SIXTH SUPPORT

THE MAGAZINE COMMITTEE

Friday 12th February 2021

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All previous and future editions of the Sixth Support magazine can be found online at https://www.abbeycollege.cambs.sch.uk/coronavirus.

DRAMA

Pantomimes

BY AMBER M.

Most people have ended up being dragged by their family to a strange pantomime performance at some point in their life, usually around Christmas and New Year's, whether that is a professional show or a fun amateur performance. But where did pantomimes originate from? Whilst pantomimes are commonly seen as a quaint British concept, showing comedic adaptions of childhood stories set in forests, palaces and village streets, they were actually developed from Commedia Dell'arte, Italian street theatre in the 16th century. Small companies would travel around Italy and France teaching and performing their ways of stock characters such as Pantalone (the old man) and Pierrot (the clown), physicality and comedic moments. This was soon introduced to England in the late 1600s as these stock characters suddenly began appearing in English comedy plays. Others agree that pantomimes were also based on the early masques of the 14th century in which musicals, mime and spoken drama were performed in grand houses. However, pantomimes became truly popular in the Victorian Era as despite the stereotype of the "stiff upper lip", the British clearly enjoy a bit of slapstick comedy and dressing up!

BOOK COMMITTEE

The Tattooist of Auschwitz, Heather Morris

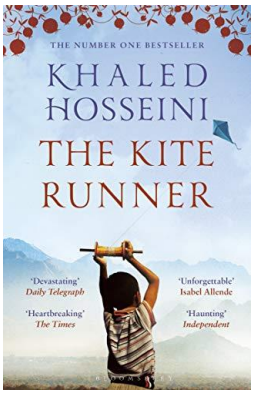
By Olivia S.

The Tattooist of Auschwitz is a modern novel based of the true story of Lale Sokolov. Lale arrives at Auschwitz and is given the job of tattooing numbers into his fellow prisoner's arms. While doing his job he falls in love with young lady called Gita who he aims to make sure survives. The novel follows the trials he faces while in Auschwitz and what he does in order to try and survive while helping those around him. Despite the seriousness and horrors of the events, it is moving and an interesting read. As well as the historical context (although not always completely accurate) it contains romance, survival and hope. It is engaging and although clunky in a few places, it is simple and easy to read. It is a good novel for anyone to read as it educates on the brutal truths as well as the importance of learning from the past.

The Kite Runner, Khaled Hosseini

BY OLIVIA M.

The Kite Runner tells the life story of Amir who grew up in Afghanistan but moved to the United States when he was reaching adulthood. He struggles to find his place in the world as the result of the effects of a series of traumatic events he went through as a child, including his struggles in forming a close relationship with his father, Baba. He also finds it difficult to determine the nature of his relationship with Hassan, his Shi'a Muslim servant, in a community where Sunni Muslims, like Amir, were considered superior, however, they hold a strong brother-like bond, especially during the annual kite fighting tournament. Ultimately, The Kite Runner is a novel about how the complex relationships in our lives overlap and connect to make us the people we are, both in the present day and the future. Khaled Hosseini, like the characters of Amir and Hassan, was born in Kabul, Afghanistan, and many of his novels include an accurate idea of what it was like to experience an Afghan lifestyle and their traditions, such as kite fighting. Writing this novel encouraged Hosseini to return to his birth country, over twenty-five years since he was last there, to see his old family home but like Amir, he discovered that war and brutality had destroyed the place where he grew up. I would highly recommend this novel as it is sad in parts, but extremely eye-opening, however, it is more suitable for older readers and I would warn that it includes description or conversation of rape and violence at various points throughout.



GEOGRAPHY

Switzerland: The most environmentally friendly country in the world

BY EMMA H.

As our world is turning more environmentally friendly day by day, it is essential to look at the progress of countries who are at the top of the eco-friendly chain and learn from them.

