out the fundamental human rights that should be universally protected. It contains 30 articles, each declaring something that all humans should be entitled to.

The UN peacekeeping force was created in 1948 and is a volunteer-based force tasked with maintaining peace during ceasefires, protecting civilians, and has been key in saving millions of lives through giving humanitarian aid and protection.

The UN has also been monumental in the creation of many treaties and ceasefires in multiple conflicts

such as the Iran-Iraq War, El Salvador, and the Cuban Missile Crisis.

However in recent years, there have been many criticisms raised against the UN due to its perceived lack of involvement and failure to prevent conflict. So why is this?

Lets start with the big one: the power to veto. Most of the laws and sanctions from the UN are created in the security council, one of the six major organs. It is made up of 15 members including five permanent (China, France, Russia, the UK, and the US) and 10 temporary that are elected for two year terms. The main purpose of the organ is to maintain international peace and security. Decisions made by the security council become international law and breaking them will result in sanctions and possible military intervention.

The 5 permanent states however, have the power to veto any proposal of their choosing. While all 5 states have used the power at some point. Recently it has been used multiple times to stop interventions in conflicts between Russia and Ukraine, and Israel and Palestine.

Even if all 14 other states agree with something, just one permanent state can stop it instantly.

What about the General Assembly?

The General Assembly is the largest organ of the UN and consists of every member state, all of which receive 1 vote regardless of size or power. However most major decisions made by the General Assembly require a two thirds vote, which can take a very long time. Additionally, resolutions made are non-binding recommendations and the UN lacks the power to enforce them.

The UN is also currently facing other issues such as a lack of funding, challenges with peacekeeping, as peacekeepers are often targeted, and an outdated structure based on the power distribution of 1945.

The United Nations is a very interesting topic and if you have time I would definitely consider learning more about it all. And while the UN may have problems, it is still responsible for many groundbreaking achievements such as the biggest efforts to stop climate change, a reduction in worldwide diseases, and the coordination of humanitarian aid during disasters like the recent Philippines typhoons. Only time will tell how the future of the UN unfolds.

Comedy Wildlife Awards 2025

April Tomlinson

This year saw the return of many wildlife and nature photography competitions; however, one such competition has always stood out to me. The Comedy Wildlife Awards.

On December 9th, The winners of the annual event were chosen out of the 43 finalists. Below I have selected my 10 of my favourite finalist entries.

At the bottom of this section you will find a link and QR code leading you to our own school wide vote where you will be able to pick your favourite of these 10. The winner of the vote will be announced in the first issue of 2026.

All full size images can be found along with their respective creators on the website.

Also, if you have the time, I highly recommend checking out all the other entries.





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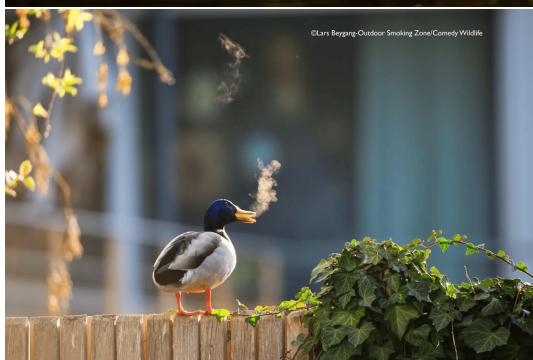
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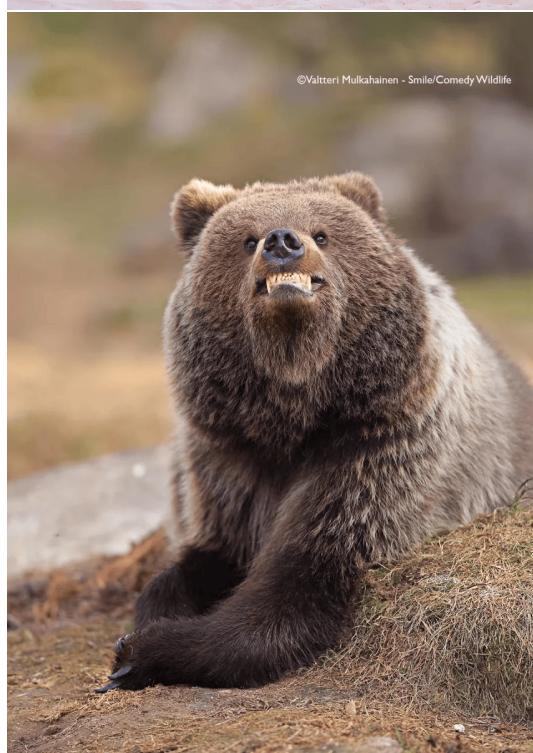
©Lars Beygang- Outdoor Smoking Zone/Comedy Wildlife



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Comedy Wildlife Awards EMS Vote



[Comedy Wildlife Awards EMS Vote – Form link](#)

Through the minds of history: The Wright Brothers

Chloe Marsh

December 17th is Wright Brothers' Day in the US, so to pay tribute to Orville and Wilbur Wrights' substantial contributions to aeronautics this issue's article will be dedicated to their first flight in a mechanically propelled airplane over Kitty Hawk, North Carolina, 122 years ago. The Wright Flyer was instrumental in the development of aviation into what we recognise today, pioneered by the Wright Brothers and their rigorous testing of models and progression of modern aeronautical engineering.

Wilbur and Orville Wright, born 1867 and 1871 respectively, were raised in Dayton, Ohio which was in the late 1800s a centre for innovation and industry. In this environment, which was home to the mechanical money drawer for cash registers and the automobile self-starter, the brothers were able to learn about mechanical engineering and flourished. In childhood, Wilbur excelled academically and athletically; a highly intelligent reader and writer, and a strong speaker, Wilbur was described by his father as "never rattled in thought or temper". Though he had hoped to study at Yale University and become a teacher, his father's church obligations meant that the family had to move from Indiana back to Dayton and it was then that Wilbur sustained a serious sporting injury that set him back many years. Whilst he recovered, he spent a lot of time reading, writing, and helping his father in his church work. Orville, on the other hand, showed a great interest in science and technology from an early age yet did not work particularly well within the school system. He pursued advanced college courses rather than the usual high school courses, which led to a lack of formal diploma. Orville was seen as the more impulsive and creative brother, whose quick mind and inventive skills carried the creation of the Wright Flyer through many technical difficulties.

