



SIXTH SUPPORT

THE MAGAZINE COMMITTEE

Friday 8th May 2020

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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>. Also, please feel free to get in touch with Mr Sivakumar by email (jasivan.sivakumar@abbeycollege.cambs.sch.uk) if you have anything that you think would contribute to this magazine or maybe even a picture of yourself completing one of the challenges/crafts set

PHYSICS

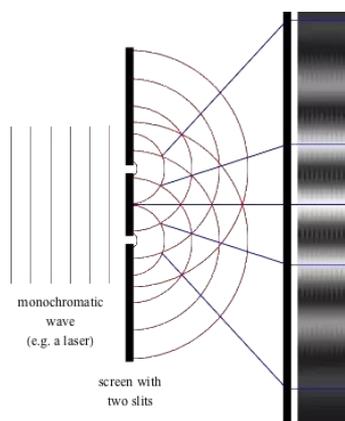
BY PETER S.

Interesting Physics:

Wave-Particle Duality of Light:

There has always been an argument for whether light acted as a wave or a particle, and there is evidence for both in observations by scientists.

The idea that light acts as a



wave can be shown by the occurrence of diffraction, interference and polarisation.

Interference can be seen with the Young's double slit experiment, where light interferes with itself causing areas of high intensity, and areas with no light.

However light can also be shown to act as a particle, as shown by Einstein who called it the photoelectric effect. When a negatively charged zinc plate is heated by an ultraviolet light, photoelectrons are released,

causing the zinc to lose the negative charge. Electrons need a certain minimum amount of energy to escape the metal (known as ionisation), and if light was a wave, it would gradually transfer energy to the electrons until it escapes, with larger amplitude waves (Brighter Light) having more energy and causing ionisation quicker. However some frequencies below a threshold were found to not cause photoelectrons to be released, which wouldn't make sense if light was a wave. However as a particle, light as photons could transfer energy to an electron, and if there was not enough energy for ionisation, the energy could be transferred to the metal before the next photon impacts the electron. As photons have energy proportional to its frequency, the higher frequencies cause ionisation.

PHYSICS

Physicist of the week:

Albert Einstein

A large part of the modern movement of physics, Einstein refined classical mechanics as laid out by Sir Isaac Newton to found the theory of relativity among other theories.

Born in Ulm, part of the German Empire at the time, in 1879, he moved to Switzerland in 1895, before moving back to Germany(1914) and then to the United States of America when Adolf Hitler came to power due to his Jewish heritage.

In 1905, called his miracle year, he published 4 ground-breaking papers. These topics were:

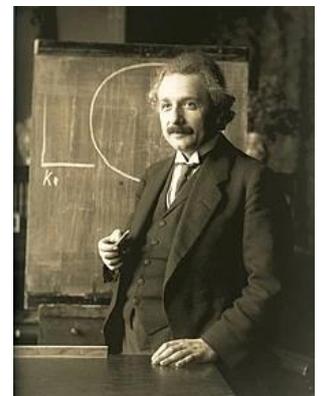
Photoelectric effect (Proof that light acts as particles);

Brownian Motion (The motion of particles in a fluid due to collisions with fast moving particles in the fluid); Special Relativity (The theory that links space and time); and mass-energy equivalence ($E=mc^2$, the fact that anything that has

mass has an equivalent energy based on the speed of light). While these papers were originally viewed with skepticism, they were gradually accepted.

He would further expand on his idea of special relativity with general relativity, which presented the idea that gravity is due to the warping of spacetime. Using this theory, Einstein successfully predicted gravitational time dilation, gravitational redshift, and the deflection of light. He also predicted gravitational waves, ripples in space time.

During WW2, Einstein signed the Einstein–Szilárd letter, a letter to FDR, which warned of Atomic bombs being developed in Germany, and prompted the foundation of the Manhattan Project.



HISTORY

BY EMILY N.



VE (Victory in Europe) Day celebrates the Allies' formal acceptance of Nazi Germany's surrender on 8th May 1945. Hence, it has become the day that most countries celebrate the end of World War II.

When the war ended, the world rejoiced and street parties broke out across the UK and, although it may seem hard to imagine in these times of social distancing, crowds emerged around London, particularly in Trafalgar Square.