There are many new techniques and strategies that can be learnt by studying the work of other countries and how they are developing sustainably and becoming environmentally friendly.

In recent years, Switzerland has been voted as the most environmentally friendly country in the world. They have many reasons for this including…

- **Waste and Recycling schemes:** Switzerland has the most advanced recycling scheme, with the highest recycling rate in the world, over 50% of all waste in Switzerland is recycled! This has been done by encouraging businesses and retailers to reduce unnecessary packaging, increasing the use of reusable products, and having separate waste collection.
- **Transport:** One of the other reasons that Switzerland is very environmentally friendly is because most of the travel occurs by public transport, the most popular method being by train. Switzerland also has advanced car and bike rental schemes that promote the use of sharing cars and bikes, in order to reduce emissions.
- **Power and electricity:** Switzerland takes full advantage of many renewable energy sources. 56% of the renewable energy comes from hydroelectric power, this is due to a large proportion of Switzerland being covered in lakes, rivers, and mountains.
- **Carbon Tax:** Another of the main reasons as to why Switzerland is the most environmentally friendly country is because of the high carbon tax. A carbon tax is when a country agrees on a price for the amount of carbon emissions are released. This means that businesses and countries will all be fined a carbon tax per ton of carbon is emitted. Switzerland has the 2nd highest carbon tax in the world, with $98 being charged per ton of carbon emissions.

- **Spatial Planning Act:** The Swiss government have introduced a planning act, this act is a way for urban expansion to be limited. This means that there is only a limited number of new houses being made, which means pollution levels will stay low. This Act also allows the natural environment of Switzerland to be protected and preserved.

Therefore, there are lots of lessons that can be learnt by looking at the most environmentally friendly country. By studying the progress of countries such as Switzerland, many other countries can follow their lead and make changes in order to make their own country more environmentally friendly.

Why is the COVID 19 vaccine so important?

BY EMMA B.

The COVID vaccine has been described as the only way out. Whilst wearing masks and social distancing help reduce your chance of being exposed to the virus or spreading it to others, these measures are not enough. The vaccine will be an important tool to help stop the pandemic.

The vaccine has now been given to more than 10 million people within the UK, which each one of them having at least one dose of the coronavirus vaccine. The government aims to offer vaccines to 15 million people by mid-February. Aiming to vaccinate all those aged 70 and over as well as healthcare workers and those required to shield. These priority groups are important as they represent 90-99% of those at risk of dying from the virus. By vaccinating the most vulnerable groups first, it will help reduce both the spread and the death rate of the deadly virus. In doing so, health settings such as hospitals will become less overwhelmed and will be able to begin to focus on other health issues which may be undetected or dealt with at this current time due to the NHS being overwhelmed and at breaking point.

The UK is currently receiving doses of two vaccines approved by the medicine regulator. The Pfizer-BioNTech jab, the first vaccine to be given the go ahead in December of 2020. Which is being imported from Puurs, Belgium. And the second vaccine from Oxford University and AstraZeneca, which is being made in Britain. A third vaccine made by the US company Moderna, will come from Switzerland or Spain. However, they are likely to not be available until spring. The two vaccines currently available activates two types of white blood cells, the first is made up of plasma B cells which are primarily focused on antibodies. Even though having one jab reduces the rate of an individual catching the virus. In the long run the second booster jab is essential. When the T cells enter the body which are tailored to kill the virus off. These are able to stay in the body for decades and possibly a lifetime. Helping reduce the rate of infection. Although currently the UK is very much ahead in vaccinations and seems to be heading in the right direction of vaccinating people in an order for the future.

Getting the vaccine is the most important way of reducing the spread of COVID-19 as well as the effects the virus has on people. Hopefully the vaccine's role out will help get the UK back on it's feet and begin to return to a state of normality.

Should School Start Later?

BY PAIGE S.

