# THE PENGUN

Summer Issue



Who's not over Mr Gadgil? (We're not either...)



Should school serve truffle pasta?

# My Visit to UCL Observatory:

Learn about the Radcliffe telescope

Dear Readers,

Summer 2022 is now here which means it's time for a new edition of The Penguin. Our last printed issue was highly commended for three different Shine School Media Awards! We're incredibly proud of these so achievements. This term has been a tight turnaround so a massive thank you to all our editors, designers, writers, and illustrators for all their hard work. A special thank you to Ella for the tireless work she's put in to make this edition so beautiful. We're always on the lookout for talent and if you want to be part of The Penguin family, ping us an email! This issue includes articles covering everything from Superstitions Debunked, a discussion with the Chemistry Department to coverage of the Spring Venice Trip.

Thank you, Madeleine and Ruby

We hope you enjoy it!

## We want to hear from you!!

Fancy getting involved in our award winning publication and being part of an incredibly fun and creative team? We are always on the lookout for illustrators and writers!

Contact us at penguin@shhs.gdst.net

# Letter from the editors

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# Red Velvet Cake

## Why you should love it, origins and misconceptions

This is plain ignorance. As an avid red velvet fan, I feel compelled to defend its honour. If you don't like the cake, it's almost certainly down to the fact you've indulged in a tacky grocery store monstrosity, a mix of dry chocolate cake, and a painful excess of red food colouring.

......

Everyone seems happy to hop onto the red-velvet-cake-hate-bandwagon, the sheer entitlement of which disgusts me. The cake has been designated the role of the odd-one at parties: a bold personality, shunned from society. It's deemed kitschy, vulgar or even too garish. While defending it in any way seems to instantaneously write you off as tasteless and unrefined.

A true red velvet doesn't strive to be a pathetic chocolate cake. It's an unbridled, rivetingly red baking high: sampling it is a journey, a privilege... you surely won't be the same on the other side.

.....

Red velvet, when made correctly, has a complex flavour. It's a delicate vanilla cake with a hint of chocolate, and the addition of buttermilk and vinegar means it's a tad tart and slightly salty. Cream cheese, or ermine frosting, provides another dimension to the flavour, playing off the cake's tartness with a sweet creaminess. The red colour is not from litres of food colouring, but rather from a reaction that occurs when non-Dutch-processed cocoa powder reacts with the acidic ingredients in the cake, producing a gorgeous shade of mahogany. The pearly colour of the icing contrasts beautifully with the rusty hue of the cake itself and makes for a truly show-stopping dessert.

If I'm yet to convince you of red velvet's wonder, neither this darling cake nor me is at fault. Just know I'm lurking around some shadowy corner, red velvet in hand, ready to appease you at any given moment. You have been warned...

.....

By Zara Y10

















# Coffee and Canova - a trip to

# VENICE

At the end of March, the Art and History of Art sixth form students were lucky enough to be taken on a long weekend away to Venice with the Art department. After a swift departure from Heathrow on Thursday 24th, we arrived at Venice airport that same evening to be greeted by the first of our many boat rides, a boat taxi which took us to Venezia where we wandered in the dark



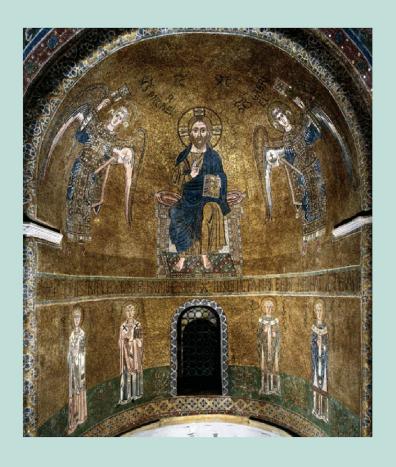
to our hotel, entirely unaware of the scenery we were missing. The next morning some friends and I were up at 7, to go on our morning coffee trip with Ms Bluck. It was our mission to drink as much coffee as we could possibly manage, espresso after macchiato after cappuccino, constantly for the entirety of three days. Ms Bluck took this very seriously, some may say too seriously since she downed six shots of coffee in approximately 10 minutes, which may not have been the example she intended



to set all of us. We wandered back slowly to the hotel, meeting up with the rest of the group to enjoy the delicious hotel breakfast and yet another coffee. And then off we went. We were divided into two groups: the Bellini's (History of Art students) and the Tintoretto's (Art students). As Bellinis, we began our day with Dr. Slade's Case Study Tour, walking all around the main island starting with St Mark's square which was only a 5-minute walk from the hotel to Doge's Palace where we got to take a Gondola to cross the road, up until lunch. On our lunchtimes, we were free to do whatever we wanted. We crammed into tiny local cafés, desperate for a calzone, arancini, or a slice of pizza, smiling with a 'grazie' which was about all us lot could say. After lunch, we were back on the boat.

much to our delight, and we set off for the island of Murano.

When we arrived, we were met by a member of staff from the glass-making factory, where we were led into their warehouse. We watched locals at work as they crafted the most gorgeous figures from piping hot liquid glass, with such ease. From there we were free to roam the island, making sure to walk into all the little shops and look at all the beautiful little glass animals and jewellery and buying them as little presents for friends at home.



Then it was back on the boat for island number two, Torcello, which was a personal favourite of mine. In 452 AD the Huns invaded mainland Italy, causing civilians to flee to Torcello, which was the northern most island in the lagoon. Following an outbreak of malaria, the population dispersed leaving only 25 locals residing there today. As we walked into the island,

soon reached the Basilica Church of Santa Maria Assunta. The church is a gorgeous example of late Paleochristian architecture and one of the most ancient religious edifices in the Veneto. After an in-depth exploration, we were back on the boat taxi to San Marino, ready to enjoy a free evening of wandering around the square, eating as much pasta and ice cream as we could physically bear before returning to our hotel rooms and collapsing in a heap of exhaustion.

It was up bright and early again on Saturday for Gallery Day. First up was the Peggy Guggenheim Museum. We meandered through slowly, taking in the overwhelming art that surrounded us. My personal favourite was Salvador Dalí's 'Birth of Liquid Desires' which is a beautiful oil and collage on canvas. Each time you look at another aspect of the composition something new and intriguing can be seen, While Madeleine's favourite was the €3 whipped coffee, which apparently was the real art of the Guggenheim.



After lunch, we continued on to the Galleria Dell Accademia. It was so special to be able to walk through and see all the real-life Tintoretto's and Bellini's, seeing famous artworks like 'Miracle of the Slave' and Canova's 'Pieta' while desperately trying to take in every head turn which was more breathtaking than the last. From there it was back to the hotel to drop off our things, and then another evening of perusing restaurants and gelato stands.