This occasion meant the end of 6 years of *total war* that cost the lives of millions. However, the fighting was not at an end as the war against Japan continued for a further three months. Also, the country felt the economic and social strain of the war for years following.

Total war = a war that is unrestricted in terms of weapons and mobilizes all resources to fight the war, giving priority to warfare.



Linguistics

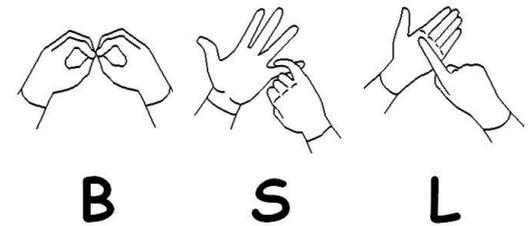
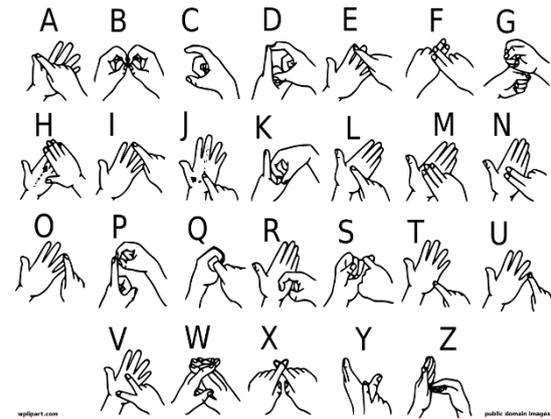
By Marta J. and Paige M.

Sign language

When we hear the word 'linguistics' we think of languages (Spanish and French for example). But there is a lot more to linguistics than you think! BSL (British Sign Language) was first taught in Thomas Braidwood's 'Braidwood's Academy for the Deaf and Dumb' in 1760. However, this was only available to the rich and wealthy until Joseph Watson opened the first public school for the deaf later that century. Only in 2003 was BSL recognised as an official minority language by the government, and now approximately 150,000 adults and children use BSL within the UK.

To get fully qualified, BSL interpreters must go through seven years of training, but when you know the alphabet, you can virtually communicate anything! As tricky as it may seem, once you practise the alphabet a couple times it just gets easier and easier.

BSL alphabet video: <https://www.youtube.com/watch?v=pWKkrllhOCc>



Grammar tip

Consecutive adjectives describing a noun are set in a specific order within the English language that native speakers most likely do not realise. It is only when the natural pattern is disrupted that native speakers may notice and try to correct.

The order is 'quantity, opinion, size, age, colour, shape, origin, material, purpose'

For example:

- You can't have a steel, sharp, old, whittling knife (material, shape, age, purpose)
- But you can have an old, sharp, steel whittling knife (age, shape, material, purpose)

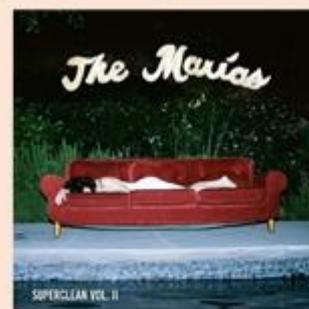
Question time!

What number of languages is spoken worldwide?

- A. 501
- B. 2067
- C. 8900
- D. 7099

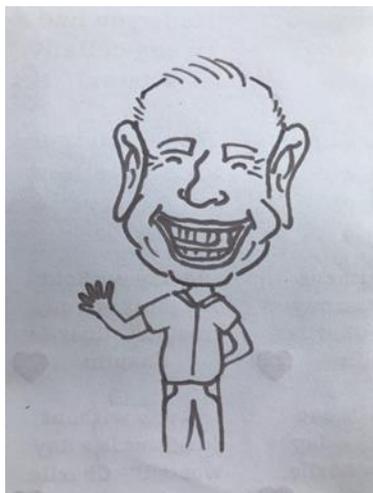
The answer to last week's question 'What country has the highest number of languages spoken?' is Papua New Guinea- with 820 languages spoken!

Spanish song of the week



Cariño by the Marías

This is a very calming song and very easy to learn! It's a good song to listen to if you're learning Spanish.