A circadian rhythm is a type of biological rhythm that is subject to a 24-hour cycle which regulates processes such as the sleep/wake cycle. Research over the past thirty years has implied that there is a difference between the circadian rhythms of adults and teenagers. Therefore, there are arguments supporting an adaption of teenagers' daily routine so that their biological sleep-wake cycle is best matched to school hours, to maximise learning and reduce tiredness. According to neuroscientists, teenagers' circadian rhythms typically begin two hours after those of adults, subsequently current school times mean that teenagers are waking up too early to focus on lessons. In 2010 a study was conducted at a secondary school in North Tyneside who changed their school hours to begin at 10 am over two years. They found that over this time, academic results increased, illness related absences deceased and the atmosphere at the school had become more positive overall. As a result, it is plausible that school hours and timetables would be more efficient if they were best suited to the sleep/wake cycle of teenagers, rather than it matching the cycle of adults.

CLIMATE CHANGE COMMITTEE

New Whale Species

BY ELLIE G.

A new whale species has been discovered off the Gulf of Mexico, estimated to be over a millennia old… it makes you wonder how it wasn't noticed before! This new species of baleen whale has been named 'Rice's whale' after the American biologist, Dale Rice, who first recognised it. Rice's whales are filter feeders, weighing up to 60,000 pounds, growing up to 42 feet long. Not much is known about them yet, though, their life expectancy only an estimate of related baleen's. Since a skull was identified on a Florida beach in 2019, researchers of National Oceanic and Atmospheric Administration (NOAA) announced it as a new species very recently. They are now, however, critically endangered under the Endangered Species Act, with estimations of fewer than 100 left. It is estimated that as few as 17 are of a mature age, making it one of the most endangered cetaceans (the order for all whales and dolphins) in the world. During the 18th and 19th it is thought that reports of whaling were likely Rice's whales, unknowingly endangering an undiscovered species. Though at this time there were no records of kill counts. This, according to the NOAA, was probably the main factor that led to their small population today. The second reason is the 2010 Deepwater Horizon oil spill, found to have been exposed to 48% of the entire species, where 18% suffered health issues, including infertility in 22% of the females. Scientists warn they are being threatened by vessel strikes, ocean noise, energy exploration, oil spills, entanglement and waste. A discovery of a new species is always exciting, but we often only have little time to appreciate them in our changing climate. Discoveries into Rice's whales can only continue if something is done to keep them alive. More and more species are becoming endangered while we lose the potential to interact with them and understand more about our world.

BIOLOGY

Flight of Butterflies

BY AVA B.

When asked from a young age “How do butterflies travel?” the usual response is by flight. However, when you think deeper, how actually do butterflies manage to carry themselves and their gigantic wings to propel themselves into the air at the speed they do?

Researchers at Lund University in Sweden have studied the aerodynamics of butterflies in a wind tunnel. They discovered that the supposed aerodynamically inefficient model of butterfly wings were far more successful than ever imagined. As the butterfly takes of the wings cup up and clap together, forcing the air out from between the wings and propelling out behind them acting as a jet pack. In the images you can make out the slight curve of the wing as it starts to cup whilst the butterfly is in flight.

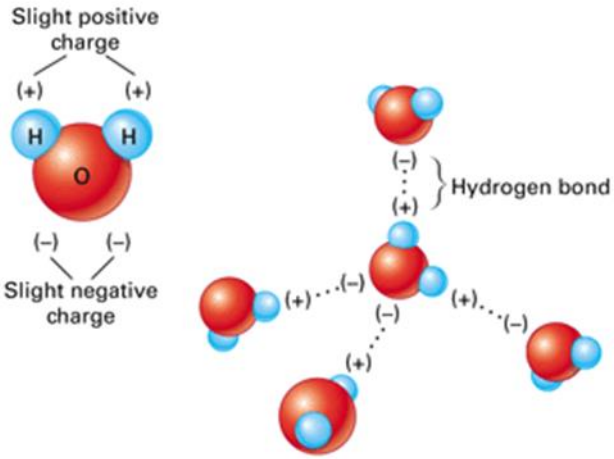
Not only is this fascinating for ecologists, but it also assists the development of flight of drones and other mechanical products like drones.