And then before we knew it, it was 7am on Sunday morning and chaos had ensued in the rooms as we students scrambled to get our luggage downstairs, in complete bewilderment at how it was already our last day. After our final breakfast at Al Piave (our hotel) and our final morning coffee run.



Today was a free day, so we had options on what we could do. Some students including myself took the Museum Pass, meaning that we had entry to many of the local such galleries and museums Archaeological Museum which was filled of Classical with Roman copies archaeological finds and even Renaissance art to appreciate the influence of early works. Henri went to see the Jewish Museum of Venice, visiting the synagogue in the ghetto, and some others went to mass at St Marco's Basilica. After lunch, we returned to the hotel, collected our luggage, and glumly began our journey home, sad to say goodbye to such a beautiful city

By Amy Y12







# The Development of

Chinese characters have been evolving for thousands of years and the earliest examples can be traced back to roughly 5000 years ago. Even the earliest characters, engraved onto tortoise shells and animal bones, can be linked to characters still used in the 21st century.

The first known use of Chinese characters was for the oracle bone script when characters were carved into animal bones and shells. This was used from approximately 1400-1200 BC and the characters were simple and based on pictures. An example of a character originating from this time is 火, meaning fire – this character evolved from a picture of a fire. The oracle bone script was used mainly for fortune-telling; questions would be engraved into an animal shell or bone and the fortune teller would heat it. The fortune-teller could interpret an answer depending on where the cracks formed. Eventually, the oracle bone script developed into the bronze script.

The next turning point in the development of Chinese characters was the seal script, used mainly during the Qin dynasty (221-206 BC). Characters were carved onto blocks of jade and stone to create imperial seals. The first imperial seal was commissioned by the first emperor of unified China, Qin Shi Huangdi.

The seal supposedly read, "having received the Mandate of Heaven, (the emperor will) live long and prosper". The artefact is said to have been passed down from emperor to emperor, although it is currently lost, and historians question its existence. Along with the unification of China came more standardised and uniform characters, although they still resembled pictures.



The clerical script, used from roughly 206BC until 220AD, is the basis of modern Chinese. The clerical script simplified the seal script and replaced the circles and curves with squares and straight lines. This change occurred to make it easier to massproduce documents. The other major change that occurred was that characters were no longer always based on a picture related to their meaning. Radicals, components of characters which represent a meaning, began to be used at this time. They are usually found on the left of a character. The pronunciation of a character is often on the right. For example, the characters 你 (you), 们 (we), and 他 (he) all have the person radical on the left. This shows that all three of these characters have to do with a person.

# Chinese Characters

Like the clerical script, the running script originated during the Han dynasty (206BC until 220AD). The running script was used for hand-written Chinese during the Han dynasty and is still used for hand-written characters today.



Nowadays there are two versions of characters, traditional and simplified. Simplified characters are mainly used in mainland China whereas Hong Kong, Macau, and Taiwan use traditional characters. In the early 1950s, the Communist Party began to simplify Chinese, to try and increase literacy rates which were only at roughly 20% at the time. The simplification of Chinese meant reducing the number of strokes in characters and reducing the number characters used. The number of characters was reduced by one character being able to represent multiple meanings. Some simplified characters look similar to their traditional version. For example, the character for horse was simplified from 馬 to \(\Begin{aligned}
\Boxed{\Boxes}\). Other characters, however, have completely changed. For example, the traditional character for listen 聴 was simplified to 听.

There are differing views around the simplification of Chinese. Many people believe that the simplification of Chinese has taken away from the rich history attached to each different character. Furthermore, in many characters, certain radicals (the part of a character that shows meaning) have been omitted. For example, the heart radical was removed from the character for love during the simplification of Chinese. Due to changes like this, some people believe that simplified characters are unable to represent a meaning in the same way that traditional characters do. Despite this, the simplification of Chinese cannot only be seen in a negative light. In 1956 the Communist Party aimed to increase literacy rates and by the 1980s literacy rates had increased to approximately 65%, largely because of the simplification.



Each character used in the modern day is the product of thousands of years of development of the Chinese writing system. Although simplified characters lose some of the meaning and history behind the traditional characters, they are easier to learn. This means that Chinese characters are more likely to be continued to be used in daily life in future years.

By Millie Y10

# Raphael:

The National Gallery has an exhibition on Raphael, the famous 15th century Italian artist (running until the 31st of July). The exhibition takes you through artworks ranging from Madonnas to personal portraits, and from his early years (1498 to 1505) up to his sudden death in 1520. This creates an accessible exhibition which is a chance to take a new look at an Old Master.

Raphael, born in 1483, is remembered as one of the great figures in the Renaissance. Serving as the painter for two Popes, Julius II and Leo X, Raphael gained fame that has long outlived him. The artist used mediums ranging from oil painting, such as his portrait of Pope Julius II (1511), print making, frescoes such as The School of Athens, bronze, tapestries and even architecture, such as his Villa Madama summer house for the Medici family. But his interests were almost unlimited, a fact the exhibition shows well in the sections on archaeology and design.



School of Athens, 1509-11 Apolistic Palace in the Vatican City

The son of the court painter to the Duke of Urbino, Raphael continued his father's line of work, despite being orphaned at the age of eleven. His early artworks such as

## A New Look at an Old Master

Saint Sebastian (1502-3), already reveal his immense talent and skill. In 1508 the artist moved to Rome and gained the patronage of Chigi, the papal banker. From there he became involved with the Popes and his reputation grew and grew. Raphael's career was cut short by his death in 1520, at the age of thirty-seven, making all his creations an even more impressive feat.



Study of Diogenes 1509

The current exhibition is arranged in categories, from Working for the two popes to a room devoted to architecture. It contains many preparatory sketches as well as the final artworks, providing greater insight into the mind of Raphael. A personal favourite is the Study of Diogenes, as the figure remains largely unchanged in the final version of the fresco the School of Athens. A highlight of the exhibition is the architecture section. A video shows a map of Rome before zooming in on Raphael's various creations such as the Chigi Chapel in Santa Maria dell' Popolo as well as the façade of the Palazza Branconio dell'Aquila. I really

enjoyed this section because although I am an architecture enthusiast, I was unaware that Raphael was an architect as well as a painter. In addition, his buildings are stunning and made me really want to go back to Rome.

Another highlight is the room dedicated to the School of Athens. The right wall contains a reconstruction of the artwork allowing visitors up close. The artwork imaginary gathering of philosophers of the Ancient World who lived between 600 and 400 B.C. The artwork focuses on Aristotle and Plato who represent the main division of Western thought - Aristotle's reliance on the natural world for happiness as opposed to Plato's abstract thought and ideology. The figures are surrounded on their respective sides by figures belonging to their category who engage in debate and talk among each other. What is more, Raphael himself features in the artwork on the far right, one of the few figures to stare back at the viewer. The complex composition really shows his ability, as each figure is given its own character, making this one of his most impressive works.

