

We are nearly at the end of another term and once again this blog has some fantastic examples of some of the work we have been doing here this term.

Years 11 and 13 have now both finished their first prelim examinations of the year and will either have received or will soon receive feedback on their performance. When we return in January, these students will only have approximately 16 school weeks until their formal GCSE or A Level examinations start so we hope that the prelims have been useful to show students where they are now and what they need to prioritise in the coming weeks. Years 10 and 12 are now well underway with their GCSEs and A Level courses that they began in September and Years 7-9 are continuing to study a wide range of subjects which will culminate, for year 9, later this year when they choose their GCSE options.

As Christmas approaches we are entering in to the festive spirit. Our Christmas tree is up, many areas of the school are decorated (the 6th form hub in particular looks fantastic) and this week we held 'Christmas Jumper Day' to raise funds for Save The Children. I would like to pay a special mention to those students who supported Mrs Quartey with the Shoebox appeal – we sent over 350 shoeboxes to the Samaritans this year; our highest amount ever. At a time when many families are feeling the pinch, this generosity of spirit is all the more impressive.

Next week our canteen staff will provide Christmas Dinner for students on Tuesday or Wednesday, Heads of Year will be presenting a range of awards in the end of term assemblies and we also hope all students will enjoy spending some time with their form groups on the last day of term. Most significantly of all, next week we will be hosting our carol concert at 6pm on Tuesday 13th December at the nearby St Stephens church. I do hope many of you are able to join us there for what will be our first carol concert in three years.

Classcharts

We are really pleased to now be able to report that 86% of all parents are now signed up to Classcharts. More information is provided on this later in this blog. If you are one of the few who still do not have an account, please do sign up as we will continue to move more and more of our systems over to Classcharts in the new year

Communication

We continue to refine our communication methods. In addition to Classcharts, this term we have been developing our Facebook and Instagram sites. In the new year we will be looking to improve our email communications to make it simpler for parents to receive updates and messages from us. Look out for more information on this in January.

Punctuality / gates and Tutor Rooms

Students should be in their form rooms for registration by 8:40AM each day. When we return in January, to further encourage a punctual start to the school day, the gates will be locked from 8:35AM and anyone arriving after this time will need to buzz through to Reception in order to gain admission to the site. Punctuality is a life skill which students need to learn so please do support us by doing what you can to ensure your son or daughter is on site and in form rooms ready to register by 8:40AM. Also in January, we will be reallocating Tutor Rooms so that Form Tutors will now register their Tutor Groups in what is their main teaching room. Tutors will inform students of their new Tutor Room by the end of this term.

Once the festivities conclude next week, term 2 will end at 12:30pm on Friday 16th December. Term 3 will begin at 8:40am on Tuesday 3rd January, which will be a normal school day, and we look forward to welcoming our students back with us then.

Key Dates 2022 -

- Tuesday 13th December - Carol Concert
- Friday 16th December - Last Day of Term 2 finishing at 12:30

Key Dates 2023 -

- Monday 2nd January - Bank Holiday
- Tuesday 3rd January - First Day of Term 3
- 3rd-6th January - Year 12 Prelims
- 9th-13th January - Year 11 Language Orals
- Thursday 12th January - Year 9 Parents Evening
- Thursday 19th January - Year 13 Parents Evening
- WC 23rd January - Year 11 Prelims
- WC 30th January - Year 11 Prelims
- WC 30th January - Year 10 Work Experience
- Friday 10th February - Last Day of Term 3

In the meantime, my very best wishes to you all for a very happy Christmas and a peaceful, healthy and prosperous new year.

Thank you and see you in 2023.
Mr Lee Preston
Principal

Classcharts

We have now been running our Classcharts system for two terms and are seeing a significant increase in positive comments received by students (over 82,000 at the time of writing). 86% of parents have already signed up to the system, enabling some very useful conversations to occur around students' experiences in school. We would strongly advise all parents to sign in to the system if you have not already, so that you can gain access to all comments about your child's time in school. Classcharts enables you access to timetables, detentions set and absence informing. Students are valuing the conversations they are able to have about their success in school – year 7 for example have accrued over 25,000 positive incidents so far this year!