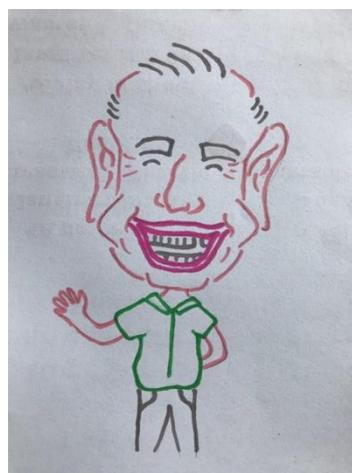
CARICATURES!

Caricatures are a great way to entertain yourself as you can exaggerate features intentionally to make funny portraits of people around you. This is a great present to lift the spirits of grandparents, aunts, uncles, cousins and anyone else! (Here are my grandparents and when they received them it certainly brightened their day)



Caricatures originated in Italy and since then, they have been very popular and were often out in streets charging for portraits or even at weddings. A few famous caricature artists are Al Herschfeld (mainly does famous celebrities and pop stars), Patrick Oliphant (specialises in political themes) and Ralph Steadman (combines paint and ink to make his pieces).

Traditional caricatures look at humans and exaggerate a few features but the main aspect is having a head that is far too big for the body. They're also often black and white but try adding colour to give them a little more character!



Some people took caricatures to animals so if you have a pet give this a go, try to show us the mischievous side to your dog, cat, parakeet, snail... whatever you have!



MUSIC

UPDATES

Distant Voices – community choir

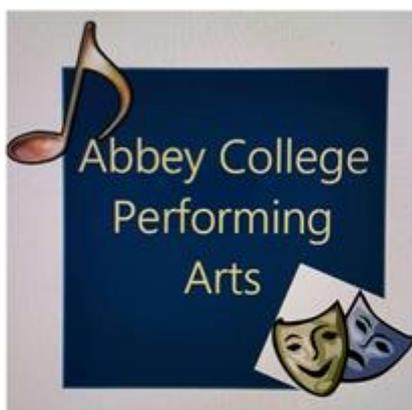
Mrs Carr has started a community choir, with the first rehearsal commencing this Thursday at 3:10pm. Warm-ups and song practice will be broadcast live on the [Distant Voices](#) Facebook and Instagram pages with the aim of creating a virtual performance (and hopefully a live concert). The song is *Count on Me* by Bruno Mars and anyone can get involved. Follow the social media pages for more updates!



Distant Voices
Community Choir

Instagram Page

[Abbey College Performing Arts](#) is now on Instagram! Challenges are being set for people to participate in, so make sure you get involved!



ASCA Music

Music lessons are still continuing with ASCA music, with 100 students learning virtually across the schools. Sadly, the ASCA concert this year didn't go ahead due to the circumstances, although there is work towards a virtual concert for parents, families and local nursing homes.

Practice and Performance

From beginner to professional, it is important that practice is as productive as possible. Whether this is breaking a piece into smaller parts or envisaging how you would perform it, the importance is to always have a goal set in mind.

Significantly, once basic aspects of a piece are conquered (notes and duration/rhythm), an atmosphere should be created and enforced. This conveys to the audience the meaning of the piece, as well as the emotion and time you have spent preparing it. Posture is another factor: to look professional whilst holding the idea that the music is rooted to the floor, rather than just your arms or your body – some musicians use the idea that, for wind or brass instruments, you should “breathe from your feet”. This imagery helps to create meaning to the piece, making it a source of entertainment rather than just a melody line. *Classic FM* has other good [practice tips](#) to ensure an effective performance.