The last section of the exhibition contains portraits mainly of his friends. This section provides a greater insight into the artist and his life as the viewer feels a more personal connection. Also, it provides a sharp contrast to the many Madonnas that adorn the previous rooms religious depictions. The other highlight of this section is the Portrait of a Woman (1519-20), which depicts a halfnaked, seated woman, rumoured to be his mistress. The artist signed his name on an armband she wears, a typical choice when depicting mistresses, but she retains a sense of mystery. This artwork, or one very similar, supposedly hung in Raphael's home, aiding the personal connection between the artist and the viewer and showing the power of the portraits.

The exhibition leaves the visitor with feelings of wonder and enjoyment, but also sorrow at the abrupt end to Raphael's life. The artist died suddenly, collapsing in front of his work, after an eight-day fever. The visitor feels both a human connection to the artist as well as amazement at what he achieved in his short life.

By Madeleine Y12



Pope Julius II, 1511 The National Gallery



The Chigi Chapel, Santa Maria del' Popolo, designed 1516



Portrait of an Unknown Woman, 1519-20 also known as La Fornarina, National Gallery of Ancient Art in Barberini Palace

# Can Algae Farms save us from Climate Change?

Algae are a group of living organisms that can range in size from microscopic to over 60 metres in length. There are over 30,000 species of algae, although some estimates say there are as many as a million, which are generally classified into 3 major groups: brown algae (Phaeophyceae), green algae (Chlorophyta), and red algae (Rhodophyta). These species have many uses for humans, ranging from wrapping sushi to stopping climate change.

Studies have shown that certain species of algae are up to 400 times more efficient than trees at converting carbon dioxide into oxygen due to their large surface area and rapid growth, as they can double in number every few hours and grow 10 times more rapidly than most terrestrial plants. The excess algae can then be harvested and used for biomass production, producing anywhere from 2,000 to 5,000 gallons of biofuel per acre per year. They can also be used to provide animal feed for cattle, which would help to make animal farming more sustainable.



Algae can be grown in environments hostile to other crops such as at sea, in wastewater, in sewage and other polluted areas, meaning they won't compete with other plants for land and resources.

They can also purify wastewater, which could help people across the world gain access to cleaner, safer water at a lower cost, massively helping to reduce water insecurity. In addition, algae can be used to create many other useful items such as plastics, fertilisers, and cosmetics, and have nutritional, anticarcinogenic, and anti-inflammatory properties.

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However, a single 2,500 acre commercial algae production facility can cost about \$410 million to build compared to an average farm of the same size which would cost around £24 million, making algae farms significantly more expensive. This can be explained due to the fact that algae farms haven't yet been implemented on a large scale and therefore there are few technologies which are specifically adapted to them and readily available for widespread use. Although algae farms require a lot of attention and maintenance due to the rapid growth rate, with modern technology it will soon be easy to automate certain processing algae harvesting and storing such as products. Algae can also be genetically modified to ward off harmful bacteria, grow faster, and produce certain products such as ethanol, which sells at around £25.74 in the UK.

So why are algae farms not currently in use? While interest and research into algae farms has been growing, there is still a lot of information about how the farms would work and how effective algae biofuel is compared to others which has not yet been discovered. Algae farms also have an incredibly high water demand, as the temperature levels best for algae growth cause water to evaporate, and also require a lot of fertilisers.

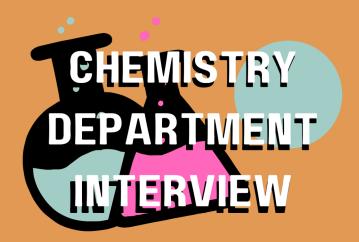
The increased use of fertilisers may cause pollution of water sources which could have a devastating impact on the surrounding environment and wildlife. However, a potential solution to this is that the water used can then be distilled and be used to provide people with clean water.

Algae biofuel is also expensive to produce and difficult to extract. The process involves a controlled environment, selecting specific species which produce the most fuel, and developing an efficient process to extract and then refine the oil. Unless a cheap and easy method is developed, the high cost of algae biofuel production may mean that it is unprofitable to manufacture it on a large scale.

Although at the moment algae farms are expensive, difficult, and far from a perfect system, there are now several research projects looking to improve the process and hopefully find a way to use algae to power vehicles and lights, minimise the effects of air pollution (especially the impact of greenhouse gases which cause climate change), provide people with safe drinking water and provide significant amounts of non-renewable energy resources in the future.

By Sofiia Y8







If you weren't a Chemistry teacher, what would you be?

Mr Arundale: I'd be a French teacher or an IT teacher or a German teacher- definitely a teacher. As long as I get to use analogies, then I'm in my elements (editors: chemistry pun!).

Ms Knox: I could be a classics teacher for similar reasons. There are lots of other things I've always wanted to try like acting, writing or sorts of artsy stuff.

*Mr Poza*: I like the sound of being an ice sculptor or a piano tuner. I think that would be quite interesting.

*Ms Knox*: Would you use a chainsaw for the ice sculpting?

*Mr Poza*: I haven't done any ice sculpting, I don't know...

*Ms Knox*: I'm just thinking of that scene from Groundhog Day, that would be very funny.



How did you get into teaching, was it a planned path?

Mr Arundale: One October I was hiking in the Yorkshire Dales and I just thought there must be a way to do this while still having a job. So I became a teacher. The first few years I taught I would go hiking every half term, cycling in the summer.

Mr Poza: I don't have an interesting answer to that. I started working in learning support at my old school when I was just out of uni, and it occurred to me that I wasn't bad at it.

*Ms Knox*: I just really like explaining things. I did a mini teacher training course when I was doing my masters and I loved it. I had always known I'd end up in teaching.



### Favourite element?

*Mr Poza*: They're all good.

Ms Elliott: I'll say carbon, because I'm a biology

teacher.

*Ms Knox*: Basis of all life and all that.

Mr Poza: I keep a piece of gallium in my lab coat

pocket.

Ms Knox: On the basis of the things I keep on my

desk, I guess tungsten.



### Do you miss Mr Gadgil?

*Ms Knox*: Desperately, he was a great colleague and still a great friend.

*Mr Poza*: I've got a little picture of him stuck on the wall by my desk, so I probably don't miss him as much as everyone else because I get to see him every day.

Mr Arundale: I'm surprised you said Mr Gadgil without prefacing it with 'The Legend that is', everyone who mentions him has to say legend in the same sentence. We miss him sorely.



One thing you would warn any new member of staff about SHHS?

Ms Knox: Your colleagues will be very competitive about things like quizzes and interhouse netball and sports day relays, and there may well be blood spilt. Mr Poza: Not sure, I'm trying to think of something Penguin friendly...

*Ms Knox*: The penguins in random places?



