KNOWLEDGE ORGANISER

£2

NAME & FORM

YEAR 8

AUTUMN TERM

English Knowledge Organiser – Autumn 1

Persuasive Writing

Overview- Persuasive language is used for many reasons. We see it around us every day: in advertising to help sell products or services, politicians often convince us to agree with their viewpoints, and we all use it as a powerful tool for getting what we want!

Persuasive writing has been around for as long as we humans can remember. To persuade someone simply means trying to convince them of your point of view - can you remember the last time you tried to get someone to agree with you? It probably wasn't so long ago!

The ancient Greek philosopher Aristotle came up with some top tips on how we can ensure our persuasive writing is successful. He said we should always provide arguments that are rooted in **ethos, logos and pathos**:

- **Ethos**: our arguments should appeal to human ethics, i.e. they should depend on credibility and expertise as persuasive techniques.

  E.g. As a dentist, I see this problem a lot. So, I recommend using sensitive toothpaste.

- **Logos**: our arguments should appeal to human logic, i.e. they should depend on facts and statistics to persuade the audience.

  E.g. People who eat a small bar of chocolate per day are 73% happier than those who don't. So, we should eat chocolate every day.

- **Pathos**: our arguments should appeal to human emotion, i.e. they should create an emotional response to an impassioned plea to convince the audience.

- *E.g. If you don't adopt the puppy, he may never find a home!*

Match up task- this will help you with important persuasive techniques that you will need to remember (top tip: memorise the acronym '**DAFOREST**'!)

Direct Address		A personal viewpoint often presented as if fact, *e.g. 'In my view, this is the worst thing to ever have happened!'*
Alliteration		Vocabulary to make the audience/reader feel a particular emotion, *e.g. 'There are thousands of animals at the mercy of our selfishness and disregard for kindness'*
Facts		An adjective in its highest form e.g. 'tallest', 'most intelligent', 'scariest'
Opinions		Three points to support an argument, *e.g. 'Safer streets mean comfort for you, your family and your friends'*
Rhetorical Question		Factual data used in a persuasive way, *e.g. '90% of customers agreed that this shampoo made their hair stronger'*
Emotive Language		When the writer speaks directly to the reader through words such as 'you,' *e.g. 'You must agree with me that…'*
Superlative		When words start with the same sound to grab the reader/audiences' attention, *e.g. 'This hair oil will give you smooth, silky locks…'*
Triples		A question which implies its own answer, *e.g. 'Don't you just dream of success?'*

What do we need to include in a successful piece of persuasive writing?

- ✓ **Introduction: clearly state your opinion**
- ✓ **2-3 main points**
- ✓ **Keep to your line of argument (do consider the counter-arguments, but only briefly - your objective is to crush them!)**
- ✓ **Conclusion: a strong final statement**
- ✓ **Use DAFOREST throughout**

What are some examples of persuasive topics to write on?

- ✓ Should the school hours shift to be later in the day?
- ✓ Are zoos cruel to animals?
- ✓ Should the voting age be lowered to 16?
- ✓ Is it necessary to enforce school uniforms for school children?
- ✓ Is social media ruining young peoples' lives?
- ✓ Is it necessary to give school children homework?
- ✓ Has music been destroyed in recent years?

Persuasive Writing Sentence Starters:

Firstly, it can be argued…

I firmly believe that…

It must be agreed…

Most people would agree that…

Only a fool would think that…

Secondly, it is true that…

A sensible idea would be to…

Doesn't everybody know that…?

The REAL truth is that…

Surely you would agree that…

Lastly, and most importantly…

Space to add your own-

_____

_____

Come up with your own example for each of the persuasive techniques:

Direct Address- _____

Alliteration- _____

Facts- _____

Opinions- _____

Rhetorical Question-_____

Emotive Language- _____

Superlatives-_____

Triples-_____

Space to add more-

_____

_____

_____

WORD BANK:

Use this word bank as a space for you to add the different words that we explore in the lessons. Note: you will discover more persuasive techniques than 'DAFOREST' along the way!

English Knowledge Organiser

AUT 2 Animal Farm

Plot Summary

Chapter 1:
Mr Jones, the farmer of Manor Farm, is drunken, cruel and neglects his animals. One night, the animals hold a meeting. Old Major makes a speech pointing out how terrible their lives are and encourages the animals to rebel Jones. He later dies.

Chapter 2:
The other pigs begin plotting the rebellion and create a philosophy of 'Animalism'. One day, the starving animals break into the storage shed. When Mr Jones tries to stop them, they rebel and throw the humans off the farm. Snowball writes the '7 Commandments' of Animalism on the wall and renames the farm 'Animal Farm'. The cows produce milk, which Napoleon and Squealer steal.

Chapter 3:
The animals learn how to farm and become more successful that the humans. Boxer the horse proves to be the most powerful and hardworking. Snowball creates the slogan 'Four legs good, two legs bad". Napoleon takes the puppies away to raise by himself. The animals learn the pigs have been eating all the milk and apples: Squealer makes excuses as to why the pigs need to have them

Chapter 4:
Jones with the help of Mr Pilkington and Mr Fredrik try to take the farm back. The animals, led by Snowball, fight them off successfully in the 'Battle of the Cowshed'.

Chapter 5:
Mollie the horse abandons the farm**.** Snowball plans to build a windmill to help run the farm. Napoleon argues against it. In a meeting where Snowball looks like he will win the debate, Napoleon calls the aggressive dogs he raised to chase Snowball away and take over the farm. Napoleon then decides the windmill will be built. Squealer convinces the other animals it was Napoleon's idea all along and Snowball stole it.

Chapter 6:
The animals' lives become harder as they build the windmill. The pigs move into the farmhouse, which Squealer excuses**.** The windmill blows down in a storm which Napoleon blames on Snowball.

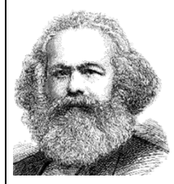
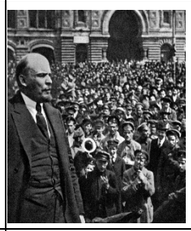
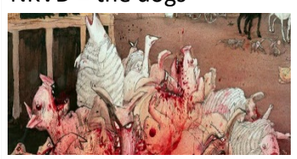
Chapter 7:
Napoleon employs a human Mr Whymper to sell some of the hen's eggs to make money. Then hens refuse until Napoleon starves them. Squealer spreads rumours that Snowball is sneaking onto the farm to sabotage them**.** Napoleon then holds a 'trial' where he has his opponents brutally murdered.

Chapter 8:
The humans lead an attack and destroy the windmill in the 'battle of the windmill'. The pigs begin drinking alcohol and change the commandments to hide it

Chapter 9:
Boxer helps to rebuild the windmill, even as he gets more ill until he eventually collapses. Napoleon promises to send him to a vet, but he is instead taken away by a knacker (butcher) to the animals' horror. Squealer claims it was a misunderstanding. It is later revealed the pigs have gained money to buy alcohol.

Chapter 10:
The pigs begin dressing in human clothes and carrying whips whilst the other animals continue to work hard. The 7 commandments are replaced with 'ALL ANIMALS ARE EQUAL / BUT SOME ANIMALS ARE MORE EQUAL THAN OTHERS'. One night the other animals watch the pigs have a dinner party with Mr Pilkington and Fredrick and realise the pigs are now acting the same as the humans.

Name	Character
Old Major 	The oldest pig on the farm who inspires the animals to rebel The character is based on **Karl Marx** and **Vladimir Lenin**
Napoleon 	A large violent pig who helps lead the rebellion and then seizes power. The character is based on **Joseph Stalin.**
Snowball 	A clever pig who helps lead the rebellion and create animalism. Rival of Napoleon. Based on **Trotsky**.
Squealer 	Napoleon's public speaker. He persuades the other animals to support Napoleon, no matter how bad his rule is. He represents **propaganda**.
Boxer 	A loyal and dedicated carthorse. He is the strongest worker among the animals. He represents **ordinary Russian people**.
Clover 	A kind and caring mare who is close friends with Benjamin and Boxer. She represents **ordinary Russian people**.
Benjamin 	A bitter, clever and sarcastic donkey who is good friends with Boxer.
Mollie 	A spoiled white horse who only cares about pretty ribbons and sugar lumps.
Mr Jones 	The drunken, cruel farmer of Manor Farm. He is thrown out in the rebellion He is based on **Tsar Nicholas II**.
Mr Pilkington and Fredrick 	Neighbouring farmers who represent the **USA and Germany**
Mr Whymper 	Human trader who buys and sells items for Napoleon.

Historical context		Allegory
Russia in 1917 Most ordinary Russians were poor peasants who were 'owned' by wealthy landowners and had hard, brutal lives. Tsar (King) Nicholas II was an ineffective leader.		Farmer Jones = Tsar Nicholas 
Communism Communism was a philosophy created by Karl Marx. It argued the poor should overthrow the rich and an equal society be created.		Karl Marx = Old Major Animalism = Communism 
Russian Revolution The Bolsheviks, led by Lenin, led a rebellion against the Tsar to create a communist government. They destroyed the winter palace and created a new communist government		The rebellion 
Russian Civil War 1917-1923 Wealthy Russians helped by other European kings tried to overthrow the communists. Led by Trotsky, the communists won		The battle of the cowshed 
Trotsky vs Stalin After Lenin's death, Trotsky and Stalin were rivals to lead the communist party. Stalin used propaganda and violence to drive Trotsky out of Russia. He later had him assassinated.		Napoleon drives out Snowball 
The purges Stalin created secret police called the NKVD. In 'Show trials' he executed thousands of his rivals to secure power through terror.		NKVD = the dogs 
Propaganda Stalin used propaganda to claim ordinary Russians were better off under communism whereas many faced famine and suffering.		Squealer and his lies 
Soviet Union The communist state created was called the 'Soviet union'. Whilst intended to be a communist country of equality, under Stalin it became a cruel and oppressive dictatorship.		

QTA Sentence Starters:

QUOTE:

Orwell presents...for example, this can be seen in '...'

A quote to support this is '...'

TECHNIQUE:

Through the use of ... reader is able to...

Orwell uses the (*persuasive technique*).. to...

ANALYSIS:

This suggests/this shows...

It could also suggest that...

Also, the word _____ could highlight...

The reader will think/feel... because...

AO3 (context)/THE WRITER:

Orwell used the character/idea/example to highlight...

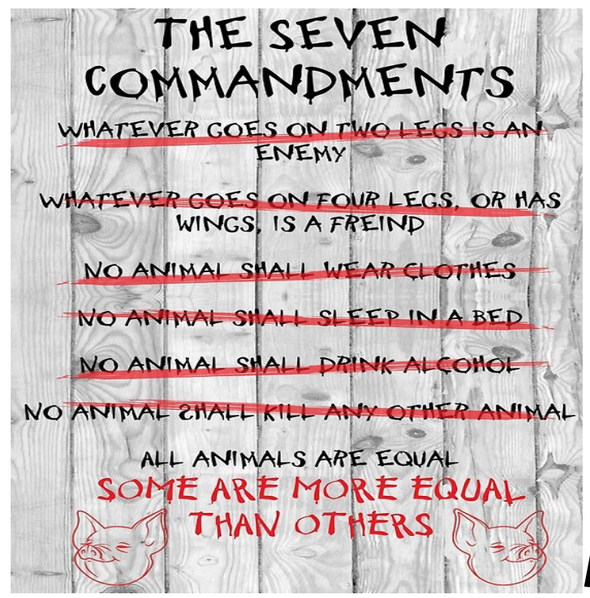
Orwell was clearly trying to show that he felt...