As the vast majority of families are now signed up to Classcharts, we will be fully moving to notifying you of any detentions or incidents via Classcharts, so will not continue to send separate emails confirming this. Detentions continue to be set for the following day at the earliest, to enable you to make alternative travel arrangements if needed.

Students also have access to their student app for Classcharts, so please do encourage them to check this to ensure they do not miss any points issued or detentions set.

University of Cambridge KS4 Trip

On Friday 25th November 2022, we took 30 of our year 10 and 11 to visit Queen's College at the University of Cambridge, for an aspirational pathways programme. This is the first of two trips this academic year, to allow our hardworking Key Stage Four an opportunity to engage with life at a prestigious world class university. The students demonstrated excellent questioning skills to the undergraduates who were their guides. The students demonstrated a genuine curiosity to develop their understanding of the process and benefits of a degree at Oxbridge. The Holcombe students were a credit to the school and impressed the staff at Queen's College with their positive attitude and behaviour, throughout the day. Thank you to the accompanying staff, Mrs Bridges and Ms Maher-McDonagh, Thank you, Mrs Jhaj



Attendance

We would like to remind parents that it is their responsibility for their child to attend school every day the school is open, except in a small number of allowable circumstances such as being too ill to attend or being given permission for an absence in advance from the school.

It is equally as important for their child to be punctual and attend school on time. We are strengthening our systems over Christmas to meet our high expectations for our students. Registration opens at 08:40am, if a child is late before 08:50am, a 30 minute detention will be given. If a child is late after 08:50am, a 1 hour detention will be given. This is ten minutes earlier than it has been in the past and we hope that this will encourage more students to be punctual to school.

We have always expected students to be in their form room, ready to engage with their tutor period, at 08:40am. We will therefore be shutting the Maidstone Road gate at 08:35am, as we are expecting all students to already be on site, making their way to their forms. We are constantly reviewing this system in order to find ways to encourage greater punctuality.

We understand that lateness can sometimes be due to unforeseen circumstances, and those will be taken into consideration. However, pre-warned train/bus strikes and ongoing road works are not an unforeseen circumstance, and adjustments to travel plans should be made prior to the journey to allow for expected delays.

By attending school consistently and punctually, we are setting our students up to be their best selves, thank you so much for your ongoing support in achieving this with them.

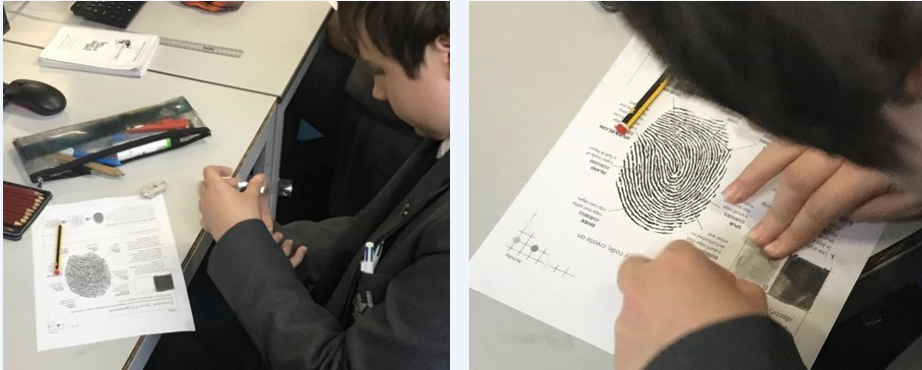
Flu Vaccination/ HPV Vaccination

Could we please remind parents/carers of Years 7, 8 and 9 to complete the consent form for the Flu vaccination that was sent out earlier this week which will be happening on the 17th and 18th January, 2023. Parents/carers of Years 8 and 9 could you please also complete the consent form for the HPV vaccination that was also sent out last week.

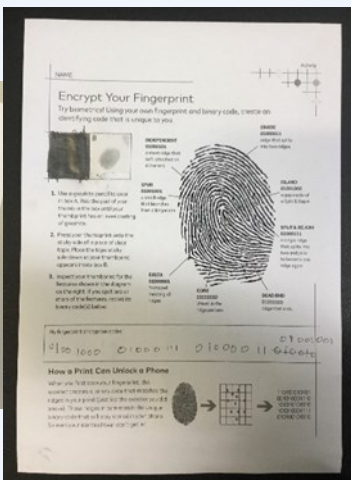
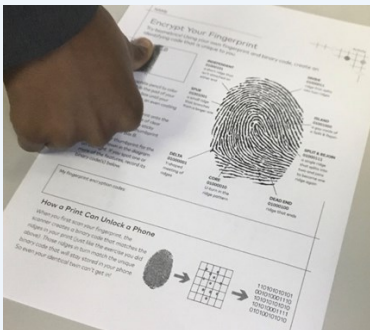
If you have any questions about the vaccines then please contact the School Immunisation team at kchft.cyp-immunisationteam@nhs.net or call them on 0300 123 5205.