What is the biggest secret about the Chemistry department?



*Ms Knox*: We have the house cup in here because of Miss Elliott. It's above her desk but should probably be in a glass cabinet somewhere.

*Mr Arundale*: How about this, the head of Chemistry doesn't have a degree in Chemistry. I've only been taught Chemistry up to A-Level as I did a degree in metallurgy (material science).

So every time I have a Chemistry question, I have to ask one of the grown ups in the department.



## If the Chemistry department was a genre of reality TV, what would it be?

*Ms Knox*: I definitely don't want to say Breaking Bad , none of us would do that.

*Mr Poza*: This year has felt a lot like one of those shows like Ninja Warrior or The Floor is Lava.

*Ms Knox*: Absolutely! Just lurching from one disaster to another.



### Least favourite compound?

*Ms Knox*: Difluorine dioxide, it's really scary. I've never worked with it and I never intend to.

Mr Poza: I'd have to agree.

*Mr Arundale*: I think it's like being asked who your least favourite student is.

*Ms Knox*: When it comes to ones we actually use, the one I'm most scared of is bromine. It isn't a compound, but it's just scary stuff.

*Mr Poza*: My least favourite compound is whatever it is that comes out of this unsealed pipe, under this table here that makes the room smell bad. Probably a mix of compounds and I don't like any of them.



## Biology or Physics?



Ms Knox: Biology, easy.

Mr Poza: I think I might go with Physics.

*Mr Arundale*: Biology, I really like it. I started reading the biology resources that the Year 12 students get recommended.



If you could choose one topic you never had to teach again, what would it be?

*Ms Knox*: Electrochemistry. I have successfully avoided it for 10 entire years because Mr Arundale is extremely indulgent of my blind hatred for it.

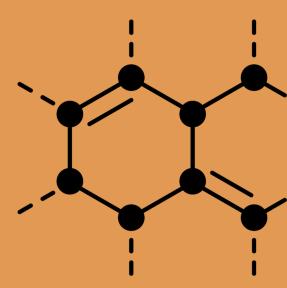
Mr Arundale: Year 11 'Using resources'.

*Ms Knox*: There are bits of the GCSE I wouldn't mind seeing disappear off the face of the earth.

There's the joy of storage and fuel cells...

*Mr Poza*: Condensation and polymerisation can go as well.

Ms Knox: From the GCSE definitely but I like it in the A-Level. We have a theory that the GCSE was designed by two people who didn't like each other very much and so didn't talk to each other when they were coming up with what the subject content should be.





## Would you rather be an electron or a proton?

*Mr Poza*: I think I'd rather be an electron, they have a bit more fun.

Ms Knox: Yeah, get to move around a bit more. There's a weird theory that cannot be disproven mathematically that all the electrons in the universe are just one electron that's time travelling. It breaks the brain of everyone who hears it.

*Mr Arundale*: I'd be an electron, they must have so much fun baffling humans. If we try to show that they're a particle - they're a particle, if we try to show they're a wave - they're a wave!



## Favourite thing about SHHS?

*Mr Poza*: I mean it's the students, it's what everyone's going to say...

Ms Knox: The life, joy and the inquisitiveness, it's a lot of fun to work with people who are so interested in the world around them and can make such amusing commentary without crossing the line.

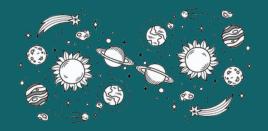
*Mr Arundale*: Definitely the students, if there was a different set of students it would be a different job entirely.

# My Visit to UCL Observatory

One Saturday evening in March, I visited the UCL Observatory. On the side of the A1 just before Mill Hill Circus, it seems an odd place for such a high-class research facility. After a short wait, while the rest of that night's visitors arrived, we went inside to a small classroom. There we received a brief presentation from Dr Mark Fuller and two student guides (Miranda and Vincent) who are using the Observatory's telescopes for their masters' projects. The Observatory's location is ideal for students commuting from the UCL main campus in Bloomsbury and it's position next to a motorway makes it accessible for researchers travelling from all over. At UCLO only around 1 in 4 nights are suitable for observation due to the fabulous British weather! The surrounding urban area also presents some more challenges - namely, light pollution. To combat this, UCLO have worked with nearby allotments to ensure lights are not left on overnight, and the streetlights on the motorway have special covers to stop light glaring into the sky.



View of observatory from the road





The Radcliffe telescope on its adjustable platform

There are 5 telescopes on the site. The Fry refracting telescope was built in 1862 by Mr H. R. Fry of Barnet who gifted it to UCLO in 1930. The Radcliffe telescope was built in 1901 and arrived at UCLO in 1935 from the Radcliffe Observatory in Oxford. The twin c14 celestron telescopes were acquired in 2006 and commenced operation in 2010. They were the first telescopes at UCLO with cameras included in the design. Finally, the Perren telescope arrived at UCLO in 2018 but is still being fully installed and is yet to commence operation. This telescope has 5 times the light collecting power of the celestrons, due to an 80cm mirror (each celestron has one 35cm mirror). Therefore, the Perren telescope will detect objects with incredibly low albedo[1] values, such as near earth objects[2].

The first stop of our tour was the Radcliffe telescope. This telescope was taken care of during the Second World War by astrophysicist Margaret Burbidge, who went on to become a professor at the University of San Diego. Her research there on quasars[3] provided evidence to support the Big Bang theory.

The Radcliffe telescope weighs 3 tonnes and consists of 2 refracting telescopes working together. It is positioned on a platform that can be adjusted so that the eyepiece is at eye level. As one of the oldest telescopes at UCLO, it was originally operated entirely by hand hence there is a chaise longue on the platform to give astronomers some respite through the long nights.

#### Key Terms!

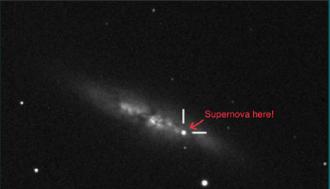
- [1] Albedo is a measure of how reflective a surface is so an object with a low albedo value is not very reflective. For example a black hole would have an albedo value of zero.
- [2] Asteroids, comets or large meteoroids whose orbits intersects Earth's orbit and so may pose a collision risk.
- [3] An astronomical object with very high luminosity found in the centre of some galaxies.

The Radcliffe telescope is used to view binary stars and groups of stars orbiting each other. Some astronomers think that having a star alone, like the Sun, may be a condition for life on Earth. Therefore, finding other similarly alone stars[4] may indicate other life in the universe.

Our next stop was the twin celestron reflecting telescopes. These are kept inside a large cold dome, as most telescopes are. This is because a large temperature difference between inside and outside the dome creates turbulence in the air, which reduces the quality of images. These are entirely robotic telescopes and can even be operated from home[5]! Despite being a very powerful telescope, the most expensive piece of equipment is the camera. Observers can use RGB imaging to choose which colours to emphasise in their image, depending on what they are looking for. This technique was used by first year students at UCL to discover a supernova (exploding star) on an image of the Cigar galaxy.