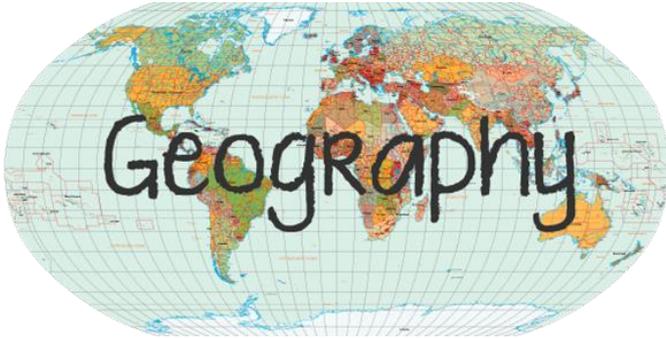
Musicals

Portraying time spent practicing/rehearsing when performing is clearly and expertly shown in musicals, such as those from the West End. At the current time, more resources have become available online, including the musicals by Andrew Lloyd Webber – broadcast, for free, on his YouTube channel ([The Show Must Go On](#)). Take notes on a musical and analyse why they perform effectively and interact with the audience, as well what emotions are portrayed and how by the musical accompaniment or songs sung.



GEOGRAPHY

BY YEAR 12 GEOGRAPHY CLASS



Geography is related to nearly everything in the world, people, places, landscapes, animals, development etc. It is important to think about the links between geography and our everyday lives.

There are a lot of activities and things to do whilst in lockdown to help spend some excess spare time.

You could:

- Make a volcano and watch it erupt.
- Create a list of all the places you want to travel to in the future.
- Watch a documentary about geography.
- Design your own flag.
- See how many of these items you can find on Google Earth: a pink car, a pigeon, a person wearing a hat, 10 or more traffic cones in a row, a crocodile. Have fun finding some of the most famous world landmarks.

Flag quiz: Can you name these flags?



Useful Websites:

Seneca: Useful for revision and recapping topics you have already learnt.

<https://www.senecalearning.com/en-GB/>

BBC Bitesize: Lessons and activities to complete.

<https://www.bbc.co.uk/bitesize>

Kahoot: Test you friends and family on their geography knowledge with fun quizzes. Just search GCSE geography or Geography to find quizzes.

<https://kahoot.com/>

Geography all the way: Website with lessons, videos and worksheets sorted by topics.

<https://www.geographyalltheway.com/>

BUSINESS

BY ZOE J.

Dragon's Den – Deborah Meaden

If you have a keen interest in business, there are many ways you can learn and expand your knowledge, this can be through television programmes such as: 'Dragon's Den'. The show is based around investments and sales pitches that can launch businesses into great success! The aspiring business owners have a pitch that lasts for three minutes and if the panel of investors are interested, a deal is negotiated between them. It is a great programme to watch for the reason that you are able to develop your understanding of a certain aspect of business.

One of the investors is Deborah Meaden, who from a young age aspired to own her own businesses. Meaden went to college to study business and from the young age of 19, she began her career in business through various ventures. Once she had ownership of several

business that were successful, she decided to work her way up in a family arcade company, starting out on the shop floor and working to be an operational director. She then moved to a holiday park business and worked to become the managing director after just two years! Meaden then borrowed money from the bank in order to take control and expand the business, six years later she sold the company. Meaden then went on to being part of the 'Dragon's Den' panel of investors resulting in her having investments in various businesses. She also has a website –

www.deborahmeaden.com

which consists of her journey to success (in more depth) in business and the work she is currently doing for charity. It also has a section where you can read through business advice!

Source –

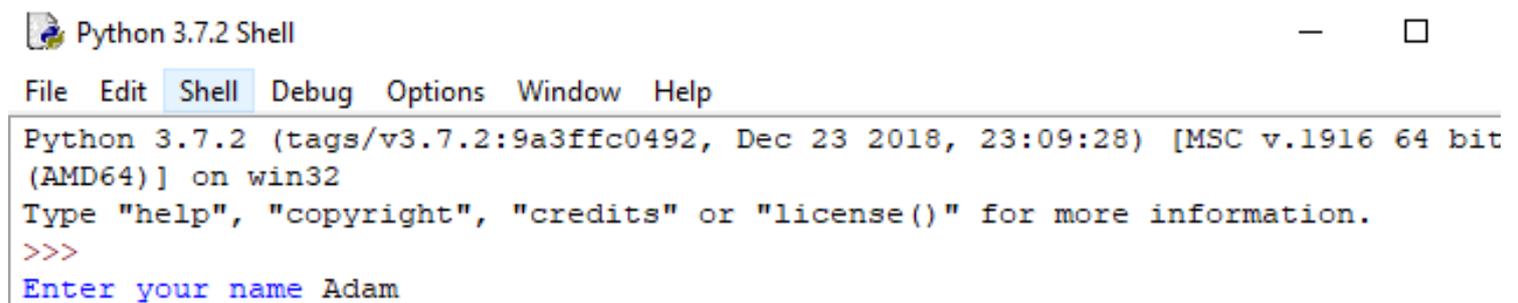
www.deborahmeaden.com

COMPUTING

BY JORDAN B.