Fingerprint Encryption

Year 10 Computer Scientists have been learning about the processes of binary conversion, encryption and manipulation of data. During their lesson on 29th November 2022 the students were challenged to apply this learning to the physical action of taking and cataloguing fingerprints.



Students in 10C/CS carried out the process of taking, analysing and converting their fingerprint signatures into Binary. The students were able to explain and justify the encryptions of their fingerprints as well as relate this to the technology seen on a variety of popular telephones in the UK. Alongside this, students were able to discuss with Miss Lee the applications of such technology within the criminal justice system and other similar fields.



Careers

Year 13 - Deadline for submitting your UCAS application for checking and amendments is 11th January as we are aware the UCAS deadline is 25th January at 6pm. Please ensure your UCAS application is complete and on the UCAS application system then email sixthform@holcombegrammar.org.uk letting us know so that we can then review, approve and send to UCAS on your behalf. But note before it can be submitted you must have paid for it online.
<https://www.ucas.com/>

Year 12 - Using UNIFROG to start to plan your future career path and look at possible university, college courses and apprenticeships.

Year 11 - Mid-Kent College lots of opportunities if continuing at school is not for you. <https://www.midkent.ac.uk/news/open-days/> if you are continuing at Holcombe please don't forget to complete your application form.

Year 10 - Work experience week 30th January - 3rd February 2023, an ideal opportunity to develop those soft skills that are essential in all work places.

Career of The week

Barrister

Barristers give advice to solicitors and represent people in disagreements, investigations and in court.

Average salary (a year) £17,152 to £200,000

How to become

- Explore the different ways to get into this role.
- You can get into this job through a university course or by working towards this role.

University

- You could do a degree in law to become a barrister. You also have the option to do a degree in any subject and complete a Graduate Diploma in Law afterwards.
- Once you've graduated, you need to complete:
- The Bar Professional Training Course which takes one year
- A year of practical training called a pupillage

To get into some universities you'll need to pass the [Law National Aptitude Test \(LNAT\)](#).

Entry requirements

You'll usually need: 2 to 3 A levels, or equivalent, for a degree (English Literature, History, Philosophy and Ethics are some of the best options to study)

Shoebox Appeal

A team of student volunteers have been helping to pack and wrap shoebox gifts for Samaritan's Purse Operation Christmas Child in their lunch times this term. This group and other schools and churches managed to collect over 350 shoeboxes ready for delivery to the charity's centre in Tonbridge. We went with two minibuses full of presents and spent time chatting to the charity workers and volunteers to find out about their experiences delivering these shoeboxes to needy children around the world. Our students then spent an afternoon helping to sort and prepare the thousands of shoeboxes for transport. In addition to the gifts, £211 was raised to support the campaign and in our eighth year of being involved with Operation Christmas Child, students continue to learn about the wider world through charitable giving and service to the community. We are very privileged to be involved and would like to thank all our staff, students and families for your donations this year.



One Big Family Helping the Homeless charity

One Big Family Helping the Homeless charity, based in Medway, came to speak to the sixth form this week in their PD lesson to explain what opportunities for giving and volunteering we have in our local community. In support of this charity, we are asking for donations for food bank items, toiletries and clothing for the homeless work this winter. Our students and staff have also been writing well wishes on Christmas cards to distribute to those who use the One Big Family Soup Kitchen, Winter Shelter and receive food parcels over the coming weeks. Please can all donations and cards be brought to the school office by the end of this term, and we thank you again for your generosity to this cause.