The Wright Brothers originally started out in printing and publishing. Orville started a small printing business in 1886 with his friend, Ed Sines, in Dayton, which he bought out after a dispute with Sines, who stayed on at the company. Around this time, the brothers also formally collaborated on another printing company, which offered job printing and published several short-lived newspapers. In 1888, Orville built a larger, professional press with Wilbur's help to take on bigger commissions. He started a weekly newspaper called the West Side News in 1889, which listed Orville as publisher and Wilbur as Editor. However, it faced a lot of competition from other local newspapers and ended after 78 issues. The brothers briefly published the Dayton Tattler, a creation of Paul Lawrence Dunbar, but this only lasted for 3 issues. In 1899, Ed Sines quit, leading the brothers to sell the publishing company. During the later years of Wright & Wright Printers, they set up the Wright Cycle Co in 1892, which built and

repaired bicycles, in response to the rising demand in America after the first safety bicycle was built in England in 1887. It was in this business that Wilbur and Orville began to develop the first mechanically propelled heavier-than-air aircraft.

On May 30th, 1899, Wilbur Wright wrote to the Smithsonian Institute to request any publications that talked about research into human flight after he declared his belief that it was possible. After research, the brothers put all the potential issues of flight into three categories: a set of lifting surfaces (wings), a method of balancing and controlling the aircraft, and a means of propulsion. They first tackled control with the 1899 Wright Kite. They knew that a pilot needed to control the aircraft's horizontal movement for balance and turning, and realised that changing the angle at which one wing met the oncoming flow of air to be greater than the other would result in that wing experiencing greater lift and therefore causing the aircraft to bank. They conceived to accomplish this by warping the wing structure, which could be controlled by lightweight strings and rods by the pilot. The 1900 Glider was to be piloted, so had to incorporate more aerodynamics calculations into the design to hold a person. Using wing warping, aerodynamics data from Otto Lilienthal, and calculations to determine the required wing area, shape, and structure, the Glider was created and tested over Kitty Hawk. Though it did not generate the predicted lift, the Glider was airborne for 2 minutes and showed that the basis for a propelled aircraft were sound. In 1901 and 1902, the Wright Brothers designed and tested two more gliders, improving lift and control. The main problem was that their own experiments on lift and drag found the required angle of the wings to be three times what Lilienthal's data predicted. The 1902 Glider was far more successful after adjustments from this revelation and the addition of a movable rudder.

Following this, the 1903 Wright Flyer was finally constructed. They calculated that to carry the weight of an engine, propellers, and reinforcement, the wing area had to be increased from 28 square metres to over 44, and allowing 91kg for the propulsion system they estimate the total mass of the Flyer to be 625kg. Based on this, an 8 horsepower engine was needed to achieve a minimum airspeed of 37km/h to stay airborne. The propellers were also a large consideration, and were each 2.8m in diameter and treated like a rotary wing to provide enough lift and thrust. On December 17th, 1903, four flights were made over Kitty Hawk, the best of which covered 284m in 59 seconds. In 1904 and 1905, two more airplanes were made that could do longer, circular flights, so were more practical and marketable. However, the 1903 Wright Flyer was the very first heavier-than-air, powered aircraft to make a sustained, controlled flight with a pilot aboard.

The Wright Brothers took years to design, develop, and test a functional propelled aircraft, but their innovative mindsets, challenging of accepted ideas, and persistence allowed them to make history. Their ideas were the foundations for modern aeronautical engineering and without Wilbur and Orville Wright, we may not have the ability to fly and even go out to the stars today.

Book of the Issue

This issue's book is "Six of Crows" by Leigh Bardugo.

This book was published in September of 2015 by Henry Holt and Co. It tells the story of a band of six teenagers who live in a Victorian London-esque city on an island and get hired by a merchant of the name of Jan Van Eck to steal a hostage from the notorious Ice Court in Fjerda – which bears resemblance to a Scandinavian country. The story starts in Ketterdam – the city on the island – and follows Kaz Brekker and his notorious gang named 'The Crows' through the motions of figuring out the logistics of the heist and actually executing it. The crew starts with Kaz, the gang leader, Inej, Kaz's most trusted spider – also known as 'The Wraith' - and Jesper, the gang's best sharp-shooter. They then move to recruit Nina, a Grisha Heartrender, which means she has the ability to control a human body and even stop a heart, and Wylan, their explosives expert and chemist. With this crew they move to the prison – Hellgate – where Matthias, a 'Druskelle' (a Grisha hunter) resides. He is the key to their plan because – being a Druskelle – he was brought up and trained in the Ice Court, and is the only one of the team to have any knowledge of it. They have to succeed in bringing him into the team, otherwise they will be entering the most heavily guarded vault in the world blind, but to do so they must convince

him to work with the very thing he swore to hunt and turn on his country to do the right thing, as it is revealed the hostage is the scientist who created a drug which is detrimental to Grisha when used on them. This drug – Jurda Parem – can be used on a Grisha to cause an extreme enhancement of their power, making it an incredibly destructive military weapon, but can also cause a Grisha to burn out and die. The story continues as they begin to make their way to Fjerd to complete their mission. The team faces many trials and tribulations as they move along the course of this heist, but I won't go any further for the sake of spoilers!