Glossary:

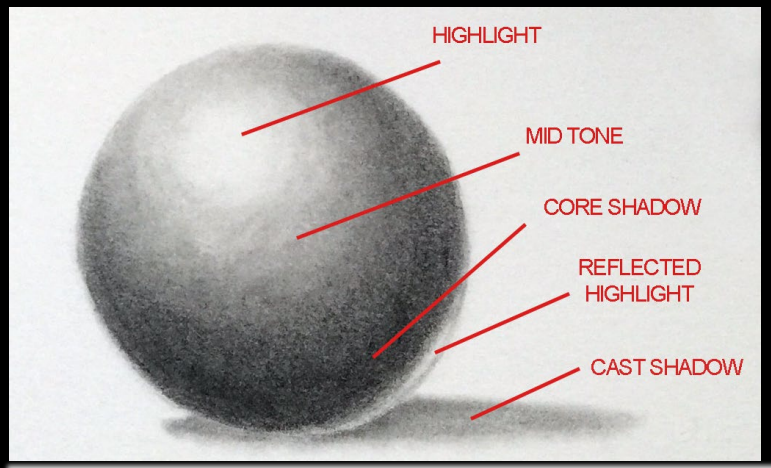
- **Allegory** - text with a hidden/ second meaning
- **Anthropomorphism** – presenting animal characters like humans
- **Manipulate** – to control or brainwash
- **Tyranny/tyrant** – cruel and oppressive ruler
- **Dictatorship** – rule by a single oppressive ruler through violence and fear
- **Gulag –** prison camp
- **Bolshevik –** Communist group that opposed the tsar

Persuasive techniques
Match the techniques to their definition

Adjective		Normally referred to as a 'doing word', for example walk, read or sing.
Simile		Exaggeration for emphasis – making something sound much worse than it actually is, for example.
Propaganda		A word that describes *how* something happens or occurs, for example yesterday, quickly and silently.
Verb		A persuasive technique often asked to make the audience ponder something – doesn't require an answer.
Hyperbole		A technique used to try and persuade someone, by making them feel like they are being spoken to directly.
Metaphor		The simple repeating of a word, within a short space of words, with no particular placement of the words to secure emphasis.
Adverb		Information of a biased or misleading nature, used to promote a political cause or point of view.
Rhetorical Question		A word used to describe something, for example tall, orange or old.
Repetition		A comparison between two things for effect, by saying that one thing *is* something else. For example, the man was a mountain.
Direct Address		A comparison between two things using the words 'like' or 'as', for example the man was as big as a mountain.



Art Knowledge Organiser

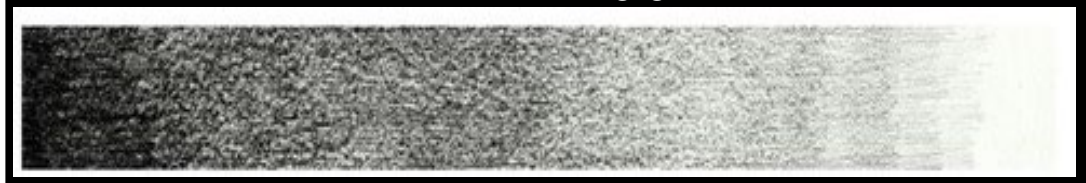


KEY WORDS – test yourself! (definitions on the next page)
Mark making- Blending- Rendering- Shadow- Highlight- Tone- Shape- Form- Line- Detail- Texture- Directional lines- Font- Accuracy- Proportion

Observational drawings

Year 8 Autumn term

Pencil shading gradient



WWW: A range of tones shown, and the shadow has been drawn.
EBI: Use directional lines to show the shape

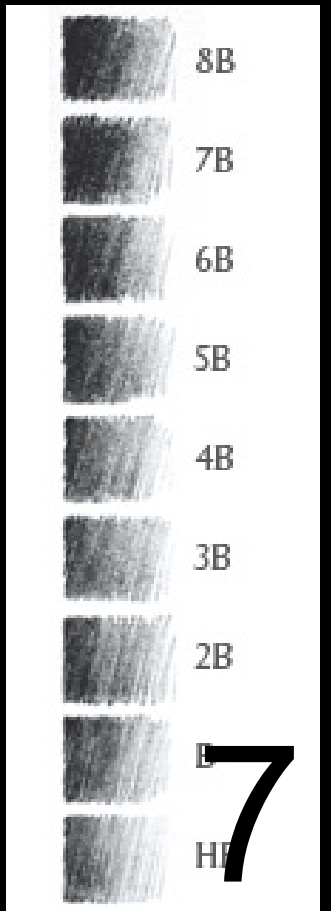
20%-50%

WWW: The attention to detail is excellent and the font is accurate.
EBI: Apply more pressure to create darker tones

50%-80%

WWW: A highly accurate and proportionate study showing a range of tones.
EBI: The shading could be blended so there are no visible lines

80%-100%



KEY WORDS AND MEANINGS:	
Mark Making	Mark making describes the different lines, dots, marks, patterns, and textures we create in an artwork.
Rendering	Rendering is the process of creating the effects of light, shade and light source to achieve contrast in drawings.
Stippling	Overlapping lots of dots to create tone.
Directional lines	Lines that direct your eye around the drawn subject to emulate a 3D form.
Hatching	A shading technique which uses a series of thin, parallel lines that give the appearance of shadow in varying degrees.
Tone	How light or dark something is. Tones could refer to black, white and the grey tones in between. It could also refer to how light or dark a colour appears.
Shape	A flat, enclosed area of an artwork created through lines, textures, colours or an area enclosed by other shapes.
Form	Form refers to objects that are 3-Dimensional, or have length, width, and height.
Highlight	The lightest part or one of the lightest parts of a painting, drawing, etc.
Shadow	A dark area where light from a light source is blocked by an opaque object.

Colour code: BLUE= Tier 3 words ORANGE= Tier 2 words Look out for colour coding during lessons!

Drama Knowledge Organiser

'Crime & Punishment'

Crime and Punishment

- The **perpetrator** of the crime is the name for the person who has committed a crime.
- The **victim** is the name for the person who has been harmed, injured or killed as a result of a crime.

Drama Techniques!

A **flashback** takes the narrative of the Drama back in time.

A **flashforward** takes the narrative of the piece of Drama forward to the future. Both techniques can be used to create tension.

A **thought-track** is when a character speaks out loud to the audience about their thoughts and feelings.

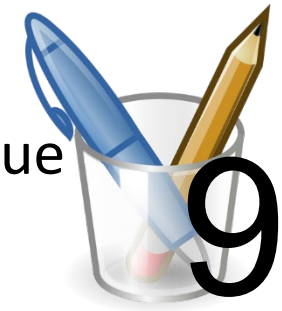
Performance Terminology

Levels	Using different heights or levels in a scene to create meaning. E.g. a low status character may sit on the floor.
Proxemics	Using the space between each character to create meaning.
Gait	The way the character moves. This could show their age or how they're feeling.
Accent	The way in which people from a specific country or area pronounce different words.
Monologue	A long speech said by only one actor.

Keywords:

Learn the 10 spellings below:

1.) Perpetrator
2.) Victim
3.) Punishment
4.) Flashback
5.) Flashforward
6.) Levels
7.) Proxemics
8.) Gait
9.) Accent
10.) Monologue



Music Knowledge Organiser

Year 8 Autumn Term

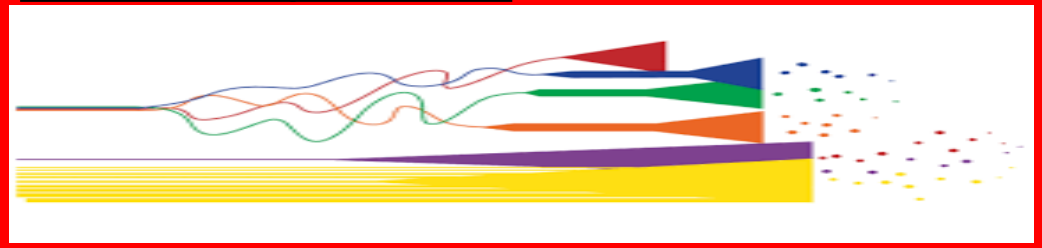
KEY WORDS – test yourself! (definitions on the next page)

Soundscape Graphic Score Acoustic Environment Musical Experimentation Foley Technique Pitch Duration Structure Texture Tone Dynamics Post-production

What is a Soundscape?

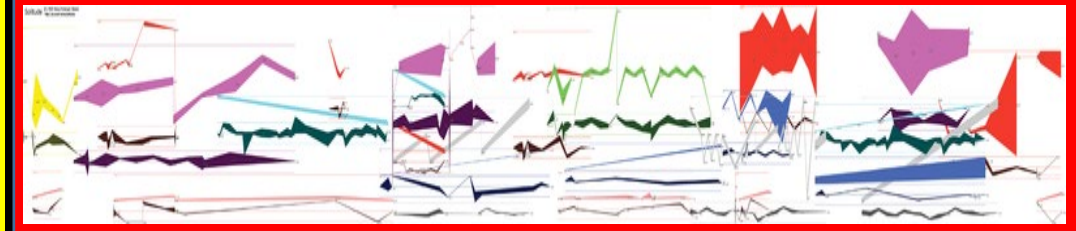
Soundscapes are when we use sound and **music** to create the atmosphere of a story being told. These sounds can be background noises, body/vocal percussion, electronic sound effects, or **musical** instruments that sound like what is happening (e.g. using a maraca or tapping on our teeth to sound like rain).

What is a Graphic Score?



Graphic notation (or **graphic score**) is the representation of music through the use of visual symbols. Composers often rely on graphic notation in experimental music, where standard musical notation can be ineffective. Graphic notation relies heavily on the imagination to interpret the visual content. Because of this the pieces usually vary from performer to performer.

Graphic notation can show effective use of PITCH, DURATION, STRUCTURE, TEXTURE, TONE and DYNAMICS.



The Foley Method:

In filmmaking, **Foley** is the reproduction of everyday sound effects that are added to films, videos, and other media in post-production (after the film has been made) to enhance audio quality. These reproduced sounds, named after sound-effects artist Jack Foley, can be anything from the swishing of clothing and footsteps to squeaky doors and breaking glass. Foley sounds are used to enhance the auditory experience of the movie. Foley can also be used to cover up unwanted sounds captured on the set of a movie during filming, such as overflying airplanes or passing traffic.

Interesting examples for you to look at:

Create a Live Soundscape to a Story (Mr McGee)
https://vimeo.com/360684227

The Magic of Making Sound -
https://www.youtube.com/watch?v=UO3N_PRIgX0

Where the Sounds From the World's Favourite Movies Are Born
https://www.youtube.com/watch?v=0GP[illegible]EE

Kathy Berberian's 'Stripsody'
https://www.youtube.com/watch?v=0dNL[illegible]

KEY WORDS AND MEANINGS:	
Soundscape	Music used to represent the impression of something (telling a story). This can be through the use of instruments, voice, electronic or natural sounds.
Graphic Score	A representation of sounds using symbols.
Acoustic Environment	An **acoustic environment** provides the framework of a sound picture e.g. the sounds of street life through an open window during the daytime or sounds of nature (birdsong, flowing water).
Musical experimentation	Trying several different combinations of sound before using the best version.
Foley technique	Using everyday objects to replicate sounds for film or radio – pioneered by Jack Foley.
Pitch	How high/low sounds are – changes can be sudden or gradual.
Duration	How long/ short sounds are.
Structure	How the music is organised from start to finish (e.g. verse-chorus song structure).
Texture	How many layers of sound are present (thick/ thin texture).
Tone	The sound quality – scratchy, smooth, mellow, thundering.
Dynamics	The volume – changes can be sudden or gradual.
Post-production	Something added to a film after it has been completed.

Geography Knowledge Organiser: Topic One - Weather

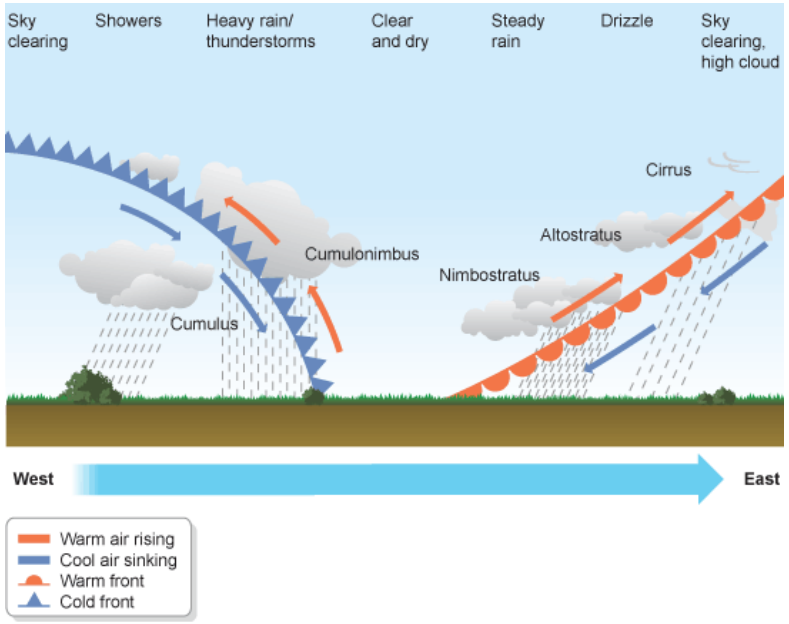
Air Pressure

High Pressure: air is sinking, as it sinks it heats up. There are no clouds in the sky as condensation is limited. This leads to cloudless skies and sunny days. These weather systems are called **anticyclones**.