Exchange with a Spanish School

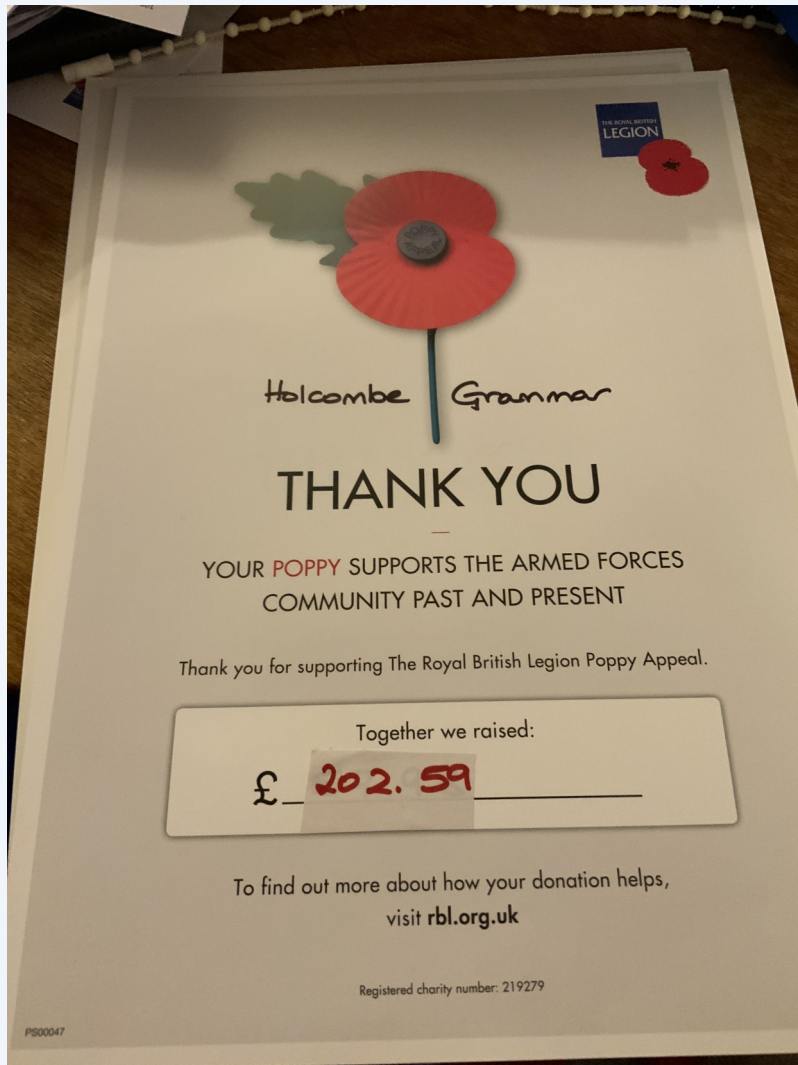
Holcombe Grammar Students had their first Spanish conversation with students from our exchange Spanish School 'Colegio Diocesano Padre Jacobo' in Málaga. Our students introduced themselves in Spanish, answered questions about the school and had a very interesting conversation about football. Bien hecho!

Games Guide for Parents

As we head towards the Christmas holidays and your children will be asking for new games, this can be a confusing minefield for you.

Internet Matters have put together a guide which will help you to make a decision, including age specific games that families can play together. You can find a copy of the guide here [Internet-Matters-Amazing-Games-Guide-2021-1.pdf](https://www.internetmatters.org/guides/amazing-games-guide-2021-1/) ([internetmatters.org](https://www.internetmatters.org))

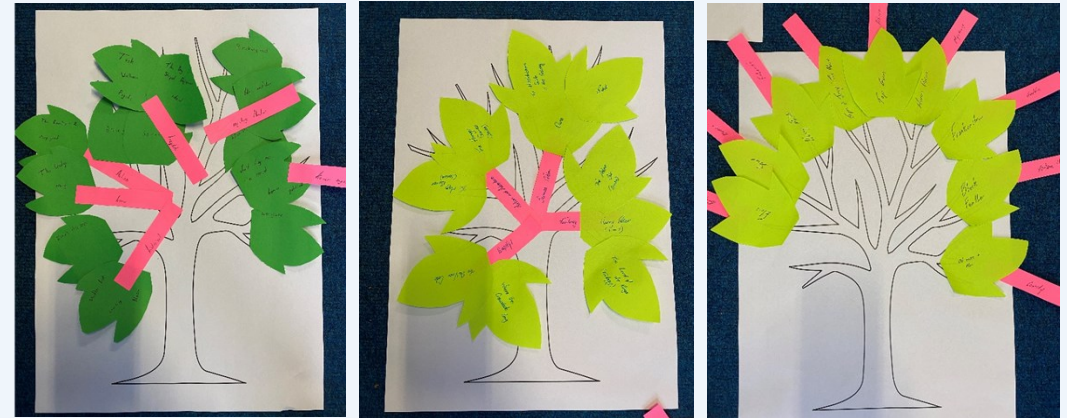
Have a happy and safe Christmas.