The final telescope we saw was the Fry telescope. It is a completely mechanical manual telescope and is therefore often used by first years for astronavigation practice. Inside the dome, there is red light so your eyes get used to accommodating for night vision (think turning off phone before bed because of the blue light). Dr Fuller set up the telescope so that we could use it to look through. I saw the terminator[6] of the Moon and craters on the Moon. It was fascinating to see such a distant object in so much detail and it made me eager to investigate astronomy and astrophysics in the future.





Supernova in cigar galaxy taken at UCLO in 2014



The Fry telescope, set up for observation

To finish the evening, we returned to the classroom to hear some more about current developments and future projects in the field. For example, astrophysicists are using spectroscopy to examine the atmosphere of distant planets for biomarkers such as oxygen or water vapour.

Overall, I had a fantastic evening. I learnt a lot about the history of astronomy observation and the challenges scientists had to overcome, but I was also inspired and enthused by the wonder of space and all there is still to discover. I would highly recommend going to visit UCLO, especially given how close it is to South Hampstead. Tours are completely free, although I would suggest going during autumn or winter as the sky will be darker so you have a higher chance of actually observing the night sky. It seems we are only at the beginning of a dramatic cosmic adventure!



### <u>Key Terms!</u>

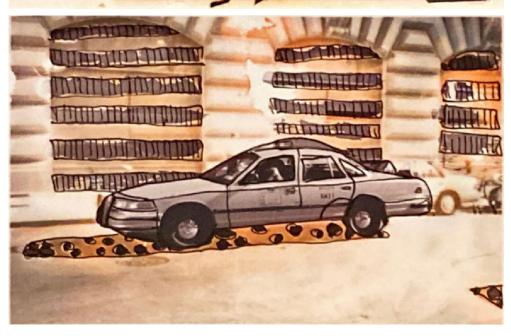
[4] Also called 'rogue stars' or 'intergalactic stars'.

[5] In fact the general public can use telescopes for observation in Chile and the Canary Islands through a website called 'telescope live'! [6] The Moon's terminator is the dividing line marking the edge between night and day on the Moon. It is sometimes called 'the twilight zone'.

# Art Feature







POPPY Yr12

# Answering Some of Life's Questions – Why Do We Cry Tears?

I have found myself questioning the world more and more recently – wondering things like why we cry tears, or why pineapples fizz on your tongue. I was inspired by a book I used to read on car trips when I was younger called 'Big Questions from Little People . . . Answered by Some Very Big People.' In the spirit of epistemic curiosity, I set out to answer some of life's mysteries. We are not so little anymore, and now we also have Google to help us, but you may still have some big questions, so here is your first answer... why do we cry?

So, what happens when we cry? The lacrimal system is found next to the eyeball, the secretory and excretory systems that handle producing and draining tears. When we cry, we produce more tears than the eye can contain. This is due to the largest tear gland's ability to open and secrete many tears at once. In a matter of minutes, the eye can produce more than half a cup of tears and lacrimal glands cannot handle this much at once, so our drainage system is employed. The limbic system (specifically, the hypothalamus) is the part of your autonomic nervous system, over which you have no control and is where your emotions reside. It controls the lacrimal tear production system with a neurotransmitter called acetylcholine, which is the tiny molecule that stimulates tear production. Emotions activate the nervous system, which in turn activates the tear-producing system.

Crying is the act of shedding tears to express any emotion or react to an experience, usually sadness or happiness. This is different to lacrimation, which includes producing tears without emotion and may occur due to physical pain or a response to a harsh smell or substance. For example, the amino acids in onions are altered by enzymes to become lachrymator compounds, they irritate our lacrimal glands which causes us to cry. Another is basal tears, which are constantly needed for lubrication, nourishment, and protection of our corneas – they even have a different chemical composition to psychic (emotional) tears.



So why the need for tears? An infuriating question that a relative may have once asked you. Crying out (without the tears) makes perfect evolutionary sense, when in danger or pain, or for a baby who is hungry, cold, or tired – screaming to call attention to yourself and hopefully be provided with aid is logical. But why do our lacrimal glands get involved?



It is unfortunate that not much is actually known about the science behind tears stemming from emotion – though it is thought that as well as having different composition to basal tears, they are also more viscous. This means that they stick to the face more and run down it slower to give more time to signal to others that something is wrong.

A theory is that tears trigger human bonding and social interaction, as vulnerability is critical to human connection. Tears may even subdue anger and reduce aggression – and could also contain a natural painkiller called leucine enkephalin. They are a form of catharsis: an effective way to recover from a strong bout of emotion.

In conclusion, despite it being something we may dread or consider humiliating, crying is one of the most fundamental forms of human bonding. The need for tears is still, in some ways, unknown but is there all the same. So next time you shed a tear – and I hope it's one of happiness – remember that somehow, along the winding passage of evolution, watery eyes have led humans to express vulnerability and become closer. When looking back on good memories or experiencing the more emotional part of life, crying is an integral part of life that stays with us through the ups and downs (and even just when cutting onions)!

# Thirteen Superstitions Explained

Have you ever questioned why we bless people after they sneeze, or knock on wood, or feel a smidge of unease as Friday the 13th approaches? Superstition of course, you might reply. But what really are these oddities, and why do they exist? Superstitions are an amalgam of myth, tradition, coincidence, irrational beliefs, and the remnants of ancient religious practices. Although they have no scientific basis, their hold on us is surprisingly powerful, even thousands of years after their creation. So here are some notorious superstitions, as well as some lesser-known ones, explained.

I. Black Cats: Cats were venerated by the ancient Egyptians and believed to be harbingers of fortune and prosperity. However, during the Middle Ages a belief developed that black cats were the "familiars" of witches, or even witches themselves in disguise, so a black cat crossing your path symbolised that the devil was watching you. This association became so widespread that some people blamed black cats for the Black Death and tried to exterminate them. During the Salem Witch Trials, this European notion reached America— explaining the affinity between witches, occult, and black cats.



2. Sonic Superstitions: Many cultural superstitions are founded on unfortunate sonic similarities. For instance, the word for the number 4 in Cantonese (四, sì) is homophonous to the word for death (死, sǐ) so is considered very inauspicious. In China, all building floors containing the number 4 in them are often omitted, and license plates tend not to end with 4. Similarly, in Italian culture, the number 17 is deemed unfavourable, because the characters of its roman numeral equivalent – XVII – can be rearranged to form the Latin word vixi, which, when translated, means 'I have lived,' or more morbidly put, 'my life is over.'