In all honesty, I believe this book to be one of the best novels of our time and I predict it to remain seen as the utter and complete beauty of a book that it is. The incredible speed at which the characters switch between dangerous criminals and teenagers gives the book its comedic side while still maintaining a slightly maniacal edge leant to it by the pure lunacy and danger of the heist they are to complete. Bardugo writes incredibly well in addition to her absolutely fantastic plot, making this book detrimental to your sleep schedule should you choose to read it because the way she crafts a world around you in which you can almost see everything pan out is truly incredible. The characters created are superb as every back story and plot-line is thoroughly thought out, from Kaz's past as a farmer to Inej's enslavement and release each story shows how these teens have overcome most adversities that they have faced – albeit not normally in a conventional way! You can really tell that Bardugo poured her heart into this book.

This book was born from an idea had by Bardugo whilst listening to the album “In A Time Lapse” by Einaudi, and listening to that album is an intriguing way to see how the music from Einaudi has not necessarily influenced the actual book but moreover the undertones that it carries and what it leaves you feeling. Bardugo's connection to the book doesn't end there as she creates Kaz as having to use a cane to walk, and having similar symptoms to her own condition, called ‘osteonecrosis’, so you can really see the connection that Bardugo has to her characters, but especially Kaz.

All in all, I cannot recommend this book to anyone enough and would highly advise you to read it should you be looking for anything new to read!

Creative Writing Submission

I sit on the very edge of the jetty with water behind me. Water will keep me safe. Here, in the folds of earths scrunched up cloth, it has pooled around me and I am safely within its arms. Its bright, opaque surface promises to keep them away.

Ahead of me, nestled in the same dimple as me, the little ghost town lies. It's shanty, oddly-placed, brightly-coloured houses are held close to me by the waves of the horizon. The ghost people hover in and out of pink cubes and blue cubes. They hold their heads stubbornly forwards. And I'm sure I see them leaving again out of the ones they just left - like their lives are being played on a sordid loop. It used to unsettle me.

But now I do not care. None of them turn to me, none of the many old greying women gaze over the lake in mourning of lost loves or happy memories. This is how it must be, this is how it has always been; their business is their business, mine is watching them.

I don't know how I got here but I know I haven't been on land for a long time. I don't know if they ever think about me back there, and I don't know if I should care. All I know is water is wet and sky is blue. I shuffle my bum a few planks forward then put my back down and my head dangles over the edge. Long and unwashed locks of hair flop off of my forehead and into the water. I cannot feel it but I imagine it is cold. I might never have touched it really. Still, it will have shunned the heat of this place. That is the last thing I am sure of.

The sun seems a perfect disk cut out of the sky - a window through which some of the intense and pure light of another world is given to us. It keeps the sky above me this bright blue and lends the few clouds their stunning white. The scene sent to keep me occupied. Each ray of sun, every bird swooping past, has been meticulously placed for my viewing.

And the mountains are a nice touch. Their verdant peaks serve as a nice, undulating border. They tell me never to get up again. And my neck is getting stiff but what does that matter. I feel like the ant underneath the family's favourite glass.

The sun is beginning to creep away from me. The electric, kingfisher blue is draining from the sky. The clouds have spread out into one ashen blanket.

But I do not follow the sun. I do not beg or claw it back into the sky. I am giving it some peace. It will return tomorrow, it promises. As it's last, lingering rays back out of my vision, the stars fade in on cue to replace them. 'A million suns is better than one.' I think when I begin to shiver.

It is this time again. The cold will set in and not leave me alone for hours yet. I try to close my cold eyelids against my cold eyeballs and I guess it works.

I lie like this for a while, trying not to think about my situation but not knowing what else to think about.

That is when the plop sounds, abrupt and hollow on the water's edge. My neck stiffens again and there's a little breathlessness in my chest but I do not move. A little while goes by. Then there's a second plop - so like the first it was as if the first had been severed from its place in time, picked up, and stitched back into this moment for me to rehear. I sit up and open my eyes.

And on the banks, out of the night, two eyes stare back at mine, shot with blue stolen directly from the midday sky. I don't know how I can see them through the dark. They pull me in and I am on my feet. I don't want to move. I'm not sure if they can handle my weight. My spine feels like it's about to crumble, but still I am pulled forward, until I am standing, toes touching mud on the very edge of the jetty. It feels weird and cold and bitty.

Some movement of hers beckons me closer.

I am as close as my beating heart will allow. Land is soft under my feet. I can see her, lit with her own light emanating from her eyes, skin like bark. Her long and grey hairs run down her body and seem to fuse with the ground. And in the hands she holds so close to her thick body she grips into one slice of bread. Meticulously she tears off a square. In her wrinkled fingers she rolls it into a ball. Then, as if with out choice, she flings it into the lake.

The plop and its aftermath form the backdrop to my feelings of betrayal. I don't know what I had expected it to do but it wasn't that. It should have shunned the offering, that ball should have bounced off of its surface. But instead it swallowed it up so greedily, so easily satisfied, I can never return.

Poetry of the Issue

Isaac Olsson

My first poems are from a set of 5 poems entitled *Album*, from *Human Chain*, a book of the poems of Seamus Heaney kindly lent to me by a reader. I've chosen this set, and these particular poems for the motif of the oak tree, which I have a personal fondness for, and the mention of proof, that I think all us mathematicians can appreciate.

II, Album

By Seamus Heaney

Quercus, the oak. And *Quaerite*, Seek ye.
Among green leaves and acorns in mosaic
(Our college arms surmounted by *columba*,

Dove of the church, of Derry's sainted grove)
The footworn motto stayed indelible:
Seek ye first the Kingdom . . . Fair and square

I stood on in the Junior House hallway
A grey eye will look back
Seeing them as a couple, I now see,

For the first time, all the more together
For having had to turn and walk away, as close

In the leaving (or closer) as in the getting.

V, Album

By Seamus Heaney

It took a grandson to do it properly,
To rush him in the armchair
With a snatch raid on his neck,

Proving him thus vulnerable to delight,
Coming as great proofs often come
Of a sudden, one-off, then the steady dawning

Of whatever *erat demonstrandum*.
Just as a moment back a son's three tries
At an embrace in Elysium

Verus that has slipped from ‘very’.