Tree Traversal

Year 12 students have been learning about a variety of data structures and their real-world use during their CS lesson with Miss Lee this term.

In the final lesson on data structures, students in 12A/CS were challenged to classify and document data on a variety of films and books to begin to get them to unpick and break down data. As you can see, the students rose to this challenge creating intricate and well classified trees.



The students later in the lesson explored the three main manners in which data on trees are traversed (searched) exploring how their data could be connected and better documented for easier and more effective recall.

Year 12 have taken each challenging data structure and topic and effectively applied this to the real world. Well done Year 12!

Year 7 Geography


Year 7 students completed posters on waste management and air pollution this term.

WASTE MANAGEMENT

Landfill
The dumping of waste in massive piles or large holes before burying with soil.

The three Rs
The three Rs are reduce, reuse and recycle. Reduce is when you reduce the amount of things with plastic packaging, reuse is when you reuse bottles or plastic caps and recycle is when you can't reuse but recycle it in the bin.

Global waste trade
The UK exported most of its waste in 2017 to China, Hong Kong and Indonesia. In 2018 it was Malaysia, Indonesia, Vietnam, UK exported 20,000,000kg of waste to Indonesia in 2018. In 2018, China banned plastic waste exports from the UK and their waste was only 1:40 ratio to last year!



Ways that you can reduce waste production is by buying less stuff in plastic packaging and reuse mostly anything you use. For example you can reuse a paper bag or a plastic bottle as water.

All three Rs need to be used to help reduce the amount of waste production because the earth has a role to reduce the waste production.

Dear members of government,

I would like you to consider your thoughts on building a landfill site next to our school. This could be bad for my school and the environment in general. This action could pollute your supply by chemicals from waste seeping into the ground water. As it breaks down, waste produces a harmful greenhouse gas which is sure you that is not what you should want for a school. In conclusion, I think you should think about changing your plans on this task.

Rayhan and Sammy

Advantages It will reduce the amount of plastic packaging	Disadvantages What about hygiene
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AIR POLLUTION

TASK 1

THE AIR QUALITY IN GREAT BRITAIN IS WORSE IN THE SOUTH THEN THE NORTH. SCOTLAND IS THE COUNTRY IN GREAT BRITAIN THAT HAS THE MOST CITIES WITH THE LEAST AMOUNT OF AIR POLLUTION.

ENGLAND - England has the most air-pollution out of the 3 countries these high air pollution index come from London.

WALES - Wales has two cities that air cases are record that aren't highly high.

SCOTLAND - Scotland has the two lowest air-pollution.

TRANSBORS TO BIRMINGHAM

12.50 see

B

BIRMINGHAM

24/7

Task 5

Having an electric car means that you are taking part in the fight against pollution. By having an electric car you save more electricity and power.

Task 7

I got to school today by bus, I am one of the 16 percent who takes the bus.

Task 3

ECONOMIC
Habitats being destroyed
Animals dying

SOCIAL
Largest cities
More people
Pollution in the air

ENVIRONMENTAL
40,000 tonnes a year
Increases risk of heart disease
Increases risk of lung disease

NO POLLUTION!

WASTE MANAGEMENT

Noah & Alfie 7B

Landfill means the dumping of waste in massive piles or large holes before being buried with soil.

Reduce is using less, Reuse is using an item multiple times and recycle is putting stuff back that can be made into something else.

Don't use plastic bottles.

Do not use plastic containers or bags.

Plastic bottles and caps can be reused.

If you reduce, less plastic is used. If you reuse you do not make more plastic.

If you recycle you reuse plastic.

I would not like to landfill, I dump next to my school, it's quite unpleasant and it's loud when waste is being put there.