Coding in python:

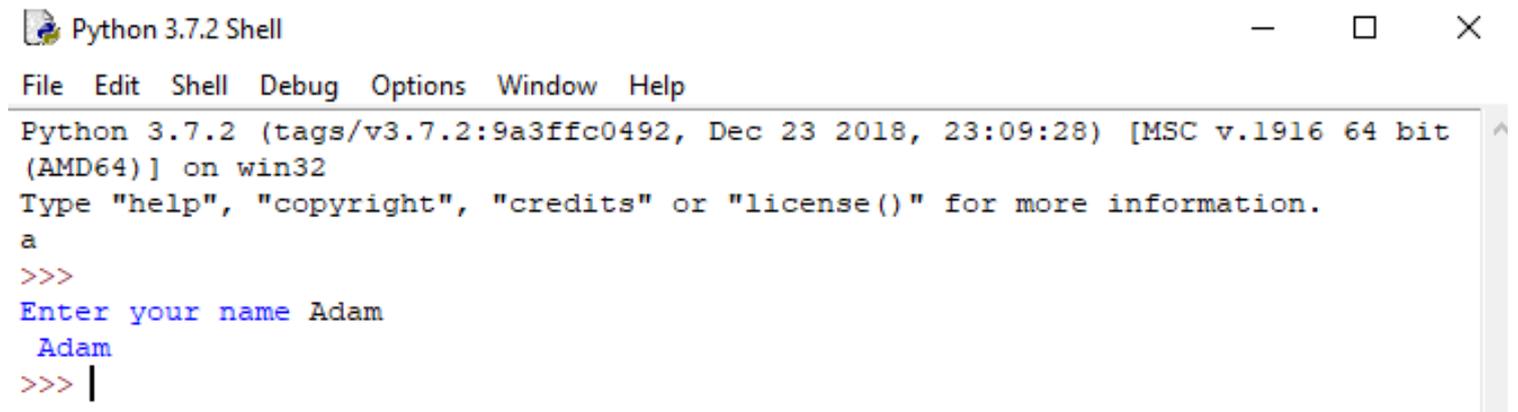
The way data is stored in code is in little boxes of memory called variables. Variables have a single name and are assigned data which has a defined type such as integer (a whole number) or string (just normal text) and a few more. When asking for inputs from the user you will need to store their answers as variables. Example- `name = input("Enter your name")` . The variable here is called 'name' and it's set equal to the output given by the input function. So when the code is run it will look like this:



```
Python 3.7.2 Shell
File Edit Shell Debug Options Window Help
Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23 2018, 23:09:28) [MSC v.1916 64 bit
(AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
Enter your name Adam
```

Here I entered my name as adam but as we aren't doing anything with the 'name' variable the code ends there.

Next we have to do something with it and the easiest way to check things work when working with python is by 'printing' it by using the print function. Example- `print(name)` . Make sure print is all lowercase and that the name of your variable is in the brackets. When the code is ran now it does this:



```
Python 3.7.2 Shell
File Edit Shell Debug Options Window Help
Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23 2018, 23:09:28) [MSC v.1916 64 bit
(AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
a
>>>
Enter your name Adam
Adam
>>> |
```

Here we can see that it's taken our name that we inputed as Adam and printed it back to us so we know it's working!

Tasks to do further:

This is a very very simple first lesson to python and I hope it was easy to understand, if you seem to enjoy the ideas that were involved here I'd recommend messing around with python as well as using CodeAcademy.com and their python starter lessons to learn more of the fun simple functions to use and get started. These might seem like steps which are too easy and simple but they're essential to understand if you want to learn python well in the future and you'll always use these two skills in anything you code.