- 3. Spilled salt: Spilling salt has been considered unlucky for thousands of years given how valuable it was as a commodity. The word salary actually comes from Roman soldiers' 'sal' (salt) rations, which were a means of payment. The pervasive superstition is captured in Leonardo da Vinci's The Last Supper, with the spilled saltshaker in front of Judas. In Norway they believe that a person will shed as many tears as needed to dissolve the salt spilled. The Germans believe that whoever spills salt invites enmity because it is thought to be the direct act of the devil. The French throw a little spilled salt behind them to blind the devil.
- 4. Saying 'Bless You': When the bubonic plague was raging through Europe, it is believed that Pope Gregory suggested saying the words 'God bless you' after a person sneezed, as a prayer to protect them from an otherwise inescapable death. There are a lot of ancient theories about the separable soul, and how sneezing (or even yawning!) could expel your spirit from your body, hence the preventative phrase.
- 5. Wishing upon a Shooting Star: Greek astronomer Ptolemy theorised that the presence of shooting stars meant the gods were peering down from the sky, by opening the space that divides the earth's sky from the divine sphere. He believed that shooting stars would sometimes slip through the great divide, so if you saw one blazing through the night sky, you could rest assured that the gods were watching you.



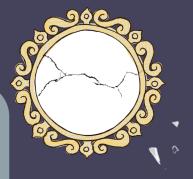
6. Horseshoes: The belief in horseshoes' special powers traces back to the Greeks, who claimed that the element iron, of which horeshoes were made, had the ability to ward off evil. Not only were horseshoes wrought of iron, but they also took the shape of the crescent moon in fourth century Greece, a symbol of fertility and good fortune.



- 7. Touching Wood: Ancient Indo-Europeans who were pagans believed trees were the homes of various spirits; so, by touching the wood of the tree, they hoped to invoke the protection or blessings of the spirit within.
- 8. Walking under Ladders: This ancient superstition originated since Egyptians regarded the triangular shape as sacred which can be seen in their pyramids. To them, triangles represented the trinity of the gods, and to walk through a triangle was to desecrate them. A ladder leaning against a wall forms a triangle, so passing beneath it is seen as "breaking" the trinity an act of utmost sacrilege.
- 9. Frigga-triskaidekaphobia (fear of Friday the 13th): For centuries, Friday has been considered the unluckiest day of the week, as reflected in Chaucer's renowned Canterbury Tales, where he writes, 'and on a Friday fell all this mischance'. The number 13 similarly has always had ill-omened connotations, whilst 12 represents wholeness; there are 12 months in the year, 12 zodiac signs and 12 days of Christmas. Over time, many unfortunate coincidences have fortified this superstition, such as a calamitous Chilean plane crash in the Andes on Friday the 13th, and an asteroid being predicted to almost collide with earth on Friday the 13th of April, 2029.
- 10. Opening Umbrellas Indoors: In ancient Egypt, umbrellas were crafted from peacock feathers and papyrus, and designed in the likeness of the Egyptian goddess of the sky, Nut. An umbrella's shade was therefore sacred, and strictly reserved for Egyptian nobility. Opening an umbrella indoors went against its natural purpose and was deemed an insult to the sky goddess.



II. Carrying a Rabbit's Foot: This belief stems from the ancient principles of totemism (the spiritual connection between animals and humans). If a tribe believed they descended from rabbits, it wasn't unusual for them to carry around parts of a rabbit's body. Celtic tribes believed that rabbits could speak with gods and spirits because of their burrows – another reason why a rabbit's foot was a harbinger of good fortune.



- 12. Broken Mirrors: In ancient Greece, many people consulted 'mirror seers', who performed divination by analysing their reflections; this art was known as catoptromancy. Often with the unwell, the mirror was dipped into the water if the image appeared distorted, the person was likely to die and if the image was clear, they would live. The Romans eventually introduced a caveat to the superstition. They believed that people's health changed in 7-year cycles, so a distorted image resulting from a broken mirror signified 7 years of ill-health and misfortune, rather than death.
- 13. Triskaidekaphobia (fear of the number 13): This fear is so common that many buildings skip the 13th floor, airplanes skip row 13, and hotels have no room 13. In Norse mythology, a dinner party of the gods was upturned by the 13th guest, Loki, who caused the world to be plunged into darkness. Jesus and his 12 disciples at the Last Supper also perhaps further fuelled this belief.

In a way, superstitions are just little quirks: relics that colour cultures and give them a bit more personality. It's strange to think that if you were to grow up unaware of a superstition, it would hold no significance for you and impose no threat on your life. But as soon as you know about its existence, avoiding walking under ladders or opening your umbrella indoors seems much easier than consciously choosing the opposite which, just possibly, could alter the course of your life, launching you into eternal damnation. As I end this article, I feel it only right to mention that, without the intention of doing so, I sit typing up these final lines on Friday, 13th May ... I do hope I'm not tempting fate — touch wood!

# Why 'basic' isn't bad

I'm sure many of you have heard the phrases 'that's so basic' or 'you're so basic' thrown around in everyday life. Recently, 'basic' has been used as a negative adjective, which one can easily discern from the look of disgust on the face of the speaker when they use it.

This new insult 'basic' is often used to refer to items of clothing which are worn by multitudes of people or an outfit which is boring to the eye of the accuser. One tremendously popular brand amongst SHHS girls is often subject to the use of this harrowing term: Brandy Melville! This inspired me to investigate why we are now shaming others for being basic because I have indulged many times in 'basic' brands such as Brandy Melville, only to be bombarded by such comments.

Therefore, I have taken it upon myself to decide whether I deem this term just or unfair. The first thing I did was look up the Oxford Dictionary definition of the word basic (because what other source could possibly be more trustworthy?), which reads as follows: 'Forming an essential foundation or starting point; fundamental'.

This discovery suggested to me that the term is used unfairly. I was confused as to why people walking around wearing clothes which the smart guys at Oxford Languages would consider fundamental and essential clothing are being insulted.

In order to engage with the youngsters' use of the word, the Urban Dictionary definition must be consulted as well:

'Only interested in things mainstream, popular, and trending' This definition is more difficult to tackle. However, I came to the same conclusion. I believe that only being interested in mainstream and popular things should not be criticised, because things are popular for a reason.

Being interested only in things that are trending, may be a place where 'basic' could be acceptable, as only following trends can be harmful to the environment. However, in this case, a synonym for the more loaded 'basic', such as 'non-eco-conscious' (or something snappier if you can think of it) should be used.

'Forming an essential foundation or starting point; fundamental.'

Lastly, if one is planning to call someone 'basic' because of a distaste for simplicity, one should consider that, in the words of Leonardo da Vinci, 'Simplicity is the ultimate sophistication'.

For the reasons above, I urge you now to think before you insult the innocent simplicity lovers and, if you must say something, choose a less harmful synonym.