The ingots are squashed into thin sheets.

The aluminium cans are turned into ingots.

New cans are made from the sheets and will be recycled.

The cans are taken to the recycling station.

The cans are sorted, washed, and then melted.

Point return scheme	Advantages Reduces waste	Disadvantages Costs more money to buy drinks	Can get money back Uses up more space	Helps environment More busy vending machines
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Christmas in the Hub

Our Sixth Form area has been decorated using only items that have been reused, recycled, repurposed and donated. The students in year 12, led by Miss Bloomfield have created a cosy Christmas corner to brighten up the year 12 Hub.

The message behind it was to show that kindness is out there, you just need to look for it and to show that not everything beautiful is expensive, sometimes they are free!



Before



After

Folding Frenzy - Year 11

Year 11 Computer Scientists have been challenged to beat the teacher in their folding frenzy revision lesson. Students in 11-A/CS have been carrying out personalised revision using the Folding Frenzy method to target areas that they did not fully explore in the run up to their Prelim examinations.

They were provided with a lesson and a homework to complete this but had to ensure that the standard was the same as or better than their teachers. Miss Lee created hers in the same time period with the same resources as the students to show them just how easy this method is if used to it's fullest potential.

As you can see, the bulk of students actively engaged and rose to the challenge with many commenting that this task made them seriously think about the manner in which they communicate key facts and concepts.

Let's hope that moving forward this is a technique we see more in the run up to exams.

Unit 3 - Networks!

Threat Vulnerable

Hardware - Spares with built viruses.

Privacy - Goals or tasks designed to limit people into handling non personal data.

Social Engineering - Exploiting human weaknesses to access a system or data without permission.

Botnets - Manipulating every computer or peripheral to give access to a system with the threat or is found.

DDoS - An attack by which a server is overwhelmed with requests.

Latent/Explicit - The unhelpful retrieval and use of sensitive data.

Data Exfiltration - The retrieval of data from an online form through the input of code.

O.S Software

Utility Soft

Memory Management - Visual subset of a system and all associated inputs, outputs and peripherals.

Multitasking - The vision of multiple tasks carrying out jobs at same time.

Peripheral Management - The use and storability of device and peripherals as managed by the OS.

User Management - The management commands of the system as controlled by the user.

File Management - The way storage and manipulation of files by the OS.

System Security - Software designed to make data accessible to authorized.

Network Security - Software designed to maintain storage space by minimizing storage space required for a file. Can include binary and tandem compression.

Full - Variety handling of an archive system.

Uncompressed - Greater depth of changes only since last binary update.

Above: Miss Lee's Exemplar

Keywords

Utility - Program used to monitor and improve the performance of a device.

Memory Management - The process of allocating memory to various system activities all within a file, including storing, moving, reading and writing.

Encryption - The process of making data, responsible of information. Includes cryptos such as the Diffie and Hellman cryptos.

Network Forensics - The process of tracking machine activity using logs, data, records, analysis and forensic techniques. Often time and system critical.

Social Engineering - The manner in which human and resources exploit human weakness to gain access to systems and personal data. Includes phishing, phishing and social engineering.

Unit 3

Hardware

Software

Network

Hardware

Software

Network

EMBEDDED SYSTEMS:

AKA... **general purpose computers**

Embedded Systems - a combination of computer hardware and software for one specific function.

↳ basically a small computer node forms part of a larger system, device or machine.

Examples...

- * central heating systems
- * dishwashers
- * TVs
- * GPS systems

Advantages:

- ↳ cheaper to design + build
- ↳ they tend to require less power
- ↳ don't require lots of processing power

PROTOCOLS: rules that govern the way we do something.

The ones that govern addressing are:

- Internet Protocol (IP) addressing
- Media Access Control (MAC) addressing

IP Addressing:

↳ when connected to a network each device is given a unique number's max a maximum value of 255.

↳ old version is IPv4 - where there are four sets of digits.

↳ new version is IPv6 - where there are 16 sets of digits.

Other Protocols:

- **TCP/IP** - Transmission Control Protocol / Internet Protocol - enables communication over the internet.
- **HTTP/S** - Hypertext Transfer Protocol / Secure - operates the communication between a webserver and a client. Secure makes the connection between a webserver and a client.
- **FTP** - File Transfer Protocol - governs the transmission of files across a network and the internet.
- **SMTP** - Simple Mail Transfer Protocol - governs the sending of emails over a network to a mail server.
- **POP = IMAP** - Post Office Protocol + Internet Message Access Protocol - govern forwarding emails from mail servers.