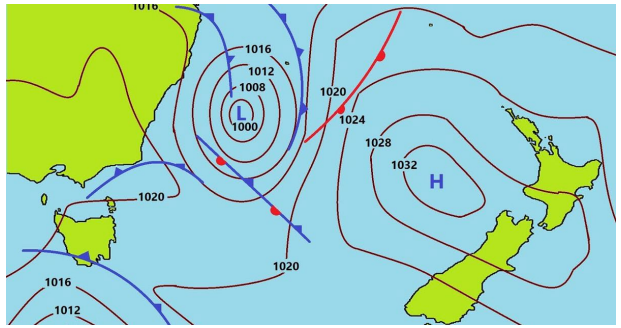
Low Pressure: air is rising, as it rises it cools down. There are clouds in the sky as condensation occurs as the air cools and water vapour turns to liquid. This leads to unsettled and rainy weather systems called **depressions**. Tropical storms are large depressions.

How do depressions affect our weather?

A depression is when there is low pressure and air is rising. A depression is made up of two fronts one warm and one cold (the edge of an air mass is called a weather front), which both bring rain and windy conditions. When the warm front passes it brings warm, wet conditions. When the cold front passes it brings cold stormy conditions.



Geographical Skill: Isoline Maps



Surface pressure charts are a type of map which show the level of air pressure there is in a place. They are a type of isoline map, where the lines join areas with equal air pressure. You should know how to get weather data from these maps as well as how to complete your own by paying close attention to the isolines either side of the one you are completing.

Do we have extreme weather in the UK?

Extreme weather is when a weather event is significantly different from the average or usual weather pattern. Examples of extreme weather in the UK – flooding, drought (which can lead to forest fires), heatwave, coastal flooding – due to storms and storm surges, snow storms.

An extreme cold spell - In December 2010 much of the UK was under snow. Arctic air caused the temperatures to drop significantly below the average. At night temperatures of -10°C were not uncommon. Winds from the north east brought cold arctic air and snow. Scotland and North East England were significantly affected, with snow 50 cm deep in places. Temperatures were mainly below 0°C, making it the coldest December in the last 100 years.

The effects were:

- Roads were closed due to heavy snow. People were stranded in their cars overnight on the M8 and A9 in Scotland.
- Flights cancelled as airports closed, including Heathrow and Gatwick, disrupting travel plans over Christmas.
- Schools closed due to the heavy snowfall.

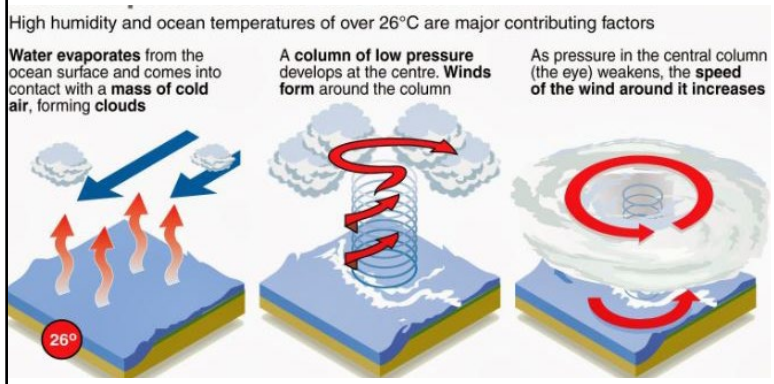
A **depression** is a weather system created by low pressure. Whether they happen in winter or summer, they always bring clouds and rain!

Case Study: Hurricane Michael

Hurricane Michael, Oct 2018, was a very powerful and destructive tropical storm. Using satellite technology residents warned of the approaching hurricane and filled sandbags, boarded-up homes and secured boats. More than 370,000 people in Florida were ordered to evacuate and move to higher ground. Six people were killed in the USA as the result of the storm. The coastal city of Apalachicola reported a storm surge of nearly 8ft (2.5m). Wind speeds reached 155mph, just 5mph below a category 5 status hurricane. There were so many downed power lines and trees that it was almost impossible to get through the city of Apalachicola. Power to a quarter-million homes and businesses was cut off. Homes were submerged in water, and there was severe damage to buildings in the Panama City area. The damage cost $4.5 billion.
Can you cateogise these facts into social, environmental and economic impacts?

Tropical Storms

Tropical storms are huge depressions, which are hazardous due to strong winds (over 70mph), torrential rain and storm surges (huge waves). They are commonly known as hurricanes in the Americas, typhoons in east Asia and cyclones in southern Asia.



Geography Knowledge Organiser: Topic 2 – Economic Activity and Globalisation

Sectors of the Economy

Primary Sector – the collection of raw materials e.g. mining and farming.

Secondary Sector – the processing of manufactured goods e.g. oil refining, car manufacturing.

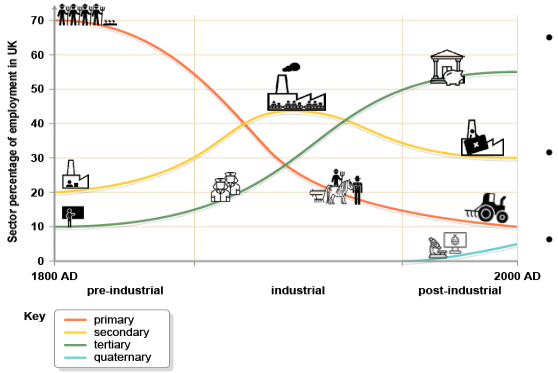
Tertiary Sector – the services sector e.g. medical care, retail, tourism.

Quaternary Sector – industries providing knowledge or information services e.g. consultancy, medical research.

Deindustrialisation

Deindustrialisation is the decline of manufacturing industries in a country. Many of our manufactured goods are made abroad in NEEs. This is because the labour costs are lower, which lowers costs. The use of machines means fewer people are needed to work in factories.

Geographical Skill: Analysing Graphs



- Describe the overall trends shown in the graph.
- Include specific facts e.g. dates or amounts.
- Explain why these trends have happened over time.

Case Study: Salford Quays

Manchester Docks was one of the worlds biggest industrial ports. They were in operation from 1894, fuelling the secondary industries and cotton trade in the north west.

As secondary industries declined, so did the docks. They closed in 1982.

The growth of tertiary and quaternary industries led to their revival, and old buildings were demolished or regenerated into what is now Salford Quays and Media City, home to theatres, TV studios, shopping centres and museums.

Transnational Corporations

TNCs are large companies that operate around the world. They may have head offices, factories and shops in countries all over the world. They are widely recognised and generate high profits.

Positive impacts	Negative impacts
• Create a lot of jobs when they open factories in NEEs. • Increase a country's GNI, which can improve a country's overall development.	• Many of the jobs created are very low paid and workers suffer in poor working conditions. • The companies take little responsibility for the environmental damage they create.

Globalisation - The way in which the world has become more interconnected. It refers to how people communicate as well as world trade, international investment and the sharing of ideas.

Industrial Accidents

The Deepwater Horizon was an oil rig in the Gulf of Mexico, off the south coast of USA. There was a huge explosion which led to an oil leak that continued for three months. 4.9million barrels of oil (approx. 992mill litres) spilled into the ocean.

As a result of the oil spill, 16,000 miles of coastline was damaged and contaminated with oil. Thousands of marine animals (sea turtles, birds, fish and marine mammals – dolphins whales) had been endangered or killed by the oil spill.
Oil is particularly toxic for many different species of fish and killed between two and five million during the oil spill.

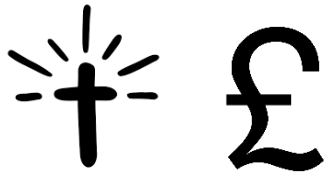
An estimated 167,000 sea turtles were killed during the oil spill and scientists still remain concerned about the species of sea turtles.
At least 93 different species of birds were exposed to the oil spill, resulting in a huge loss of birds in the Gulf, further impacting on different food webs and chains across the northern Gulf of Mexico.
A significant amount of the Gulf floor was affected by oil, this included deep-sea coral habitats which had still not fully recovered by 2017.

History Knowledge Organiser

Topic 1: The British Empire

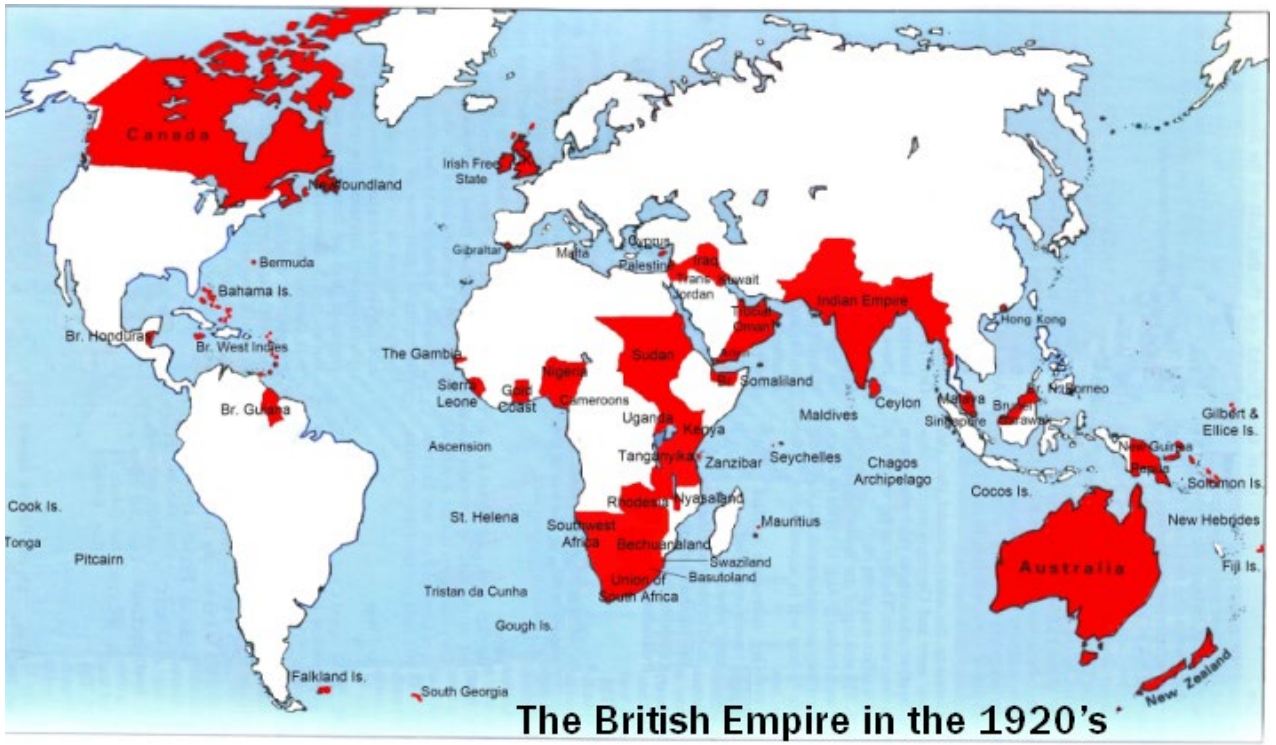
Why did the British want an empire:

- *Take control of new resources (e.g. gold in Africa and South America, spices in Asia)*
- *Spread the Christian faith*
- *Compete with other empires (e.g. France, Spain)*



How did the British achieve such a large empire:

- *It's army and navy overwhelmed the native population through new technology and clever tactics.*
- *Trade companies (such as the East India Company) were paid to explore and conquer new lands.*
- *Success in certain wars (e.g. Seven Years War) allowed us to take a lot of land in a short period of time.*



What countries were included in the British Empire:

A total of 70+ countries were in the empire at its height. Four examples include:

Australia (1770-1942)

Hong Kong (1842-1997)

India (1858-1947)

Canada (1867-1982)

How did it benefit the British:

- *New businesses made overseas.*
- *Thousands of jobs were created.*
- *New resources made Britain wealthy.*
- *Colonies in Africa and America allowed us to develop the slave trade which made Britain rich.*
- *Soldiers from the empire helped in wars (e.g. WW1).*

How did it change India:

Positive	Negative
- The British invested around £400 million into India whilst they ruled. *- British abolished sati (tradition where widows were burned alive).* *- Railways, roads and hospitals built in India.*	*- The **Amritsar Massacre** commanded by General Dyer led to hundreds of deaths.* *- Cash crops were grown which caused famine.* *- Religious groups were mistreated by British.*

What was the Amritsar Massacre:

- *Indians gathered to peacefully protest for independence*
- *A law passed by the British prohibited large groups from gathering*
- *The British blocked off exits to the park and 50 riflemen fired for 10 minutes, killing at least 379*
- *Local hospitals denied care to injured Indians*

History Key words:

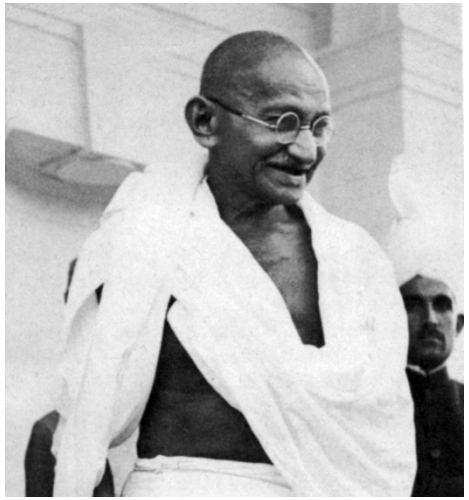
Colony – a country that belongs to another country *mutiny – a rebellion against authority* *independence – being free to rule yourself*

History Knowledge Organiser

Topic 1: The British Empire

How did India achieve independence in 1947:

- *Gandhi and other Indians protested peacefully for independence.*
- *Activities*
- *Indians had historically rebelled against British rule (e.g. Sepoy Mutiny).*
- *India had helped Britain win WW2.*
- *Controlling India became too costly for the British government.*



How did Hong Kong become a crown colony under the British Empire?:

- *Hong Kong founded as crown colony of the British Empire in 1842.*
- *Leased to Britain in 1898 for 99 years.*
- *Occupied by the Japanese Empire between 1941-1945*
- *Returned to Chinese rule 1997*

How did the Empire come to an end:

- *Some countries fought for their independence and became their own nations (e.g. the British Thirteen Colonies became the USA).*
- *Countries who gave their service in the World Wars demanded the right to rule themselves.*
- *Countries protested for independence (e.g. Kenya, Nigeria, Gambia)*

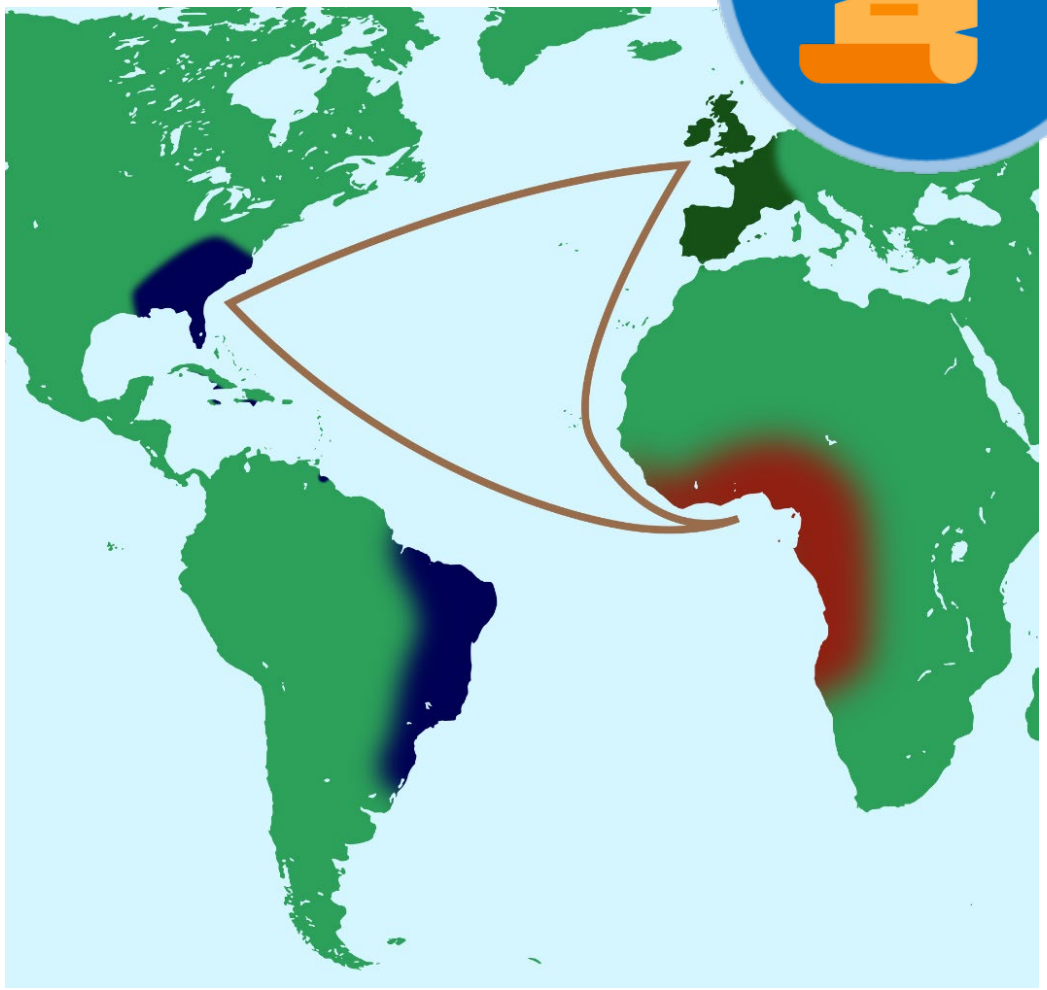
Topic 2: Transatlantic Slavery

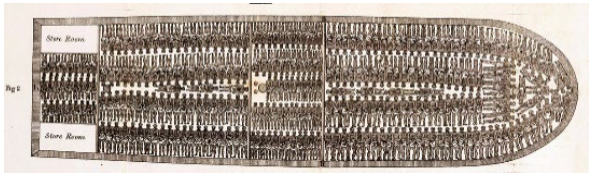
What is slavery:

- *Slavery is the act of using somebody to complete work without paying them a wage and they do not have their human rights*
- *Slavery began before the triangle trade. Egyptians and Romans used slaves.*

What is the triangle trade:

- ***EUROPE TO AFRICA:*** *Manufactured goods like textiles, rum and firearms were taken to be sold in Africa.*
- ***AFRICA TO AMERICAS:*** *African people were taken as slaves. This was journey was called* ***the Middle Passage.***
- ***AMERICAS TO EUROPE:*** *Farmed goods such as sugar, tobacco and cotton taken back to be used in factories etc.*





What was life like on the Middle Passage:

- *The journey took between 6-12 weeks to cross the Atlantic Ocean.*
- *Slaves remained tied down during the journey with limited space.*
- *Disease was incredibly common and the dead thrown overboard.*
- *Some slaves would try to rebel and take over the slaves' ship.*
- *10-15% of Africans did not survive the journey across the sea.*

15

History Knowledge Organiser

Topic 2: Transatlantic Slavery

What was Africa like before the Transatlantic Slave Trade:

- *Rich African kingdoms such as Mali and Ghana existed before the arrival of white Europeans in Africa.*
- *Goods were traded between kingdoms such as gold, textiles and spices.*
- *Kingdoms had their own art and culture before the arrival of Europeans.*
- *Religion existed prior to colonisation. Islam and Christianity were worshipped alongside other religions that originated from Africa.*
- *Slavery did exist in Africa already as Africans captured in battle were sold to other African warlords.*
- *When European sailors arrived, warlords realized they could sell captive Africans to Europeans for more money and for firearms.*

What happened on arrival to the Americas:

- *Africans were separated from their families and sold at auctions to slave owners. Slaves who did not sell were punished.*
- *Men were sold based on their strength and size for farm work.*
- *Women were sold to complete tasks either inside the house or in the plantation fields. Younger women were preferred to breed slaves.*
- *Children could also be sold and would not always go with their families.*
- *People looked out for rebellious slaves (Africans who had whip marks on them).*

What was life like on a plantation:

- *Slaves could be expected to work from sunrise to sunset for their masters with zero breaks.*
- *Overseers watched over slaves and punished them for not working.*
- *Cotton, tobacco and sugar would be farmed all day.*
- *Slaves lived in small shelters close to the big house belonging to the master and the master's family.*

How could slaves resist their masters:

- *Passive resistance – working slow, pretending not to understand orders, singing songs, poisoning masters, stealing tools.*
- *Active resistance – murdering overseers or masters, arson of plantation property, running away to freedom in Northern states*

How did slavery end:

- *Politicians in both Europe and the USA wanted to bring an end to slavery and campaigned for it to be abolished.*
- *Plantation owners found that slavery became less profitable in the 1800s as new machinery was available and it became expensive to stop slave rebellions.*
- *The American Civil War from 1861-65 was fought over the debate around slavery. Abraham Lincoln promised to free slaves after the war had been won by the Union side.*
- *Freed Africans still faced discrimination in the USA.*

History Key words:

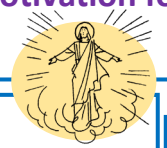
Plantation – a large farming estate where slaves worked *passive resistance – non-violently resisting authority* *active resistance – using violence to challenge authority*

Religion and Ethics Knowledge Organiser

Why is the belief in an afterlife important for some people?

Belief in an afterlife is important for both religious and non-religious people. Religiously, it brings **hope and meaning, providing comfort in difficult times** and reinforcing moral values.

For non-religious individuals, it symbolizes leaving a lasting impact, valuing relationships, and making the most of life. Overall, the belief in an **afterlife offers purpose, comfort, and motivation for living a fulfilling and ethical life**.



Humanist belief about the afterlife

Humanists do not live their lives assuming an afterlife exists. **They prioritise living a meaningful and fulfilling life in the present rather than speculating about what happens after death.** Humanist will still honour people who have died by holding funerals but rather than having a service that speaks about the afterlife they will 'celebrate' the life of the person who has passed on.

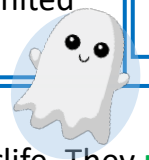
YEAR 8 AUT 1 – BIG QUESTION: IS DEATH THE END?

What does resurrection mean?

Resurrection means to rise from the dead. The concept of resurrection holds deep meaning for both Christians and Muslims.

Christians believe that Jesus' resurrection demonstrates his victory over death. Some believe that they will have a **spiritual resurrection, where their souls will be reunited with God in Heaven**.

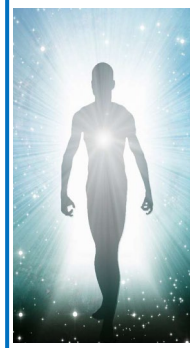
The belief in **bodily resurrection** is crucial in Islam as it represents the **Day of Judgment when all people will be held accountable for their actions**. Some Muslims believe that the soul and physical body will be reunited in the afterlife.



Reincarnation

Dharmic faiths such as, Buddhism, Hinduism and Sikhism, believe in reincarnation, which means that after death, **the soul is reborn in a new body**. In Buddhism, this is influenced by a person's actions (karma), and the goal is to break free from the cycle (samsara) and **achieve spiritual liberation through becoming enlightened**.

In Sikhism, reincarnation is also believed, and the focus is on **connecting with the divine through devotion and selfless service to achieve Mukti** (liberation) and escape the cycle. The belief in reincarnation encourages people to lead good lives and strive for spiritual growth.



Judgement: Heaven vs Hell

Abrahamic faiths such as Judaism, Christianity and Islam have beliefs about judgment, heaven, and hell. Judgment is when **God will judge a person actions and decides whether they go to Heaven or Hell**.

Heaven is a joyful and peaceful place for those who lived well and sought a connection with the divine. **Hell is a place of punishment** and suffering for those who committed serious wrongdoings or rejected religious teachings.

These beliefs guide people to make good choices, live morally, and hope for a good afterlife.

Other non-religious belief in the afterlife

Many non-religious people still believe in an afterlife. They **may believe in ghosts and that that the existence of near death experiences** prove there is an afterlife. Near death experiences include **hearing voices, seeing light, seeing visions and feeling close to loved ones**. Non-religious people may believe there is an afterlife but that God does not exist.