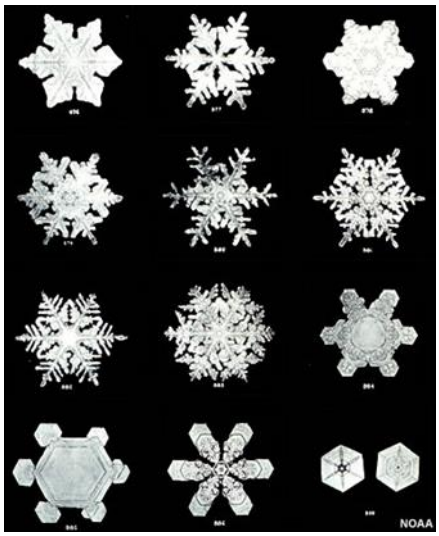
The Science of Snowflakes

BY MARTA J.

We all know that snow is frozen water, but why aren't snowflakes little cubes of ice? Snow is formed when water vapour (tiny droplets of water in the air) turns straight into ice. Snowflakes get their six sides by the bonding between water molecules. This happens because water contains 2 hydrogens and 1 oxygen. The hydrogens are covalently bonded to the oxygen (meaning they share 2 pairs of electrons). The oxygen is slightly more negative (delta negative δ−) than the hydrogen (which is slightly positive δ+) because oxygen pulls the shared electrons towards itself. This uneven distribution of charge allows hydrogen bonding to take place, and this is where the slightly negative oxygen is attracted to a slightly positive hydrogen on another water molecule. This causes the water molecules to form a hexagonal structure. As this hexagonal structure moves throughout the air, more water vapour molecules will 'stick' around it, and eventually will form the general shape of a snowflake!

The shape of a snowflake can be affected by many things, such as temperature and humidity. Even the way a snowflake falls from the sky can determine its shape! Once a snowflake has reached the ground it can still somewhat change. Have you ever noticed how it's sometimes really easy to form a snowball, and other times not so much? This is due to the amount of liquid water in the snow; water helps the snowflakes stick together, because water is effectively 'sticky' (as a result of its slightly positive and negative charges). When there's no water in the snow, it won't stick together and appear to be powdery. Next time it snows try to catch some snow on your gloves and try to see the shapes of all the little snowflakes!





Fibonacci Sequence

BY EMMA D.

One of the most well-known number sequences in the world is the 'Fibonacci Sequence'. Named after the mathematician Leonardo Pisano who discovered it, the sequence simply involves each number within it being the sum of the 2 numbers preceding it as shown below:

1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, ...

The sequence originated from Pisano posing a theoretical problem; if you have a pair of rabbits, one male and one female, how many rabbits will they produce in a year? In order to find this out he made the assumption that each female reproduces every month starting from the age of 1 month and that every time she does, she gives birth to a pair of rabbits (one female and one male). In conclusion, he found that the number of pairs of rabbits each month followed the sequence 1, 1, 2, 3, 5, 8 and continued until the end of the year where he had 233 pairs of rabbits.

Using this information, we know An = Rn-1 where An is the number of adult pairs in the nth month and Rn is the total number of pairs in the nth month. Pisano also noticed the number of baby pairs in a month were equal to the number of adult pairs in the previous month which gives Bn = An-1 = Rn-2. Therefore, the total number of pairs of rabbits in a month is the sum of the total pairs of rabbits in the 2 previous months:

$$R_n = A_n + B_n = R_{n-1} + R_{n-2}$$

Although real rabbits don't breed in the way Leonardo Pisano predicted, the Fibonacci sequence still appears frequently in nature, such as in plants with the number of petals of flowers and in the family tree of bees.