A great effort from Mac!

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Folding Frenzy - Year 11 Part 2

Paul G
Topic Area: Networks and Topologies

NETWORK TOPOLOGY

Any device connected to a network is referred as a node
All nodes are connected to the network either by wire or wirelessly
network topology meaning
An arrangement (or pattern) in which all nodes in a network are connected together

Two Main Types: **Bus topology** & **Star topology**

BUS TOPOLOGY

A network layout where all nodes are connected along a linear central backbone. Known as a bus

Bus networks (in a bus topology) where in the network are connected directly to a central cable that runs up and down the network, the cable is known as a backbone
Data is sent up the backbone and it reaches the correct node

ADVANTAGES

- easy to connect nodes to the network
- cost saving as compared to star topology

DISADVANTAGES

- the central backbone part of the backbone cable breaks
- terminators must be installed at each end of the backbone
- having one backbone affecting data

STAR TOPOLOGY

Used in many networks, large and small
All nodes indirectly connect to each other through a central node
The central node is called a hub though all connections are passed
Large networks using switches by an **access** means time though as single computer controls the network all nodes still pass through the central node

ADVANTAGES

- each node is separately connected
- can be added or removed without affecting other nodes
- each node can be accessed directly by connected network
- star network tend to have higher performance
- star network is preferred as its relatively simple and

DISADVANTAGES

- the central node is the **critical** link in the network and if it fails the network will stop
- central star topology requires plenty of cables up in large networks this can be expensive

After a little more guidance, Paul rose to the challenge

John E
Topic Area: Units of Measure and Topologies

STAR NETWORKS

Server, Workstation, Workstation, Printer, Workstation, Workstation

Although a little faint, a brilliant attempt from Jaden E. Well done!

John E
Topic Area: Units of Measure and Topologies

MEASURES

1 Kilobyte = 1024 bytes
1 Megabyte = 1024 Kilobytes
1 Gigabyte = 1024 Megabytes
1 Terabyte = 1024 Gigabytes
1 Petabyte = 1024 Terabytes

TOPOLOGIES

Topologies are ways that networks can be set up either as LANs or WANs

LAN, WAN

John E
Topic Area: Units of Measure and Topologies

Topologies + Unit measures

LAN, WAN

1 Kilobyte	1024 bytes
1 Megabyte	1024 Kilobytes
1 Gigabyte	1024 Megabytes
1 Terabyte	1024 Gigabytes
1 Petabyte	1024 Terabytes

There were so many fantastic options to pick from, but above are just some of the finished products produced. Keep it up Year 11, this will help support you not just in CS but across your subjects moving forward.

Year 9 Geography

Year 9 students completed posters looking at the Rock Cycle and importance of geology as part of their Natural resources.

What are rocks and how are they a natural resource?

2a) Geologists believe that the Earth is about 4.54 billion years old, plus or minus 50 million years.

2b) The geological timescale is where the whole of the Earth's existence is compressed down into a 24 hour clock. For example human would exist at 23:59:59.

7 pg 27) weathering means that all species eventually since chemical weathering is due to the atmosphere, biological weathering is due to the atmosphere and physical weathering is due to the lithosphere.

First question) what we've learned today is more related to non renewable and renewable energy. It might use coal, which is non renewable and use a sedimentary rock and also relating to the geological timescale we can see that animal and plant fossils are non renewable along and are formed via sedimentary rock.

Event	Time	Justification
Mass Extinction (Dinosaur)	4.4 billion years into the Earth's history	This caused almost all life to disappear and to be replaced by evolution of different animals or plants since the main living species had been extinct.
Modern Humans Appear	200,000 years ago when the modern human species first appeared	The modern humans domesticated and destroyed the world making them the most influential species on the planet.
First Land Plants Appear	4.05 billion years into the Earth's history	Land plants are so influential to the environment and the atmosphere and they are key to some animals.

Chemical Weathering

Constantly rain and like side of acid, disintegration.

The process of disintegration of rocks, building materials, etc. caused by chemical reactions, mainly acidity in water.