Swam up into my very arms, and in and out
Of the Latin stem itself, the phantom

Old Possum’s Book of Practical Cats is a collection of poems by T.S. Elliot which largely consists of light-hearted poems about the secret escapades of characterful cats. It served as the basis for my favourite of Andrew Lloyd Webber’s musical, Cats. Here is one of the poems it contains, about a Devonshire cat:

CAT MORGAN Introduces Himself

By *T.S. Elliot*

I once was a Pirate that sailed the ‘igh seas—
But now I’ve retired as a com-mission-aire:
And that’s how you find me a-takin’ my ease
And keepin’ the door in a Bloomsbury Square.

I’m partial to partridges, likewise to grouse,
And I favour that Devonshire cream in a bowl;
But I’m allus content with a drink on the ‘ouse
And a bit o’ cold fish when I done me patrol.

I ain’t got much polish, me manners is gruff,
But I’ve got a good coat, and I keep meself smart;
And everyone says, and I guess that’s enough;
“You can’t but like MORGAN, ‘e’s got a good ‘art.”

My limerick for you this half term comes from the recreational mathematician and wordplayer Leigh Mercer. It can be written in two forms:

By *Leigh Mercer*

$$\frac{12 + 20 + 144 + 3\sqrt{4}}{7} + 5 * 11 = 9^2 + 0$$

or

A dozen, a gross, and a score,
Plus three times the square root of four,
Divided by seven
Plus five times eleven,
Is nine squared (and not a bit more).

You can verify for yourself that the equation is valid.

This half term at EMS, the Computer Science students have been working for their NEA (Non-Exam Assessment) projects. Thank you to Agatha and Ivo, who sent me this hilarious parody of Pam Ayres’ “Oh, I Wish I’d Looked After Me Teeth” in celebration of this.

Oh, I Wish I’d Looked After Me NEA

By *Agatha Cameron-Kettle and Ivo Cahill*

Oh, I wish I’d looked after me NEA,
And realised the deadline’s today,
All the lessons I missed,
And drop-ins I skipped,

Oh, I wish I’d looked after me NEA.

I wish I’d been that much more willin’
When I had a whole summer for killin’

To give up some hours,
To my coding powers,
And didn't leave so much to fill in.

When I think of the time that has ticked,
And the ambitious objectives I picked,
To make a Turing machine,
I was far too keen,
Now my conscience gets horribly pricked.

My teachers told me to no end,
'Drop-in sessions are your friend'
I was young then, and careless,
You would find me there less,
Now I don't have spare time to spend.

Oh I said I would do it all right,
But I waited 'til quite late at night,
As my tired eyes glazed,
And more errors were raised,

I gave up and turned off my light.

If I'd known I was paving the way,
To disappointment, dread and delay,
The message on Teams,
Haunting my dreams,
I'd have done it right away.

So I sit in my classroom in shame,
Knowing many peers feel the same.
Reading Stack Overflow,
I still do not know,
Just which line of code is to blame.

How I laughed at them back in the day,
'It's coursework not torture' I'd say,
But now comes the reckoning,
The teacher is beckoning,
Oh, how I wish I'd looked after me NEA.

When you finish reading the Write Angle, I recommend you seek out Ayres' original poem on poetryarchive.org.

October was Black History month in the UK, which each year is packed with poetry competitions, that released their winners early in this half term. Below is the 2nd place entry of Poem Stellium's competition on the theme of "Beyond a Month", written by poet Melonie Barnaby.

AFRICA ARISING

By *Melonie Barnaby*

AFRICA ARISING, look settled upon visions inside her childrens eyes, ceasing to be surprising.
For many years upon, upon years, somewhat forced, huge wealth in people, language, traditions, economically, diamonds, lands into compromising.
In truth limitless, subjected to many evils, without time to breathe, room for thought or time etched in surmising.
Surpassed barriers, erected, perfected skills in surviving, flamboyantly, reality re-wiring
Many her steps, fearfully admiring
Greedily her wealth, still sneakily, siphoning.
Amidst thousands, flat soles, protesting, futile words discussing,
Yet still, within futures, in investing
A creative revolution, a wholesome solution, buffering. A branded evolution garden growing.
A mind-led blowing creative, uprising. Seeds of hope soil-deep sewing.
Once laid up, flat out in a bed of thorns, an un-made bed of lies oppressively, keeping scores
Filled souls up with doubt, hate in darkened roomed walls
Hidden, unashamedly inside dingy stalls,
Erased memory of homelands, filled with natures coconut waters, and mango tree falls
Whilst her children victimised, ostracised, laden in melanin skins, heads held high, arise
Infused, in shea butters, moistured by design, embroidered colours deeply layered, one babe at a time. Libations poured, honouring fallen warriors, in palm wine.
Hunted, pained, wronged yet true to life connected, earth rooted
Undisputed
Creator recruited
Historical existence, by alleged professors refuted

—
Yet still we arise, roaring rivers, deeply flowing within, cocoa, sea green coloured eyes
Whilst encompassed betwixt, a hardened battle, drawn upon purpose, once used like cattle
Upchained bodies harshly, observed tearful chattel
How did we settle? Aromas, from white cotton petals
Steamed rage, caged in soul, upon wood fires, desires boiled up like kettles
Souls solid, hope filled, unacknowledged, heard noise
Yet inside dark, hot caves they cried
Billions, throughout his-story, massacred, died
Not only destined, meant to survive
Categorically shielded to win. Healed from within.
For Africa, we are your children past, present and future.
We are children of the rising sun
We are children of the rising sun
We are our future, navigating keenly until we reach our final destination
For we are one regardless of hue, tone or varied saturation
Beyond long days and nights, mixed within cold weather, sunshine and ice,
We are our Ancestors treasure
We are our Ancestors treasure
regardless of the tone or hue, tone or saturation
To Mama Africa we stand; B-rave B-old, S-strong, singing, one unity song
Our Hearts...
Our Souls..
Our Minds..
embodied to you we belong- AFRICA'S ARISING!!!