Religion and Ethics Knowledge Organiser

YEAR 8 AUT 2
BUDDHIST BELIEFS & PRACTICES

The 4 Sights and the Life of Siddhartha:

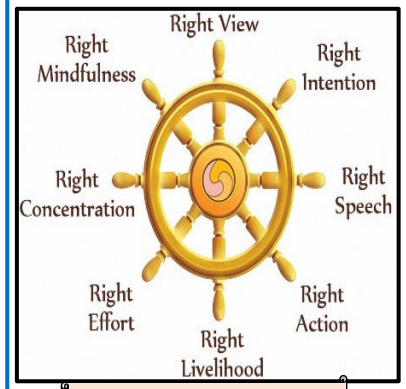
Siddhartha, a **Prince living in luxury**, was sheltered by his father and unaware of the hardships faced by people outside the palace. Curiosity led him to venture beyond the walls, where he encountered four sights: **old age, illness, holy man, and death**. These experiences stirred compassion within him, prompting him to leave the palace and devote his life to easing the suffering of others.

Enlightenment:

Siddhartha achieved enlightenment and **became the Buddha by meditating under a Bodhi tree** for 49 days. Enlightenment signifies understanding the **truth of existence and discovering how to live happily amidst suffering**. It require people **to remove their desires for wealth and fame**. The Buddha taught that by following the **Eightfold Path**, individuals can live harmoniously, even in the face of aging, illness, and death. Buddhists believe that anyone has the potential to attain enlightenment, not just Siddhartha.

Nirvana, Karma and the 5 precepts

Nirvana is the **state of ultimate liberation and peace** in Buddhism, free from suffering and the cycle of rebirth (samsara). **Karma means actions and our rebirth depends on how much good or bad karma** we acquire throughout our wordily life. Humans are considered the best life to be reborn into because we are the most intelligent and therefore able to feel compassion and do more good karma such as help those in need. **The cycle of Samsara only ends when enlightenment is achieved.**



The 8 fold path

Buddhist Practices: Lay people and Monks

Buddhist monks and lay people have different way to practice Buddhism. **Monks lead a dedicated and disciplined life in monastic communities**, removing worldly attachments and following strict rules. They focus on meditation and studying scriptures.

Lay people, **incorporate Buddhist principles into their daily lives while balancing worldly responsibilities like jobs ect**. They practice mindfulness, follow moral guidelines, and engage in acts of kindness. Both paths offer opportunities for spiritual growth, but monks have a more intensive commitment to the teachings, while lay practitioners apply Buddhist values in their everyday experiences.

Good moral behaviour and the 5 precepts

In order to achieve good Karma, Buddhists will follow the 'Five Precepts'. These are **moral guidelines to lead a virtuous life: abstaining from killing, stealing, engaging in sexual misconduct, lying, and consuming intoxicants.** Following these concepts promotes inner peace, ethical behaviour, and responsibility towards oneself and others.

The 4 Noble Truths:

1. **All** is suffering
2. Your **desires** cause you to suffer
3. To stop suffering you must **stop wanting or desiring things**
4. To help you to stop wanting you must follow the **8 fold path.**

Maths Knowledge Organiser

FRACTIONS, DECIMALS, PERCENTAGES & RATIO

Key Concept
FDP equivalence

F	D	P
$\frac{1}{100}$	0.01	1%
$\frac{1}{10}$	0.1	10%
$\frac{1}{5}$	0.2	20%
$\frac{1}{4}$	0.25	25%
$\frac{1}{2}$	0.5	50%
$\frac{3}{4}$	0.75	75%

Key Words
Percentage: Is a proportion that shows a number as parts per hundred.
Ratio: Relationship between two numbers.
Simplify: Divide both parts of a ratio by the same number.
Equivalent: Equal in value.
Convert: Change from one form to another.

Simplify 60 : 40 : 100

÷ 10

6 : 4 : 10

÷ 2

3 : 2 : 5

This could have been done in one step by dividing by 20.

Share £45 in the ratio 2 : 7

45 ÷ 9 = 5

£10 : £35

2 : 7

5	5
5	5
=10	5
	5
	5
	5
	5

=35

Calculator
Find **32%** of 54.60 = **0.32** × 54.60 = 17.472

Year 8

Tip
There is a % function on your calculator.

To find 25% of 14 on a calculator:
2, 5, SHIFT, (, ×, 1, 4, =

Questions
1) Simplify a) 45 : 63 b) 66 : 44 c) 320 : 440
2) Write in the form 1 : n a) 5 : 10 b) 4: 6 Share 64 in the ratio 3 : 5 4) Write the ratio 1 : 4 as a fraction.

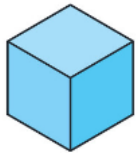
ANSWERS: 1) a) 5 : 7 b) 3 : 2 c) 8 : 11 2) a) 1 : 2 b) 1 : 1.5 c) 24 : 40 4) $\frac{1}{5}$

Maths Knowledge Organiser

3D SHAPES

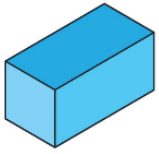
Key Concept

Cube

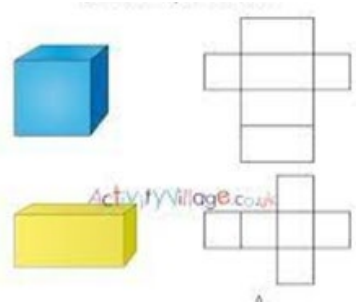


Faces – 6
Edges – 12
Vertices – 8

Cuboid



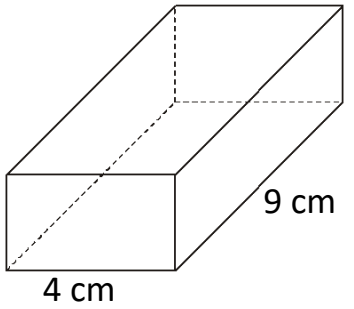
Faces – 6
Edges – 12
Vertices – 8



Key Words

Volume: The amount of space that an object occupies.
Net: The net of a 3D shape is what it looks like if it is opened out flat. A net can be folded up to make a 3D shape.
Cuboid: 3D shape with 6 square/rectangular faces.
Vertices: Angular points of shapes.
Face: A surface of a 3D shape.
Edge: A line which connects two faces on a 3D shape.

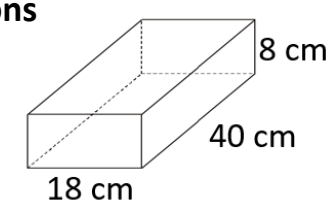
Examples

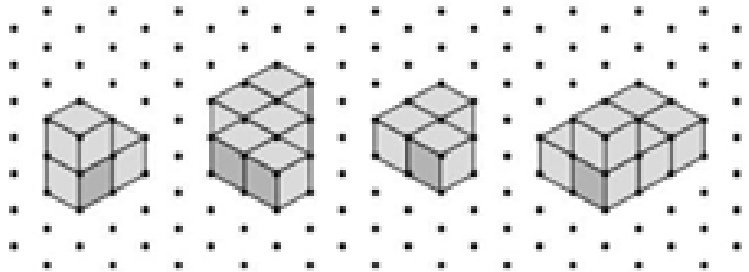


$$Volume = 4 \times 9 \times 2$$
$$= 72cm^3$$

Questions

Find the volume of the cuboid:





Try drawing these on isometric paper

Year 8

Tip

Remember the units are cubed for volume.

Formula

$$Cuboid\ Volume = l \times w \times h$$

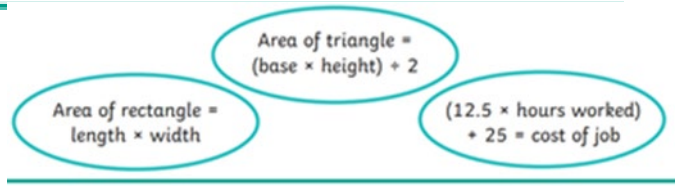
ANSWER: Volume = 5760 cm^3

Maths Knowledge Organiser

FORMULAE AND NTH TERM

Key Concepts

A formula is a special type of equation that shows the relationship between different substituted variables. Formulas are often used in geometry to find area and volume.



To find the nth term of a linear sequence we can use Din0:

1st 2nd 3rd 4th 5th

5, 7, 9, 11, 13, 15, ...

2 2 2 2

Difference is	2
n	2n
0	2n+5

Key Words

Substitution: Replacing letters with numbers

Term: The numbers in a sequence

Linear Sequence: A sequence which goes up or down by the same amount

nth term: rule for finding a term in a sequence

Coefficient: The value of a letter, e.g. in 4a the coefficient of a is 4

EXAMPLES

P = 4m – 5

Work out the value of P when m = 7

P = 4 x 7 – 5

P = 28 – 5 = 23

Find the nth term of the sequence 3, 8, 13, 18, 23

3, 8, 13, 18, 23,

Difference is	5
n	5n
0	5n + 3

Year 8

Tip

If a sequence is decreasing the nth term will have a negative coefficient of n

Questions

1. T = 5m – 7 find the value of T if (a) m = 3 (b) m = -3
2. Find the nth term of (a) 4, 7, 10, 13, 16
   (b) 6, 14, 22, 30, 38

ANSWERS: (a) 8 (b) -22 2(a) 3n + 1 (b) 8n - 2

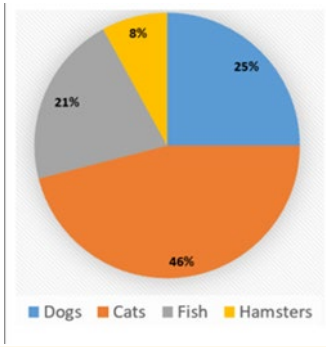
Maths Knowledge Organiser

PIE CHARTS

Key Concepts

Pie Chart

- Divided into sectors which shows the relative size of the data.
- Needs a key or labels to clearly show what each sector represents.
- Sectors calculated using parts of 360°.



Key Words

Discrete Data: Information that can only take certain values

Frequency: The number of times something happens

Proportion: The relative size of something compared to a whole

Protractor: Used to accurately draw and measure angles

This is a circle divided into **sectors.** Each sector represents a set of data. Pie charts are excellent for displaying the most/ least popular type of something.

Plotting pie charts example

The table show the match results of a football team.

Result	Won	Drawn	Lost
Frequency	28	12	20

28 + 12 + 20 = 60 ← The total number of games is the total frequency.

1 game = 360° ÷ 60 games = 6° per game ← Work out the angle for **one** game.

360° in a circle

28 games won = 28 × 6° = 168°

12 games drawn = 12 × 6° = 72°

20 games lost = 20 × 6° = 120° ← Work out the angle for each result.

Draw the pie chart. Give it a title and a key. Or label each section

Questions:

The table gives information about the dogs in a village

Draw an accurate pie chart to show this information.

Breed	Frequency
Spaniel	11
Poodle	7
Greyhound	4
Jack Russell	1

Tip

Check that your calculated angles add up to 360°

Year 8

Maths Knowledge Organiser

AREA OF COMPOUND SHAPES & TRAPEZIUMS

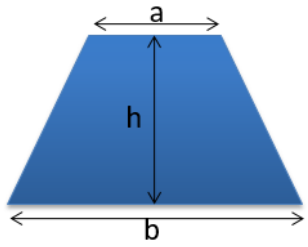
Key Concepts

Area

Rectangle

$A = l \times w$

Trapezium



$$\text{Area} = \frac{a+b}{2} \times h$$

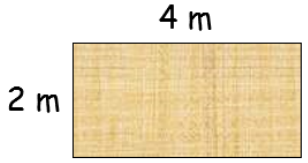
or

$$\text{Area} = \frac{1}{2}(a+b)h$$

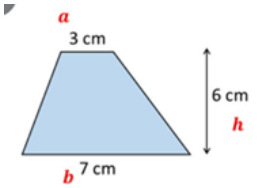
Key Words

Perimeter: The distance around the outside of the shape.
Area: The amount of square units that fit inside the shape.
Dimensions: The lengths which give the size of the shape.
Shapes:
Rectangle, Triangle, Parallelogram, Trapezium, Kite.