Physical Weathering

As it expands the rocks break up.

Biological Weathering

Biological weathering occurs when plants break up rocks with roots or rot and animals, the process is slow but it is.

Geological Timescale

4.54 billion years ago - Earth formed

4.4 billion years ago - Mass Extinction (Dinosaur)

4.05 billion years ago - First Land Plants Appear

200,000 years ago - Modern Humans Appear

23:59:59 - Present (Human)

WHAT ARE ROCKS AND HOW ARE THEY A NATURAL RESOURCE?

Category of rock	Example of rock	Use as a natural resource
igneous rock	chlorite	used as a major role in the country
sedimentary rock	sandstone	Its used for oil and natural gas
metamorphic rock	Granite slate	building artwork

Rock Cycle Diagram

4.44 billion years ago: Earth mass extinction in which dinosaurs disappear.

4.38 billion years ago: Mammals appear.

4.22 billion years ago: Dinosaurs appear.

4.05 billion years ago: First land plants appear.

200,000 years ago: Modern humans arrive.

23:59:59: Present.

400-700 million years ago: 208 = 3.44 - Heavy meteorite bombardment.

1.7 billion years ago: 904 - Gaia theory began to produce oxygen.

2 billion years ago: 10-41 - Earth's atmosphere begins to form with oxygen being pumped into the air.

Rock Cycle

igneous → sedimentary → metamorphic → igneous

all rock types turn into one.

Task 7:

We can relate today's learning to renewable and non renewable resources as things would not be a renewable resource as it doesn't form again and renewable resources are things such as ~~igneous rocks~~ wood as you can replant new saplings and then they will grow again making it renewable.

Answers to Questions:

1. How old do geologists think the earth is? About 4.5 billion years old.

2. What is the geological timescale? A 24 hour analogue clock.

3. The big bang - The forming of the earth. Humans appear - people are mammals. Mammals appear - people are mammals. Atmosphere forms - protects us from all space gases and debris. Plants appear - reproduce oxygen.

4. A = weathering is how rocks change with wind and rain. B = freeze thaw weathering = when things are frozen to change them. Wind = wind blowing across all of the rock. Rain = rain pounds against it to change how it looks.

5. Force three: wind, rain, heavy meteorite bombardment.

6. A = weathering is how rocks change with wind and rain. B = freeze thaw weathering = when things are frozen to change them. Wind = wind blowing across all of the rock. Rain = rain pounds against it to change how it looks.

7. All things will change and can hydr, bio, cytoplasts all work together to change things.

What are rocks and how are they a natural resource?

ROCKS

What do we study rocks? To find out about Earth's history. How Earth will work now and in future.

What can we use information about rocks for or do? Study how the Earth use it to be one how it will be in the future.

What are some other careers to do with rocks? Geologist, Volcanologist, Archaeologist.

ROCK TYPES

- Igneous: Formed by molten magma.
- Sedimentary: Formed under the sea by sediment carried by rivers.
- Metamorphic: Formed from rocks that have been pushed together under great heat and pressure.

ROCK CATEGORY	EXAMPLE	USE AS A NAT RES
IGNEOUS	Granite	ROAD WORKING
SEDIMENTARY	SALT	FOOD PRESERVING
METAMORPHIC	SLATE	ROOF TILES
SEDIMENTARY	SAND, GRAVEL	CEMENT
SEDIMENTARY	CLAY	HOUSE BRICKS
METAMORPHIC	MARBLE	BUILDINGS, STATUES

Geological Timescale

4.54 billion years ago: Earth formed.

4.4 billion years ago: Mass Extinction (Dinosaur).

4.05 billion years ago: First Land Plants Appear.

200,000 years ago: Modern humans appear.

23:59:59: Present.

400-700 million years ago: Heavy meteorite bombardment.

1.7 billion years ago: Gaia theory began to produce oxygen.

2 billion years ago: Earth's atmosphere begins to form with oxygen being pumped into the air.

Weathering

Weathering is where rocks break down and rot away due to air, water, temperature, plants, and animals. Attracting them.

Freeze-thaw: Chemical, Biological. When plants and burrowing animals break down rocks by growing roots or digging into cracks in it.

When frozen water in a crack expands it breaks the rock. It is the role of the weathering.