This Half-Term in Music

Donny Greig

Over the past half term we've seen a few notable album releases, with Florence and the Machine releasing her sixth studio album *Everybody Scream* on October 31st. Comprised of twelve songs and garnering gleaming scores from newspapers and music magazines alike (with Rolling Stone giving 4/5 stars and the Telegraph a perfect 5/5), the tracks are exactly what you'd expect from a Florence album; it's punchy and comments on femininity and fame in the music industry. A Stereogum writer summarised it best, calling it the 'optimal soundtrack for dancing naked under the moonlight'; worth a listen, even if you're not!

We also saw the release of actress-turned-musician Demi Lovato's *It's Not That Deep*, its pop-electro genre contrasting with her other more rock-based albums released previously. She provided a 'little bit extra' version with three more songs than the original eleven on the 21st of November. It scored well with critics, with a Line of Best Fit writer calling it her 'best effort yet', successfully delivering on being 'light and easy while dancing the night away'; reaching number 1 on Billboard's Top Dance Albums, there's no way to resist its charm!

Taylor Swift once again defends her songs in the top 40, with *Golden* from K-pop Demon Hunters swapping with *The Fate of Ophelia* several times throughout November. Gorillaz' *Feel Good Inc.* has been on a 12-week streak in the top 40, despite not having charted for over twelve years and being released over twenty years ago, similarly to *Mr Brightside*, with only 16 more weeks charting until it hits 500 total, though with the advent of the winter season and mainstream Christmas music dominating, it's unlikely it'll hit that goal until mid 2026.

The album I'd like to recommend this issue is Paul McCartney and Wings' *Band on the Run*, a late beatles-esque pop-rock album, with songs reminiscent of their earlier albums *Beatles For Sale* and *Help* as well as their love letter to their time as a band *Let it be*. The jazzy upbeat instrumentals complement McCartney's heartfelt and powerful vocals, and the excellent earworms in the tracks will leave the songs echoing in your head for weeks. Definitely worth a listen!

Mariah Carey is at number 22 on the charts.
She's defrosted.

Boulder Exe or The Climbing Hangar?

Remi Campbell-Willmont

The age old question: Should I climb at Boulder Exe or the Climbing Hangar?

But first, a bit of background. The first Climbing Hangar was started in Liverpool in 2011 and has since spread to 11 different locations across the UK welcoming thousands of climbers every month. The Climbing Hangar Exeter opened on February 28, 2022 in Marsh Barton and has been a staple of the Exeter climbing scene ever since. Boulder Exe is the sister site to the Quay Climbing Centre and opened on December 21, 2024. The Quay Climbing Centre is an independent climbing gym that opened in September 2011. With walls up to 15 metres, the Quay is mainly a ropes centre with two small boulder rooms. So the owners decided to expand with an exclusively bouldering centre right across the river - Boulder Exe. Over a year in making, Boulder Exe was a huge investment for the company but it has been hugely popular in the Exeter climbing community and hailed as one of the best bouldering centres in the country.

Now onto the comparison...

PRICE

At Boulder Exe, for a student climber, it's £32.50 per month or £11 per session. You can also buy multiple months at a time to save money. If you have a membership you get two guest passes a month. If you want to bring a friend climbing who has not climbed there before, you can use a guest pass to get them in for free. It's £3.00 every session to rent shoes. Members of Boulder Exe receive a 15% discount in Taunton Leisure. You can also buy membership in bulk at £90 for 3 months, £170 for 6 months and £230 for 9 months.

At the Hangar, it's £34.99 per month or £13 per session. If you have a membership you get unlimited guest passes. Guest passes work the same at the Hangar as at Boulder Exe. If you are climbing at the Hangar they provide free rental shoes. As a student, you can also buy membership in bulk at £89 for 3 months, £160 for 6 months and £210 for 9 months.

LOCATION

Boulder Exe is located on Tudor St EX4 3BR - right at the bottom of fore street. It's a 15 minute walk from EMS.

The Hangar is found in the middle of marsh barton at 6 Marsh Green Rd N, EX2 8NY. It's a slightly longer walk from EMS at 30 minutes from EMS. To get there you can walk down South Street then through the underpass, go down the cobbled road and across the river. Then there's a nice walk alongside the river and canal. After that there's a foot path that cuts right through to the Hangar.

FACILITIES

Boulder Exe has a fully equipped gym with hang boards and weights. It also has a yoga studio that runs yoga sessions each week. It has a kilter board and tension board which can be angle adjusted as well as a moon board and the Titan wall (epclimbing.com) which is a IFSC accredited competition wall that was used in the Paris Olympics last year.

The Hangar has a gym down a corridor from the main climbing area. They also have a kids climbing area with a slide which is great for warming up in. They have a Kilter board and hang boards in the main climbing area.

MERCH

Boulder Exe sells t-shirts, sweatshirts and tote bags. They also have a Taunton Leisure branch within the building that sells a wide range of climbing shoes and other climbing supplies.

The Hangar has a wide range of climbing clothes including t-shirts, sweatshirts, sports bras, climbing trousers and so much more. They also sell water bottles, chalk bags and shoes that you can try on there as well as hang boards and outdoor bouldering mats.

FOOD

Both locations sell a wide range of food including cakes, sandwiches and pizzas. They come at similar price points and are equally delicious.

VIBES

Boulder Exe is a large open space that feels very airy. There is a second floor mezzanine that does not cover the ground floor climbing area. There is an extractor fan which improves air circulation and cools down the centre in the summer. The walls are all elegant wood, and the holds are vibrant colours. There is also a "fishbowl" bar area that is a good quiet place to do work (and it has sofas).

The Hangar is smaller and feels more enclosed. Because of the smaller space there is less airflow and more chalk in the air. They have air con on both floors, however it struggles to combat the heat of summer. They have a cafe area upstairs (with sofas) and downstairs, and some bar style seats that you can see the climbers from which are great to do homework in.