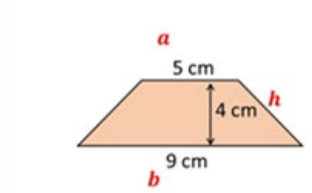
Examples



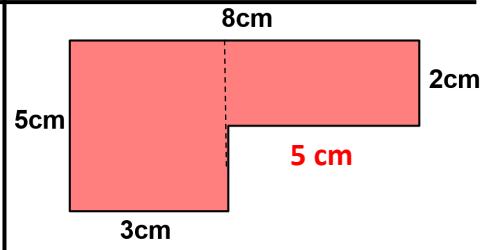
$Area = 2 \times 4 = 8m^2$



$\frac{3+7}{2} \times 6 = 30\ cm^2$



$\frac{5+9}{2} \times 4 = 28\ cm^2$



$Area = (5 \times 3) + (2 \times 5)$
$= 25cm^2$

Year 8

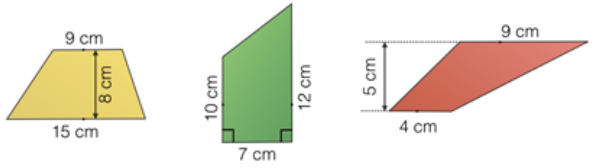
Tip

You can work out the area of a trapezium by splitting into a rectangle and triangle(s) but it is quicker to use the formula

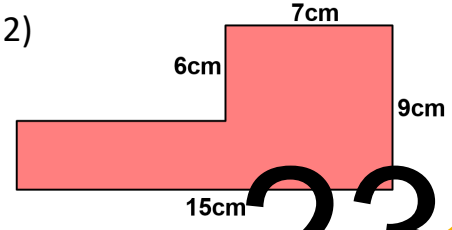
Questions – Find the area.

1)

Find the area of each of the following trapeziums:



2)



ANSWERS 1) 96 cm² 77 cm² 32.5 cm² 2) 87 cm²

Maths Knowledge Organiser

ADDING AND SUBTRACTING FRACTIONS

Key Concepts

To add and subtract fractions the denominators must be the same. Use common denominators and equivalent fractions to convert them

Converting from a mixed number into an improper fraction:

$$2\frac{3}{5} = \frac{(2\times 5)+3}{5} = \frac{13}{5}$$

Key Words

Improper fraction: when the numerator is larger than the denominator e.g. $\frac{20}{12}$

Mixed Number: a whole number and a fraction e.g. $2\frac{1}{4}$

Numerator: top numbers
Denominator: bottom number
Convert: change

Examples

+ $\frac{3}{5}+\frac{2}{7}$

Make the denominators the same

$\frac{3}{5}+\frac{2}{7}$ (×7, ×5)

$\frac{21}{35}+\frac{10}{35}=\frac{31}{35}$

− $\frac{3}{5}-\frac{2}{7}$

$\frac{3}{5}-\frac{2}{7}$ (×7, ×5)

$\frac{21}{35}-\frac{10}{35}=\frac{11}{35}$

$1\frac{2}{3}+2\frac{1}{4}$	$2\frac{2}{3}-1\frac{1}{4}$
Convert into an improper fraction	
$=\frac{5}{3}+\frac{9}{4}$	$=\frac{8}{3}-\frac{5}{4}$
Find a common denominator	
$=\frac{20}{12}+\frac{27}{12}$	$=\frac{32}{12}-\frac{15}{12}$
Convert back into a mixed number	
$=\frac{47}{12}$	$=\frac{17}{12}$
$=3\frac{11}{12}$	$=1\frac{5}{12}$

Year 8

1) $\frac{3}{5}+\frac{4}{15}$

2) $\frac{2}{7}+\frac{5}{8}$

3) $\frac{7}{9}-\frac{2}{5}$

Calculate:

4) $1\frac{2}{3}+2\frac{3}{4}$

5) $3\frac{3}{4}-1\frac{1}{3}$

ANSWERS 1) $\frac{13}{15}$ 2) $\frac{51}{56}$ 3) $\frac{17}{45}$ 4) $4\frac{5}{12}$ 5) $2\frac{5}{12}$

Maths Knowledge Organiser

SOLVING EQUATIONS

Key Concept

Inverse Operations

Operation	Inverse
+	—
—	+
×	÷
÷	×
x^2	$\sqrt{x}$

Key Words

Unknown: A letter which represents a number we do not know the value of.
Terms: The numbers and letters in the expression or equation.
Inverse: The operation which will do the opposite.

Examples

x + 9 = 16 -9 -9 **x = 7**	x − 12 = 20 +12 +12 **x = 32**	$\frac{x}{3} = 5$ ×3 ×3 **x = 15**	2x + 5 = 14 -5 -5 2x = 9 ÷2 ÷2 **x = 4.5**

$\frac{x}{4} - 2 = 4$ +2 +2 $\frac{x}{4} = 6$ ×4 ×4 **x = 24**	2(3x + 5) = -14 expand 6x + 10 = -14 -10 -10 6x = - 24 ÷6 ÷6 **x = - 4**	2x + 7 = 5x + 1 -2x (smallest x term) +7 = 3x + 1 -1 -1 6 = 3x ÷3 ÷3 **2 = x**

Tip

Answers can be:

- Integers
- Decimals
- Fractions
- negatives

Questions

1) x + 8 = 19
2) y − 25 = 15
3) 2y = 82
4) $\frac{t}{4} = 7$
5) $\frac{p}{2} - 6 = 2$
6) 3(2x − 3) = 15
7) 4x − 8 = 2x + 1

ANSWERS: 1) x = 11, 2) y = 40, 3) y = 41, 4) t = 28, 5) p = 16, 6) x = 4, 7) x = 4.5

Year 8

MFL Knowledge Organiser – Year 8 Aut 1 Mes passetemps (A)

A AVOIR [to have] ÊTRE [to be]

j' [I]	ai	je	suis
tu [you]	as	tu	es
il/elle[he/she]	a	il/elle	est
nous [we]	avons	nous	sommes
vous you (pl)	avez	vous	êtes
Ils/elles[they]	ont	ils/elles	sont

B REGULAR PRESENT TENSE

	-ER	-IR	-RE
Je	e	is	s
Tu	es	is	s
Il/Elle/On	e	it	
Nous	ons	issons	ons
Vous	ez	issez	ez
Ils/Elles	ent	issent	ent

C USEFUL infinitives (verbs)

aimer = to like
adorer = to love
Détester = to hate
penser = to think
Trouver = to find
surfer- to surf (the net)
tchatter = to chat
télécharger = to download
Jouer= to play
parler = to talk
Envoyer = to send

D Opinions & Pronoun phrases

J'aime beaucoup
Je préfère

Ça m'intéresse
Ça m'amuse
Ça me fascine

*Ça me plait
*Ça me rend content(e)

J'ai horreur de
Je n'aime pas du tout

Ça me stresse
Ça m'énerve
Ça m'ennuie
Ça m'embête

Je pense que (c'est…)
Je trouve que..
A mon avis…

*Il aime
*elle pense que
*Nous adorons
*vous trouvez
*ils détestent

E Connectives

Aussi /en plus	also / furthermore
Mais / cependant	but / however
que / qui	which
où	where
Parce que /car	because

F Complexity

Je dois + infintive- I must
Il faut + infinitive – 'one must'..
Je peux + infinitive - I can
Je veux + infinitive -I want
Je voudrais + infinitive – I would love

G Adjectives

actif [ive]	active
amusant [e]	fun
énervant [e]	annoying
intéressant[e]	interesting
relaxant [e]	relaxing
passionnant [e]	exciting
violent	violent
barbant [e]	Boring/tedious
ennuyeux [euse]	boring
nul [le]	rubbish
facile	easy
difficile	difficult
dangereux [euse]	The teacher is nice
sportif [ive]	
génial [e]	great
marrant [e]	Fun / funny

H Quantifiers

très (very); vraiment (truly)
assez (quite); un peu (a bit)
trop (too); tellement (so)

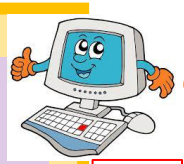
KO. Yr 8 Aut 1 – Mes Passetemps (a)

I

Les ordinateurs et les portables

• Computers and mobile phones

Qu'est-ce que tu fais ...	*What do you do/are you doing ...*
avec ton ordinateur?	*on your computer?*
avec ton portable?	*on your mobile phone?*
Je joue.	*I play/I'm playing games.*
Je surfe sur Internet.	*I surf/I'm surfing the net.*
Je tchatte sur MSN.	*I chat/I'm chatting on MSN.*
Je regarde des clips vidéo.	*I watch/I'm watching video clips.*
Je télécharge de la musique.	*I download/I'm downloading music.*
J'envoie des SMS.	*I text/I'm texting.*
Je parle avec mes ami(e)s/ mes copains/ mes copines.	*I talk/I'm talking to my friends/mates.*
J'envoie des e-mails.	*I send/I'm sending e-mails.*



TOPIC VOCABULARY TRANSLATED

J

La fréquence • Frequency

quelquefois	*sometimes*
souvent	*often*
tous les jours	*every day*
tous les soirs	*every evening*
tout le temps	*all the time*
de temps en temps	*from time to time*
une fois par semaine	*once a week*
deux fois par semaine	*twice a week*

M

Quand? • When?

en été / hiver	
in summer / winter	
En printemps / automne	
in spring / summer	
quand il fait beau / chaud	
when it's good / hot weather	
quand il pleut / il neige	***when it rains / snows***
quand il fait froid	***when it's cold***
Il y a du soleil	**it is sunny**
Il y a du vent	**it is windy**
Il y a des nuages	**it is cloudy**
Il y a de l'orage	**it is stormy**
Il est variable	**it is changeable**

jouer

K

Je joue ...	***I play ...***
Au foot	
Au basket	
au billard	***billiards/snooker***
au tennis de table/ au ping-pong	***table tennis***
à la pétanque/ aux boules	***boules***

faire

L

Je fais	***I do***
Je fais du parkour.	*I do parkour.*
Je fais du patin à glace.	*I go ice-skating.*
Je fais du vélo.	*I go cycling.*
Je fais de la natation.	*I go swimming.*
Je fais de l'équitation.	*I go horse-riding.*
Je fais des promenades.	*I go for walks.*

MFL - Year 8 Aut 2 QU'EST-CE QUE tu aimes faire?

A

The NEAR future tense "going" + infinitives

je [I]	vais	jouER TO play
tu [you]	vas	retrouvER TO meet
il/elle/on [he/she/spoken we]	va	écoutER TO listen to
nous [we]	allons	traînER TO hang out
vous you (pl)	allez	téléphonER TO phone
Ils/elles[they]	vont	**faire** TO do / TO go

B

PRESENT TENSE *with 'aimer'*

J'aim***e***	***I*** like
Tu aim***es***	***you (sing)*** like
Il /elle aim***e***	***he/ she*** likes
On aim***e/ nous*** aim***ons***	***we*** like
Vous aim***ez***	***you*** (plural) like
Ils*/elles** aiment***	***they*** like

C

Some MORE USEFUL infinitive verbs

sortir avec = to go out with
me balader/ me promener = o go for a walk
aller voir= to go and see
regarder = to watch
rendre visite à … = to visit (someone)
jouer À (des jeux vidéos/ des jeux de société) = to play video games/board

D

Opinions & Pronoun phrases: Future Tense

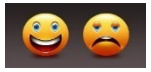
Je vais adorER ça!

Je vais détestER ça!

1. **Ça VA m'intéressER.**
2. **Ça VA m'amusER.**
3. **Ça VA me fascinER.**

Je ne vais pas DU TOUT aimER ça!

4. **Ça VA me plaiRE.**
5. **Ça VA me rend content(e).**



6. **Ça VA me stressER**
7. **Ça VA m'énervER**
8. **Ça VA m'ennuyER**
9. **Ça VA m'embêtER**

Je pense que ÇA SERA …
Je trouve que ÇA SERA …
A mon avis ÇA or CELA sera…

E

Connectives

aussi /en plus	also / furthermore
mais / cependant	but / however
que / qui	which
où	where
parce que /car	because

F

Complex structure

DE LA danse? J' EN fais/ J'aime EN faire

DU vélo? Je N'EN fais PAS/ Je n'aime pas EN faire.

G

Time TAGS

Le matin	In the morning
L'après-midi	In the afternoon
Le soir	In the evening
Le week-end	At the weekend
Pendant la semaine	During the week
Tous les week-ends	Every week-end

FUTURE TENSE Time TAGS

Demain	Tomorrow
Le week-end prochain	Next weekend
La semaine prochaine	Next week
Demain matin/soir	Tomorrow am/eve

H

More Quantifiers + ADJECTIVES

extrêmement (extremely);
réellement (really/genuinely)
peu (litte);
si/tellement (so);

Y8_Autumn 2_ Qu'est-ce que tu aimes faire?