# How To Get Out Of A Slump

Acknowledgement & Acceptance:

Figuring out the source of your slump is key to coming out of it. Get a piece of paper and write down whatever's on your mind, or any stresses you have. This is important in pouring out any bottled emotions or problems and leaving them behind. You may start to see a pattern and overlap in your writing allowing you to find the source. Similarly, you can also talk to someone you trust and discuss what you've been going through, this can also be helpful in finding the source. The next step is to accept that you're in this low period and remember that it's ok! We're all human, this is a natural feeling that happens and won't last forever.

Just do it!

Continuing from my previous point, this lack of motivation that we are experiencing in our slump, unfortunately, starts to seep into other areas of our lives and our to-do list continues to build.

Just DO IT! Take action! Doing the tasks, you've been putting off will make you feel great afterwards. Don't sit around waiting for some sort of inspiration to suddenly strike you. If you think about it, we regularly complete chores without motivation. For example, do you really need some sort of inspirational epiphany to take a shower? No, you don't. It's just something you do.

Tired, anxious, lonely, overwhelmed, and apathetic. These are only a few of the feelings that one experiences during a slump. A slump can be defined as a period of decline during which a person performs slowly, inefficiently, or ineffectively. I have definitely suffered through my fair share of slumps and from experience it can be hard to find motivation when going through a rough patch. Slumps can be different for everyone and can occur for various reasons. When you're in a slump, it's hard to do the easiest and smallest tasks, for example getting up from bed can feel impossible. Sometimes you feel like you've fallen behind in work and have a neverending to-do list, leaving you too overwhelmed to even start. For others, they may feel that their life is just this repetitive and monotonous cycle with no challenges or new excitements causing them to lose their motivation and previous zest for life. Change is a constant, life is this rollercoaster full of ups and downs, so many of us are bound to go through these periods of lows. My aim with this article is to simply give advice and tips on how to get out of a slump and get your life back on track!



Taking it slow & baby steps:

When you're in this low state, the best thing you can do is slow down and allow yourself to relax. You may have high expectations of yourself or you're pushing yourself too hard. Putting too much on your plate and burning yourself out may have catalysed the slump. When these expectations don't match with reality, we lose our sense of control and don't know how to handle it. So instead of focusing on what is going wrong in your life, try focusing on what is still going right.



Back to baby steps & starting fresh

It's not that easy to simply go from resting to writing essays. After completing my previous steps, it's time to try and create a routine in order to slowly get back on track. Try to go to bed early in order to feel rejuvenated for tomorrow. Additionally, try to wake up a little bit earlier than you usually do. Waking up early makes going to bed easier, helps you develop better habits, and improves your day-to-day productivity. As soon as you get out of bed, make it straight away and that's one 'small' task done. Have a refreshing shower to clear your head. As you're cleaning the grease from your hair and scrubbing dead skin cells away, it's almost like discarding any negative emotions along with it. Also, washing your face with cold water can wake you up for the day to come. Dress up like it's your birthday, this will make you feel better and help change your mood. I wouldn't advise wearing sweatpants and hoodies every day, as this can provoke the feeling of comfort and relaxation, instead of productivity. I truly believe in the saying "clean space, clean mind". Try creating a clean, organised environment helping give you the sensation of starting a fresh chapter in your life, allowing your mind to focus on what is important.

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The most important thing you need to understand is that being in a slump is a part of your cycle of success. Without these moments, it's impossible to see progress, reinvent yourself or have new ideas. In a way, these dark moments allow you to be more mindful and aware, so that you can move forward.

Once you understand that being in a slump or falling behind is natural, you'll be able to better understand your feelings of frustration and know how to make progress. Always remember to trust your gut and know that you are stronger than you think. Once you've allowed yourself to relax and are ready to take some action, start with these small actions that in the end will not only give you momentum to do other tasks but will also make you feel much more put together. An example of a bigger task could be a long essay, don't think to yourself "I have to now sit down and write my 5,000-word essay". Instead say "I'm going to get some paper and write whatever comes to mind for 1 minute. And that's it, that's all I have to do". Once you start writing, you will tend to want to write more because you have gathered the motivation to start.



Be brave enough to think of new strategies: if what you're doing now isn't working, maybe it's time to think of a new way to deal with what you are going through. Maybe your current habits don't fit into your busy lifestyle as easily anymore meaning you may have to change your schedule. Gradually reward yourself for doing tasks you don't enjoy by creating a balance between school, a social life, and extracurriculars. Maybe include a reset routine at the end of each week where you organise yourself for the week to come. This includes planning the upcoming week, cleaning your space, and pampering yourself (maybe having a soothing bath). Pack your bag for the next day and enjoy some "you" time. This will help you to not feel so burnt out and will prevent going into a long period of self-destruction again.



# Hayao Miyazaki and his focus on humanity

Hayao Miyazaki is a long-time animator and director under 'Studio Ghibli'; he's been helping create beautiful movies since 1968, and has since made famous pieces such as *Spirited Away* (2001), *My Neighbour Totoro* (1988), and *Howl's Moving Castle* (2004). *Spirited Away* is likely his most famous piece, and it won the Oscar for best animated feature – the only non-English movie to ever do so - and the only one in which each frame had been hand-drawn.

Miyazaki's clear dedication to his craft isn't the only reason why I admire him – I've been raised on Miyazaki's movies. Some of my earliest memories from childhood are watching My Neighbour Totoro, or wishing I was the young witch who is the protagonist of Kiki's Delivery Service. As I've grown, I have moved on from only watching my favourite childhood animations, but the more and more movies I watch that are meant for older audiences, the more appreciation I hold for them and the things they taught me as a young child. It might be, noticeably and primarily, that most of Miyazaki's protagonists are young girls, strong-hearted, powerful, joyous young women who I could look at and see myself in, instead of the hundreds of movies utterly catered towards a male sense of relatability.



So many 'coming of age' and other teenage movies are focused on the male journey of development, but with Miyazaki, I find he captures the essence of childhood and discovering yourself and your path in life. Young girls lead the way, often accompanied by boys who are the best of friends, and what accompanied by boys who are the best of friends, and what consistently strikes me about them is the kindness that almost all his characters emanate.

strong female leads - brave, self-sufficient girls that don't think twice about fighting for what they believe with all their heart. They'll need a friend, or a supporter, but never a saviour. Any woman is just as capable of being a hero as any man.'

His movies teach friendship, love, and beauty, not only in the person you wish to be, but in the mundane. The rich greens of his animated forests, or the care with which he captures the way clothes shift as characters hug – it is an animated movie, but also isn't. The fact each frame is handdrawn shows how much of an artist Miyazaki is, and the respect he deserves. His protagonists are not only unfailingly king and stand up for their beliefs, but his movies also usually intertwine his own personal history with them. Many of the female characters are based off his mother, Yoshiko, and most of the movies have a rich background of Japanese mythology and folklore to them, such as in *Princess Mononoke*, which also carries a strong environmentalist message.