At both centres, the people are all super nice and supportive. It is really easy to talk to people trying the same climb as you.

CLIMBS

Boulder Exe has a high density of climbs as well as more wall space in the centre. The holds themselves are really interesting and downstairs there are some huge holds used on easy problems. The easier climbs are still interesting and technical which teaches beginners key skills and techniques needed to progress through the grades. The grading system at Boulder Exe is a colour system: Mint intro, Green V0 - V1, Yellow V1 - V2, Orange V2 - V3, Blue V3 - V4, Red V4 - V5, Purple V5 - V6, White V6 - V7, Black V7+. However, it's the colour of the tag on the start holds and the circle above the final hold that designates the grade rather than the colour of the holds themselves which can be confusing to new climbers. There are less easy climbs at Boulder Exe than the Hangar and more climbs in the high grades (V6+).

The Hangar uses a slightly different grading system where there are no V grades assigned to the climbs. Instead they use an overlapping scale of colours: Grey -> Green -> Orange -> Blue -> Purple -> Red -> White -> Yellow -> Black/wood. Where the difficulty is determined by the colour of the holds themselves. A significantly higher percentage of the climbs at the Hangar are lower grades.

Reviews

“A huge step up for British bouldering”
- Rhys Conlon, Team GB (Boulder Exe website)

“Boulder Exe is harder and better than the Hangar”
- Beth Jones

“The Hangar provides a safe environment for those who want to learn how to climb, it's an incredible place to ... climb”
- Joe Walker (V6 climber)

“Excellent centre. Good vibes, loads of well-integrated routes for all abilities that are regularly revised to keep it fresh. Good food too!”
- Jonathan Wood (The Climbing Hangar Exeter website)

Conclusion

In conclusion, both places are great for improving your climbing and meeting lots of friendly people. However, Boulder Exe has a wider range of facilities and is closer to EMS so is the better place to climb. The unofficial EMS climbing club climbs at Boulder Exe every Wednesday after school. Be there :)

Café of the Issue

Donny Greig

This week's café is the Tiny Tasting Room, one of South West Coffee Co's lesser known locations despite being found in central Exeter, on the way to the Cathedral in the tiny street opposite Tesco Express. It's the younger sibling of their more popular café along Topsham Road, the (regular-sized) Tasting Room, with loyalty cards carrying across between them. Either place is worth a visit, and their diverse menu of both food and drinks means there's something for everyone. In particular, they scored very high on my “hot chocolate index” (which was honestly more of an excuse to drink more hot chocolate).

Recipe of the Issue: Leek and Potato Soup

Bethany Jones

This is my go to recipe for leek and potato soup, it's perfect as the nights draw in, it's getting cold and we want something to warm our hearts and souls. It's quite involved but it's so so good. It does use chicken stock, but substitute it for veg stock (homemade if you can) if you like.

Credit to J.Kenji Lopez Alt

6 servings approximately

Ingredients

- 25 grams unsalted butter
- 2 large leeks, white and pale green parts only, rinsed and roughly chopped
- 1 litre homemade or store-bought low-sodium chicken stock (sub veg stock for vegetarian)
- 2 medium potatoes, peeled and cut into quarters
- 1 bay leaf
- Salt and freshly ground black pepper
- 250ml buttermilk
- 125ml single cream
- 1/2 teaspoon freshly ground nutmeg
- Sliced chives or spring onions, for serving

Method

Heat butter in a large saucepan or Dutch oven over medium heat until melted. Add leeks, reduce heat to low, and cook, stirring frequently, until very soft but not browned, 10 to 15 minutes.

Add stock, potatoes, and bay leaf, and season lightly with salt and pepper. Bring to a boil over high heat, reduce to a gentle simmer, cover, and cook until potatoes are fall-apart tender, about 15 minutes.

To Finish with a Ricer (Recommended): Remove potatoes from soup using tongs and transfer to a bowl. Set aside. Discard bay leaf. Transfer remaining soup to a blender. Slowly increase blender speed to high and blend until completely smooth, about 2 minutes. Return soup to a clean pot.

Press potatoes through a potato ricer or food mill into the pot with the soup. Whisk in buttermilk and heavy cream. Whisking frequently, bring soup to a simmer over medium-high heat. Whisk in grated nutmeg. Season to taste with salt and pepper and serve with chives or spring onions.

To Finish with a Blender (Faster): Add heavy cream and buttermilk to pot. Discard bay leaf. Working in batches, if necessary, transfer soup to a blender. Slowly increase blender speed to high and blend until completely smooth, about 2 minutes. Return soup to a clean pot, pressing it through a fine-mesh strainer with the bottom of a ladle if a smoother texture is desired. Whisking frequently, bring soup to a simmer over medium-high heat. Alternatively, chill completely and serve cold. Whisk in grated nutmeg. Season to taste with salt and pepper and serve with chives or spring onions.

A stick/hand blender works as well in place of a blender, but the texture might not be quite as good.

If you do end up making this recipe, please send in a photo or review to a member of *The Write Angle* team and we may feature it in the next issue!

Christmas Recipe: Lebkuchen Hearts

April Tomlinson

One of my favourite parts of any holiday are the sweet treats that come with it, and Christmas certainly has a lot of them.

But in my opinion, the best treat for this winter season is a hot chocolate and a soft Lebkuchen cookie. Alternative recipes can be found online for versions without nuts or with vegan substitutes, this is just the recipe that I use.

Original Introduction

Recipe by Anja Dunk from the cookbook Advent

These Lebkuchen are very easy to make and are the type of recipe that many German households bake in the run-up to Christmas. Hearts are the most popular shape, but stars, Christmas trees, angels and bells all add a festive touch.

I use both flour and ground nuts in this recipe, making these a cross between Elisenlebkuchen and a traditional spiced honey version. These biscuits are quite sweet owing to the addition of brown sugar, and I feel a frosting would tip the balance over the edge, so I've opted simply to decorate them in the traditional manner with blanched almonds and cherries.