TOPIC VOCABULARY TRANSLATED

I

Qu'est-ce que tu aimes faire?	• ***What do you like doing?***
le soir/le weekend	*in the evenings/ at the weekends*
le samedi matin/ après-midi/soir	*on Saturday mornings/ afternoons/evenings*
J'aime ...	*I like ...*
... retrouver mes amis en ville.	*... meeting my friends in town.*
... regarder la télévision (la télé).	*... watching TV.*
... jouer sur ma PlayStation.	*... playing on my PlayStation.*
... écouter de la musique.	*... listening to music.*
... faire les magasins.	*... going shopping.*
... faire du sport.	*... doing sport.*
... jouer au football.	*... playing football.*
... traîner avec mes copains.	*... hanging out with my mates.*
... téléphoner à mes copines.	*... phoning my mates.*

J

FAIRE DU ...

1. **bricolage** (DIY)
2. **codage** (coding)
3. **jardinage** (gardening)
4. **shopping**
5. **ski** (skiing)
6. **ski nautique** (waterskiing)
7. **sport** (sport)
8. **tricot** (knitting)
9. **vélo** (cycling/biking)
10. VTT (mountain biking)

DU + NOUNS = MASCULINE nouns (le...)

K

FAIRE DE LA ...

1. **bicyclette** (cycling)
2. **boxe** (boxing)
3. **danse** (dancing)
4. **cuisine** (cooking)
5. **lecture** (reading)
6. **marche** (walking)
7. **musique** (music)
8. **natation** (swimming)
9. **pâtisserie** (baking)
10. **randonnée** (hiking)

DE LA + NOUNS = MASCULINE nouns (le...)

L

FAIRE DE L'

1. **équitation** (horseriding)
2. **escalade** (climbing)
3. **escrime** (fencing)

DE L' + NOUNS = STARTING with a vowel

M

FAIRE + plural nouns

1. **mes devoirs** (my homework)
2. **des courses** (shopping)
3. **des promenades** (walks)
4. **des balades** (walks)
5. **les magasings/les boutiques** (shopping)

Science Knowledge Organiser

8F The Periodic Table

1. Dalton's Atomic Model

Matter	All things are made of matter.
John Dalton	(1766-1844) An English chemist.
Dalton's Atomic Theory	• all matter is made up of atoms. • atoms in an element are identical. Each element has its own type of atom. • atoms cannot be destroyed or created. • In compounds each atom is always joined to a fixed number of other atoms. • atoms rearrange during chemical reactions to form new substances.
Atoms	Small particles that all matter is made up of.
Element	A substance made up of one kind of atom.
Compound	Contains atoms of two or more different elements chemically joined together.
Physical Properties	The properties that describe a substance on its own. *(colour, strength, density, etc.)*
Physical Changes	A change in which no new substances are formed.
Symbols	Letters used to represent the elements. *e.g. C represents Carbon*

2. Chemical Properties

Chemical Properties	How a substance reacts with other substances.
Hypothesis	An idea about how something works that can be tested using experiments.
Prediction	What you think will happen in experiment and why.
Conserving Mass	The mass of the products of a reaction will be the same as the mass of the reactants.
Chemical Formulae	The combination of symbols and numbers that shows how many atoms of different element are in a particular molecule. *e.g. water is H_2O*
Ratio	Comparison of the proportion of two quantities *e.g. in water there are 2 hydrogens for every oxygen, the ratio is 2:1*

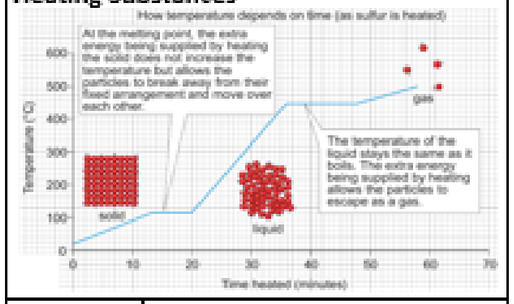
3. Mendeleev's Table

Johann Döbereiner	(1780-1849) German chemist who highlighted some groups of 3 elements had similar physical / chemical properties.
John Newlands	(1837-1898) English chemist who ordered elements by the mass of atoms and noticed every 8th element has similar properties.
Dmitri Mendeleev	(1834-1907) Russian chemist who published the first periodic table by ordering elements by increasing masses of their atoms forming groups of similar properties.
Gaps	Mendeleev left gaps in his table for undiscovered elements and predicted their properties.
Group	A vertical column in the Periodic Table- contains elements with similar properties.
Alkali Metals	Group 1 Very reactive metals, they even react with water.
Halogens	Group 7 React with most metals to form solid compounds.
Noble Gases	Group 0 Unreactive gases

4. Physical Trends

Melting Point	When a substance changes from a solid into a liquid
Boiling Point	When a substance changes from a liquid into a gas.
Freezing Point	When a substance changes from a liquid into a solid- the same as the melting point.

Heating Substances



Periods	The horizontal rows in the Periodic table.
Transition Metals	Block of elements in the middle of the Periodic table- separates the eight main groups.
Metal Properties	High melting points, strong, flexible, malleable, shiny, good conductors.
Non-Metal Properties	Low melting points, brittle, dull, poor conductors.

5. Chemical Trends

Alkali Metals & Water	Alkali metals produce metal hydroxides and hydrogen when reacting with water. *(sodium + water → sodium hydroxide + hydrogen)*
Alkali Metals & Oxygen	Alkali metals produce metal oxides when reacting with oxygen. *(lithium + oxygen → lithium oxide)*
Reactivity	How quickly / vigorously something reacts.
Alkali Metal Reactivity	As you move down the group the reactivity increases.
Oxides	Formed when elements react with oxygen.
Oxide Trends	When we dissolve oxides in water there is a trend in their pH. Further to the left of the Periodic table oxides formed are more alkaline. Further to the right they are more acidic.

Work through memorising the information – highlight each definition once you know it. When you have completed your highlighting completed the gap fill and activities on the second sheet to support your retrieval practice.

Science Knowledge Organiser

8K Energy Transfers

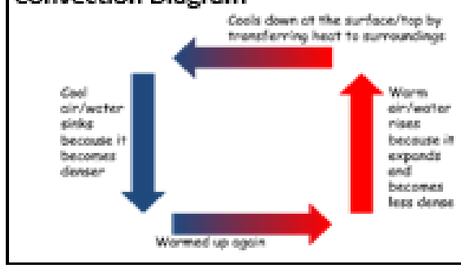
1. Temperature Changes

Temperature	How hot or cold an object is. *Measured in degrees Celsius (°C)*
Internal / Thermal Energy	The energy stored in the movement of particles. *Measured in Joules (J)*
Factors Affecting Amount of Internal Energy Stored	• temperature • material • mass
Energy Transfer	Always from a hotter object to a cooler one.
Evaporation	When a liquid turns into a gas. A way of transferring energy.
Cooling by Evaporation	The fastest moving particles escape a liquid to form a gas. The particles left are storing less energy so the temperature of the remaining liquid is lower.

2. Transferring Energy

Transferring Energy	Energy can be transferred by heating via evaporation, conduction, convection and radiation.
Radiation	A way of transferring Energy by heating through waves (it does not need a medium).
Emitting Radiation	All things give out (emit) infrared radiation, the hotter it is the more it emits.
Thermal Images	Instruments that measure infrared radiation and convert into maps of temperatures.
Conduction	When a solid is heated the particles vibrate more and these vibrations are passed through the solid transferring energy.
Thermal Conductors	Energy is transferred easily through them- metals.
Thermal Insulators	Energy is not transferred through them easily- wood / plastic.
Convection	In fluids (liquids and gases) when part of it is heated it become less dense and rises. Cooler fluid moves in to take its place and a convection current forms.

Convection Diagram



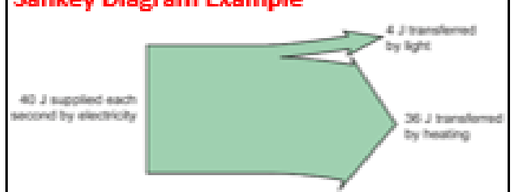
3. Controlling Transfers

Cold Climates	Houses are kept warm by burning fuel for heating and insulating houses to keep warmth inside.
Good Insulators	Brick, wood, carpet, feathers, wool.
Air	A very poor conductor because the particles are far apart
Hot Climates	Houses are kept cool by painting them white (light and shiny surfaces reflect infrared radiation).
Solar Panels	Painted black because dark colours absorb and emit infrared radiation well.
Vacuum Flask	Designed to reduce energy transfers and keep contents hot: • Plastic stopper to stop convection (and it is an insulator). • Glass walls with silver coating reflect radiation back in. • Vacuum between walls so no conduction or convection can occur.

4. Power and Efficiency

Power	The amount of energy transferred by an appliance per second.
Watts (W)	The units for measuring power. 1000W = 1kW (kilowatt)
Power Ratings	Tell us how much energy an appliance transfers.
Efficiency	The amount of useful energy transferred by a device compared with the amount of energy supplied to it.
Sankey Diagram	A diagram that represents energy transfers.

Sankey Diagram Example



Efficiency Formula

$$\text{efficiency} = \frac{\text{useful energy transferred}}{\text{total energy supplied}} \times 100\%$$

5. Paying for Energy

Kilowatt-hour (kWh)	The amount of energy transferred in 1 hour by an appliance. Used by energy companies to measure energy use.

Energy Use Formula

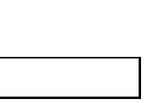
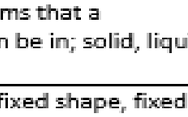
$$\underset{\text{(kWh)}}{\text{energy use}} = \underset{\text{(kW)}}{\text{power rating}} \times \underset{\text{(hours)}}{\text{time}}$$

Saving Money on Electricity / Gas Bills	Not using as much energy will save money. Insulating houses and using more efficient appliances will help with this.
Payback Time	How long it will take you to save the money that an efficiency measure costs.
Payback Time Formula	$\text{payback time} = \frac{\text{cost of change}}{\text{saving per year}}$

Work through memorising the information – highlight each definition once you know it. When you have completed your highlighting completed the gap fill and activities on the second sheet to support your retrieval practice.

Science Knowledge Organiser

8I Fluids

1. The Particle Model	
States of Matter	The three forms that a substance can be in; solid, liquid or gas.
Solid Properties	Do not flow, fixed shape, fixed volume, cannot be compressed
Liquid Properties	Can flow, no fixed shape, fixed volume, cannot be compressed
Gas Properties	Can flow, no fixed shape, no fixed volume, can be compressed
Particle Theory	Used to explain the different properties and observations of solids, liquids and gases.
Solid Particle Properties	Fixed arrangement of particles held closely together that cannot move over each other but vibrate. 
Liquid Particle Properties	Held closely together but not in a fixed arrangement and can move over each other. 
Gas Particle Properties	Far apart from each other and free to move about in all directions. 
Diffusion	The movement of particles spreading out and mixing with each other without anything moving them.

Brownian Motion	An erratic movement of small specks of matter caused by being hit by the moving particles that make up liquids or gases.
Expanding	Materials expand when heated because the particles vibrate more, taking up more space.
Contract	Materials contract when cooled because the particles vibrate less and take up less space.
Density	The mass of a certain volume of a material. $density = \frac{mass}{volume}$

2. Changing State	
Changes of State	Changing from one state of matter to another. Physical changes because no new chemicals are made.
Melting	Turning from a solid to a liquid- occurs at melting point
Freezing	Turning from a liquid to a solid- occurs at freezing point
Condensing	Turning from a gas into a liquid.
Sublimation	Turning from a solid to a gas.
Evaporation	Turning from a liquid into a gas. Can occur at the surface of a liquid at any temperature.
Boiling	When evaporation occurs within a liquid- occurs at the boiling point
Pure	A substance made up of a single type of atom or compound.
Pure Substances Changing State	Occurs at a set temperature. The temperature stays constant when changing state as bonds are broken or made.

Mixtures Changing State	Occurs over a range of temperatures as it contains substances with different melting/boiling points.
Water	Contracts as it is cooled up until 4°c and then it expands slightly. Ice takes up more space than water and is less dense

3. Pressure in Fluids	
Fluids	Liquids and Gases
Pressure	The force of particles hitting things- comes from all directions in gases and liquids.
Pressure Units	Pascals (Pa) One pascal is the a force of one newton on every square metre.
Atmospheric Pressure	The pressure of the air- 100,000 Pa
Tyres	Contain air under high pressure because they are pumped with extra air causing more particles to hit the inside walls.
Temperature	Pressure in fluids increases as you increase temperature because particles move faster and hit the walls of the container harder.
Volume	If you compress a gas into a smaller volume the pressure increases because the particles hit the walls more.
Pressure From Above	As you go down the ocean there is more water above you so pressure increases. As you go up a mountain there is less air above you so pressure decreases.