Chihiro, Spirited Away (2001)

His movies have always contained a firm sense of love and protection for the environment; in Princess Mononoke, nature has 'a transcendent if not divine status' – the iron harvesters of the mountain are painted as evil, they shoot the Forest Spirit and are punished harshly. It is a clear message on how industrialism can be evil, and the film ends with the entire world seemingly being covered with forest and growing flowers. The balance between humans and nature is clearly skewed and it is obvious that Miyazaki is hinting that we need to fix it, or nature will destroy us.



Instead of movies where people's problems are trampled on and made to feel small and insignificant, Miyazaki creates journeys that focus on the development of someone. The characters go on a journey, which doesn't have to be a big one – often it is finding your calling, maturing or finding belonging when alone, as seen in *Whisper of the Heart*, which he wrote. Miyazaki makes humanity a welcoming space, and invokes hope in his gentle animations, so carefully drawn by

Miyazaki's movies also have a wonderful sense of the bizarre about them, whether it be eccentric wizards and huge sea gods, or trees shooting out of the ground from the will of young children. It's so entertaining to watch as they lean into the weirdness of life in general, allowing both escapism and belonging into his movies. It gives them a tone which can't be found, in my opinion, anywhere else. Miyazaki simultaneously fills you with a never-ending sense of hope at the same time as settling into a world of wide, white fluffy clouds and ancient aquatic dinosaurs swimming about a drowned town, where you sense the magic in life, in stories, in childhood, and feel nostalgia for lives you have never lived before. Miyazaki's stories are about this – and are also about love. Love between siblings, between the earth and humanity, between two people learning more about each other, between a young girl and her cat. His stories are unfailingly relatable, fun, and beautiful. Miyazaki creates a world in his cinema, where the goodness of humanity can prevail.

## Summer Fashion Trends

It's finally summer! The days are getting longer and warmer (except for that day when it was sunny and then snowing every 5 minutes) meaning it's time for new styles, colours, prints and must-have pieces. Below are some of my favourites that you can add into your summer wardrobe!

#### Low-rise Waists

Once again, the 2000s have sneaked their way into the fashion trends of the season, which shows just how powerful that era was. The high-rise jeans of the 2010s are out and low-rise ones are in - a favourite of mine is Versace. This trend is all about showing your midriff, so don't cover up with a baggy tee or knitted jumper. We're going full 'oos with cropped tees!

#### Metallic Materials

Sequins are very damaging to the environment but it's hard to let them go as they add a shiny twist to an outfit making it really stand out. However, lucky for us, we can still make a statement with metallic-looking material that creates a liquid metal feel as it falls around your body. Not only is this far better for the environment, but it also provides a more grown-up alternative to sequins!

## Pretty in pink

The obsession season after season has been muted hues and style androgyny, so we need to change the fashion landscape to something more playful. Pink is exactly that. This summer, it's time to put hyper-feminine pieces on the fashion pedestal and reintroduce frothy fabrics and pale pink hues. I'd particularly like to see champagne pink and cameo pink make an appearance and, to my delight, hot pink is already making a comeback.

## Cohesion is Key

A few months ago I was writing about how contrast is the way to go, but now we've returned to matchmaking heaven. This summer, designers are leaning into loose-collared shirts that can be opened up to show bikini tops, or buttoned up. You can then twin them with shorts. However, if you're enjoying summer in the city, you can go for longer hemlines and tight silhouette dresses in psychedelic prints, which you can get at Urban Outfitters.



Whilst these are the trends are on the runway, the biggest thing at the moment (and hopefully forever) is inclusivity. Every single one of these trends can be incorporated into anyone's wardrobe, setting up an expectation for inclusivity in the seasons to come.

# Overheard @ SHHS

When I make my gooseberry compote...



I would eat the school food if they served us truffle pasta

I swear Mr Barnet is literally Jesus Christ himself.





Mummy I need you to edit the Ocado order

Can you order Deliveroo for D of E





Wow I have 4 Apple products on me right now



# Elizabeth Sponge Cake



## Ingredients:

4 eggs

225g of butter

225g of caster sugar

225g of self-raising flour

1tsp of vanilla extract

A small pinch of salt

200ml of double cream (for whipping)

A box of strawberries (around 200g) Strawberry jam (as much as you like)

## Recipe:

In a stand mixer, or using a hand mixer, combine the room temperature butter with the sugar and whip at a medium-slow speed until it is well combined and looks paler and fluffy • Preheat the oven to 175 Celsius (fan) • Crack the eggs into a separate bowl and beat them together • Add the vanilla to the eggs • In a third bowl, put the flour and salt • Slowly pour the eggs in a little at a time, only adding more when it's mixed in, at this stage don't worry if the mixture looks a bit strange • Once you've added around half the egg mixture, add in a couple of tablespoons of flour • Add in the rest of the eggs and once incorporated pour in the rest of the flour • Pour the mixture into a lined cake tin and bake for 20-35 minutes • Once the cake is out of the oven, leave it to cool and slice it in half using a serrated knife • Spread a generous layer of jam, then a layer of whipped cream • Top with strawberries, sliced in whatever way you desire and dust some icing sugar on the top for an extra flourish

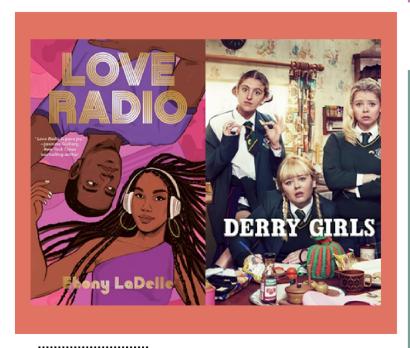
Enjoy with a cup of tea and some sunshine-British weather permitting!







Ella



Livia



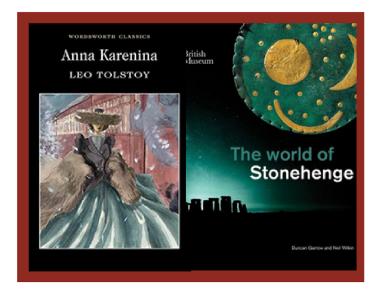
Olivia



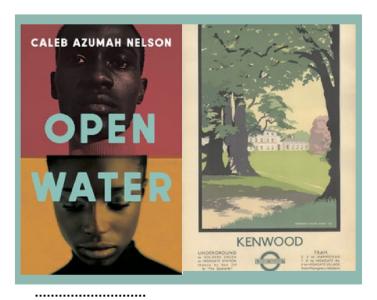
Lydia



## Vrinda



Nyika



Izzy



Sasha



Madeleine



Ruby