Makes 20–30 Hearts

Ingredients

- 120g runny honey
- 120g dark brown sugar
- 65g unsalted butter
- 115g plain (all-purpose) flour, plus extra for dusting
- 115g rye flour
- 75g ground almonds (almond flour)
- 1 egg
- $2\frac{1}{2}$ tsp lebkuchengewürz or 1 tsp ground cinnamon mixed with 1 tsp ground ginger, $\frac{1}{4}$ tsp ground cloves and $\frac{1}{4}$ tsp ground cardamom
- $\frac{1}{2}$ tbsp unsweetened cocoa powder
- $\frac{1}{2}$ tsp bicarbonate of soda (baking soda)
- 30g mixed peel, finely chopped
- Finely grated zest of $\frac{1}{2}$ lemon
- Pinch of fine sea salt

To Decorate

- 1 egg white, loosened with a fork
- 15 blanched almonds
- 5 glacé cherries, quartered

Method

Heat the honey, sugar and butter in a small saucepan over a gentle heat, until melted and blended together, stirring from time to time to avoid sticking. Set aside.

Put the remaining ingredients into a large mixing bowl, pour over the melted honey mixture and stir everything together with a wooden spoon until a sticky dough is formed. Cover the bowl with a tea towel and set aside for 1 hour – it will become much less sticky and easier to work with after this rest.

Heat the oven to 180°C / 160°C fan. Line two baking sheets with non-stick baking parchment.

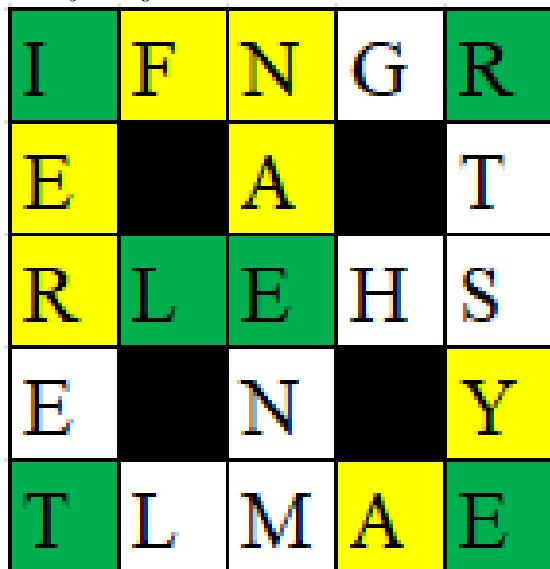
Roll out the dough on a lightly floured surface to a 5 mm thickness. Using a heart-shaped cookie cutter, stamp out heart shapes and place them 2 cm apart on the prepared sheets. Re-roll the dough offcuts into more biscuits. Brush the top of each heart with egg white and place either an almond or a cherry quarter in the centre of each.

Bake in the oven for 12–15 minutes until golden brown and just firm to the touch. Allow to cool on the sheet for a few minutes before transferring to a wire rack to cool completely. Store in an airtight container, where they will keep for a month or more. (I add a slice of apple to sit in the tin alongside these to help them soften quickly and stay soft, but they will soften gradually without the help of the apple too. It all boils down to whether or not you like a firm cookie or a soft one.)

Puzzles of the Issue

Waffle

Donny Greig



The Waffle is a word puzzle. You are tasked with rearranging the letters in the grid such that every 5 square row and column is a real word. The colours give you clues to solve this. A green square means the letter is already in the right place. A yellow square means the letter in the square appears somewhere in at least one of the words that intersects that square. A white square means the letter does not appear in that space. For example, we know that the solution to this waffle will have an I in the top left square; an R in either the middle row or left column (but not the space where the R currently is); and no E in the left second-bottom space.

Sequence

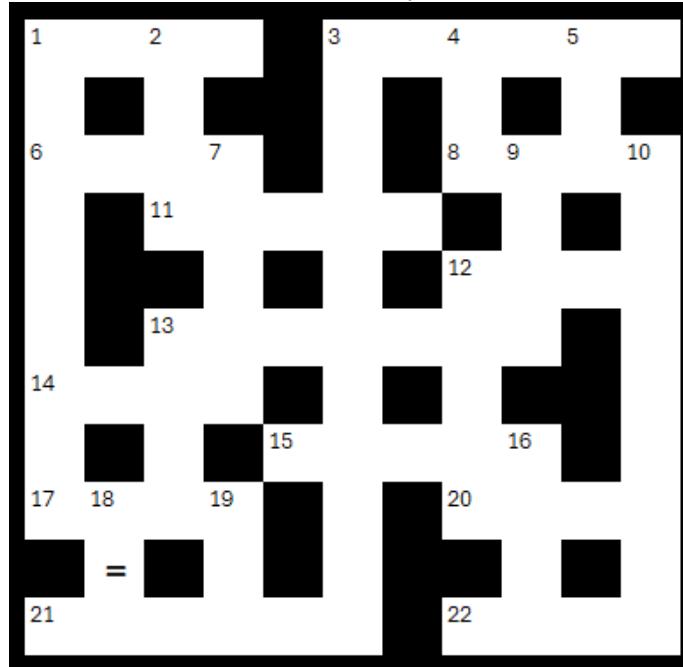
Isaac Olsson

Mark Hamill	→	Alexander III (the Great)
Alec Guinness (or Ewan McGregor)	→	Aristotle
Liam Neeson	→	Plato
?	→	?

The Sequence puzzle requires some general knowledge, including media and history. The cards in the image show 4 associations between names in an ordered sequence. Which names should replace the “?”s on the grey card to make the sequence complete? What is the rule the sequence follows?

Hybrid Crossword:

It's all Greek to me by Isaac Olsson



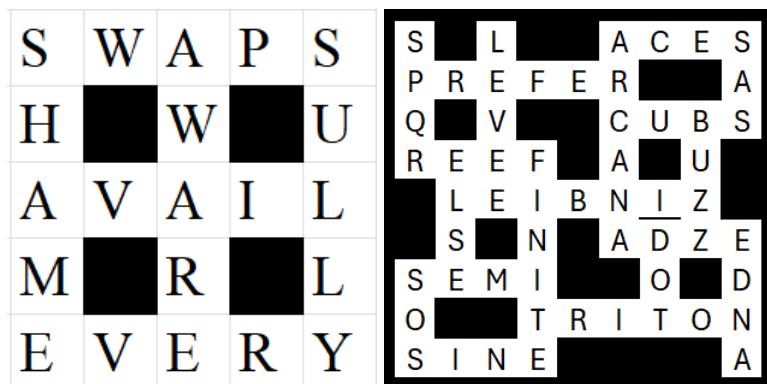
Across (Cryptic):

- 1 Best man in ruffled toga (4)
- 3 Last Testament; 2nd Corinthians: "we - foremost - are the weepers" (6)
- 6 For example, Tennyson 1st (4)
- 8 Quark obeys 1st Law of Thermodynamics and a uranium decays to oxygen from heat (4)
- 11 Enter: one Roman god of a battering ram (5)
- 12 Bronze tablet containing Ezekiel's second letter to the Greeks (4)
- 13 To speak Thai, not to invent first (7)
- 14 Nom holds back universe's first heavy lepton (4)
- 15 Dot with two eyes, speech and no brain (5)
- 17 Wealth hoarder Mike's capital buys out Ed Junior in weird, archaic scheme (4)
- 20 The Queen (of Hearts) was baking... tzar? (4)
- 21 Without midway break, arm exercise is taxing (6)
- 22 Go low for badass Welsh goodbye (4)

Down (Standard):

- 1 Mouth of a large beast (6,3)
- 2 Geometrically, the value of an integral (4)
- 3 Impress with a meal (4,3,4)
- 4 ___ and order (3)
- 5 Paddle (3)
- 7 Vehicles moving together (5)
- 9 Section of a cricket match (5)
- 10 Step in making knives from flint (4,5)
- 12 Coldest possible temperature (4,1)
- 13 Action using a jug (4)
- 16 Singer: ___ Turner (4)
- 18 For small values of X in radians, $Y = \sin X$ approaches (1=1)
- 19 Medical imaging technology with large magnets (1,1,1)

Answers to last issue's puzzles



A House of Cards Cryptic explanations

3A. seasoning = SP (salt and pepper), between words = SPACES, SPACES sub SP for ACES, (?) at the start of a card game; you might ask “are ACES high or low?”

5A. perfected = ACED, the late Queen = ER, PREFACED sub ACED with ER for PREFER, you choose what you PREFER

6A. black suits = CLUBS, make double left = sub L (Left left), CLUBS sub L for CUBS, CUBS are younger (small) Scouts

8A. about = RE (as in pertaining to), iron = FE, RE with FE back for REEF, in sailing; to Reef the sail is the opposite (don’t) of to Slack the sail

11A. al-Haytham = IBN (forename substitution), IBN in ZIEL back for LE[IBN]IZ, LEIBNIZ invented calculus,

13A. homophone ADDS for ADZE, an ADZE is a carpentry tool

15A. sixteenth note = SEMIQUAVER, crisp = QUAVER, SEMIQUAVER sub QUAVER for SEMI, in sport; a SEMI is a match to decide who will play in the final

16A. 3000kg = TRI TON (3 tonnes), in media; TRITON is the king of the sea

17A. homophone SIGN for SINE, SINE is a function describing a wave shape

Solutions to Last Issue's Problem

Last half term's problem ultimately boils down to one of two things:

Either you consider the lattice as a whole, namely that each atom has the same domain, or

You consider an individual unit cube, and think about it geometrically. We will explore both in this explanation.

The first explanation lends itself to the diagram a lot better. From this we see that each unit cube contains a total of nine atoms. Because all of the atoms have the same domain and the lattice is uniform, we can consider the volume that each vertexal atom takes up as some fraction of one atom's domain. We know that each central atom is also part of eight unit cubes, forming one of each vertices in each. Because each cube has the same volume, this means that the volume one central atom takes up in each unit is equal to one eighth of its domain. This means that in total, the volume taken up by the vertexal atoms in a given cube is eight eighths of one atom's domain, namely one whole domain. This means that in a given cubic unit, the central atom takes up one domain, and the remaining area is one domain, thus the answer is half of the total volume of the cube being taken up by one atom, namely $\frac{x^3}{2}$. This covers thinking of it more ‘physically’, as a uniform chemical structure rather than some abstract geometry.

The second way thinks more rigorously mathematically. Consider a cube, with eight vertices and one central point. From this central point, we can divide the cube into eight rotationally symmetrical cubes, meaning the ratio of the volume taken up in one is equal to that of the others, meaning we only have to find the volume taken up in one of the constituent cubes. The central atom and a given vertex form a cube where they are opposite vertices. This means the volumes taken up by either of the vertices are rotationally symmetrical with each other, thus have equal volume, thus also giving the ratio of 1:1 and the final value of $\frac{x^3}{2}$.

Problem of the Issue

Donny Greig

Ava and Bob are playing a series of games.

After one player has won one game, the probability that they win the next one is halved.

A) Draw a probability tree to represent this information, using 'p' as the initial probability of Ava winning.

The probability that, after three games, Ava has won the overall best-of-three (at least two games) is $\frac{1}{2}$

B) Find the probability that Ava wins initially.

C) Supposing Ava can improve her skills in the first game, find the maximum probability of Ava winning overall (at least two games).

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- Contain no hateful speech or derogatory language
- Be factual and up to date (provision of sources if necessary)
- Have no use of AI/LLMs
- Remain unbiased and politically unmotivated
- Be mindful and respectful of others' opinions
- Be clear in structure and content

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