4. Floating and Sinking	
Upthrust	The force of water pushing upwards.
Weight	The amount of force with which gravity pulls on a mass.
Water	The density of water is 1 g/cm^3
Floating	If something has a density less than water it will float in water.
Sinking	If something has a density greater than water it will sink in water.
Air	The density of air at sea level is around 0.001 g/cm^3
Hot Air Balloons	Fly because the overall density of the balloon is less than the air around it.

5. Drag	
Drag	A resistance force acting on an object to slow it down.
Water Resistance	Type of drag that occurs in water.
Air Resistance	Type of drag that occurs in air.
Friction	Partly causes the drag on a moving object.
Streamlined	Smooth shape to reduce air / water resistance.
Speed	The faster an object is moving, the greater the drag.
Balanced Forces	Equal forces acting in opposite directions.
Engine	Forward force of an engine needs to balance the drag.

Work through memorising the information – highlight each definition once you know it. When you have completed your highlighting completed the gap fill and activities on the second sheet to support your retrieval practice.

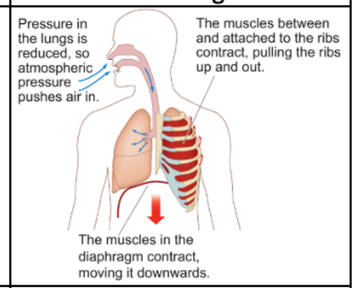
Science Knowledge Organiser

8C Breathing and Respiration

1. Aerobic Respiration

Robert Boyle	(1627-1691) placed a burning candle in a jar and sucked out all the air- the candle went out. Repeated with a mouse and the mouse died.
Joh Mayow	(1641-1679) did experiments to discover that only a certain part of the air was needed to keep candle burning and mouse alive.
Joseph Priestly & Antoine Lavoisier	(1733-1804) (1743-1794) Showed that oxygen was the part of air needed for the candle to burn and mouse to live- makes up 21% of air.
Aerobic Respiration	Using oxygen to release energy from glucose.
Aerobic Respiration Word Equation	glucose + oxygen → carbon dioxide + water
Combustion	The word equation for combustion (burning) of glucose is the same as above but occurs in a different way.
Reactants	The starting substances- written on left of word equation.
Products	The new substances made- written on right of word equation.

2. Gas Exchange System

Breathing	Muscle movement allowing the lungs to expand/contract.
Ventilation	Movement of air into / out of the lungs.
Diaphragm	Organ below the lungs that contracts / relaxes changing the size of the lungs.
Inhalation breathing in	
Mucus	Sticky liquid that traps dirt, dust and microorganisms.
Cilia	Tiny hairs on cells that sweep mucus from the lungs into the gullet to be swallowed.
Gas Exchange	The swapping of gases between the lungs and the blood.
Diffusion	Movement of particles from a high concentration to low.
Alveoli	Little pockets on the lungs.
Adaptations of Alveoli	They increase the surface area for faster diffusion. The walls are one cell thick for faster diffusion.

3. Getting Oxygen

Red Blood Cells	Take in oxygen when it gets into the blood.
Haemoglobin	Where the oxygen binds to in red blood cells.
Arteries	Blood vessels that carry blood from the heart to the body.
Capillaries	Tiny blood vessels that the arteries divide into. oxygen leaves red blood cells here and dissolves into the plasma.
Plasma	Liquid part of the blood that leaks out of the capillaries into the tissue fluid.
Tissue Fluid	Carries the oxygen to the cells.
Veins	Carry blood back towards the heart.
Exercise	Your muscles must release more energy so need more oxygen and glucose- your breathing and heart rates increase.
Frostbite	Blood vessels in skin narrow to avoid heat loss and less blood reaches cell. If the cells die this causes frostbite.
Heart Attack	Fatty substances build up inside blood vessels reducing blood flow causing cells to die.
Carbon Monoxide	Poisonous gas found in cigarette smoke- sticks to haemoglobin so red blood cells carry less oxygen.
Tar	In tobacco smoke- irritates alveoli and causes them to break apart leading to emphysema.
Asthma	Tiny tubes in lungs become narrow and fill with mucus meaning less air gets into and out of the lungs.

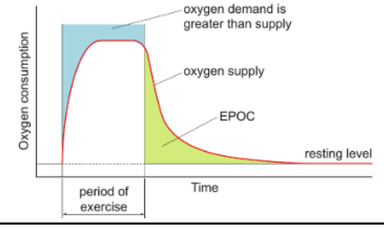
4. Comparing Gas Exchange

Limewater	Turns cloudy in the presence of carbon dioxide.
Hydrogen Carbonate Indicator	Turns from pink to yellow as carbon dioxide increases and the pH drops.
Gills	Water flows over feathery strands where oxygen diffuses into the blood and carbon dioxide out.
Stomata	Tiny holes in leaves that allow gas exchange.

5. Anaerobic Respiration

Anaerobic Respiration	Respiration that occurs in the cytoplasm of cells when oxygen isn't present during strenuous exercise.
Anaerobic Respiration Word Equation	Glucose → lactic acid
Energy	Anaerobic respiration releases less energy than aerobic.
Anaerobic Advantages	Allows for a quick, sudden burst of energy.
After Strenuous Exercise	Lactic acid enters the blood, is carried to the liver and converted back to glucose.
EPOC	Excess post-exercise oxygen consumption (or oxygen debt). Extra oxygen is needed after strenuous exercise to replace lost oxygen from blood / muscles and convert lactic acid to glucose.

Effect of exercise on oxygen demand



Work through memorising the information – highlight each definition once you know it. When you have completed your highlighting completed the gap fill and activities on the second sheet to support your retrieval practice.

Science Knowledge Organiser

8D Unicellular Organisms

1. Unicellular or Multicellular	
Cells	The basic unit of life. All organisms are made up of cells.
Unicellular	An organism made up of one cell.
Microorganisms	Organisms that are so small they can only be seen with a microscope.
Multicellular	An organisms made of many cells.
Diffusion	When particles spread to fill the area that they are in.
Kingdoms	All living organisms can be grouped into one of the five kingdoms.
Prokaryotes	Unicellular organisms that do not have a nucleus.
Protoctists	Mainly unicellular organisms. All have a nucleus.
Fungi	Mainly multicellular organisms that do not make their own food and have a nucleus.
Plants	Multicellular organisms that have a nucleus and make their own food.
Animals	Multicellular organisms that have a nucleus, do not make their own food and do not have a cell wall.
Bacteria	A type of microorganisms in the prokaryote kingdom.

Viruses	Not classed as living organisms because they cannot live without being inside a host.

2. Microscopic Fungi	
Asexual Reproduction	Producing new organisms from one parent only.
Budding	Type of asexual reproduction used by fungi in which a small new cell grows out from a parent cell.
Aerobic Respiration	Glucose + oxygen → carbon dioxide + water
Anaerobic Respiration	A type of respiration which does not require oxygen.
Fermentation	The anaerobic respiration of microorganisms. Glucose → carbon dioxide + water
Population	The number of a certain organism found in a certain area.
Limiting Factor	Something that stops a population growing.

3. Bacteria	
Lactic Acid	Produced by the anaerobic respiration of bacteria. Glucose → lactic acid
Enzymes	A substance that can speed up some processes in living organisms.
Binary Fission	Type of asexual reproduction used by bacteria in which a cell splits into two.
Chromosome	A long molecule that contains instructions for organisms and their cells.
Flagella	A tail-like structure that rotates, allowing a unicellular organism to move.

Statement Key	A series of descriptive statements used to work out what something is.

4. Protoctists	
Algae	A type of protoctist that uses photosynthesis.
Photosynthesis	Carbon dioxide + water → glucose + oxygen
Chloroplast	Found in plant and some protoctist cells- the site of food production through photosynthesis.
Chlorophyll	The green substance inside chloroplasts that absorbs light.
Producers	Organisms that are able to make their own food- always the start of a food chain.
Food Chains	A way of showing what eats what in an ecosystem.
Energy Transfer	Represented by an arrow on a food chain diagram.
Pyramids of Numbers	A way of showing the numbers of different organisms in a food chain.
Poison	Can build up and become more concentrated as you move along a food chain.

5. Decomposers & Carbon	
Ecosystem	All the physical environmental factors and all the organisms that are found in a habitat.
Decomposers	Organisms that feed on dead organisms or animal waste which allows substances to be recycled.
Decay	The breakdown of dead organisms or animal waste.

Soluble	A substance that can dissolved in a liquid.
Carbon Cycle	Shows how carbon compounds are recycled in an ecosystem.
Combustion	Burning fuels and releasing carbon dioxide into the air.
Feeding	Transfers carbon compounds stored in plants to the animals eating them.
Carbohydrates	A nutrient used as the main source of energy.
Proteins	A nutrient used for growth and repair.
Fats	A nutrient used for storing energy and as a thermal insulator.

Work through memorising the information – highlight each definition once you know it. When you have completed your highlighting completed the gap fill and activities on the second sheet to support your retrieval practice.

Computer Science Knowledge Organiser

COMPUTING SYSTEMS

Modern computer systems receive an input, process that data and then produce an output. The data can be sored in memory. They are designed to automate any process by a program. To execute programs that operate on data.

Computing systems need a **processor**, **memory**, and **storage**. Modern systems also rely heavily on **communication** between them.

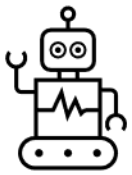
Modern computer systems receive an input, process that data and then produce an output. The data can be sored in memory. They are designed to automate any process by a program. To execute programs that operate on data.

Communication Computing systems exchange information and form networks
Programs and **data** are transferred between computing systems, when required.

Artificial Intelligence (AI)

Machine Learning

"AI has by now succeeded in doing essentially everything that requires 'thinking' but has failed to do most of what people and animals do 'without thinking' – that, somehow, is much harder!"
Donald Knuth, author of *The Art of Computer Programming, in* ***1981***
Programming computers to learn from experience



Hardware Components

CPU – Central Processing Unit
It is known as the 'brains of the computer' that processes program instructions

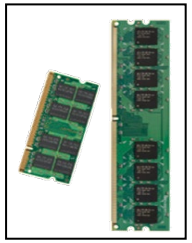
An instruction may:

- Perform arithmetic or logic operations on data
- Perform input/output of data
- Control program flow

The **storage** (secondary memory) is the set of components that **stores** programs and data.
Storage is **persistent**: it retains its contents when the power is off.

Volatile (RAM) - Only stores information to run programs when computer is on

Non- volatile (ROM) - retains data even when the computer is switched off

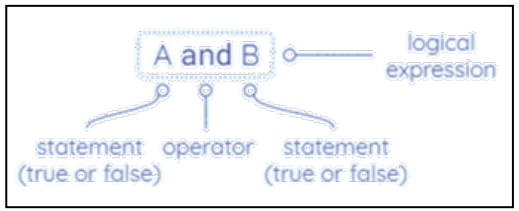


Key words

data, architecture, device, hardware, testing, input, output, software, RAM, program, CPU, storage, communication, Logic circuits

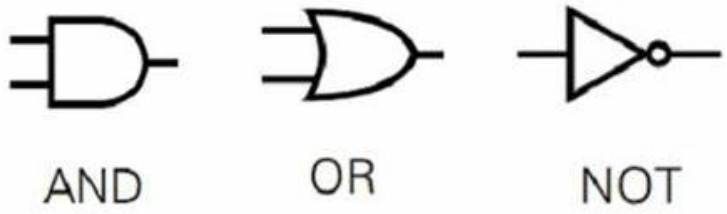
Logical Operators

Logical operations operate on statements that are **true** or **false**. There are three basic logical operations. AND OR NOT



Logical expressions — **logic circuits** can be represented using diagrams

Logical operations — logic gates can be represented using symbols



Operating Systems
All hardware needs an operating system. It is responsible for managing the hardware and providing an environment for programs to run in.

It manages: Files, Hardware, software, memory

Examples: IOS, Windows, Android, MacOS, Linux

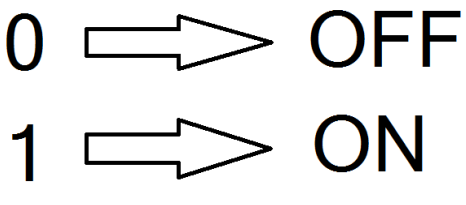
Computer Science Knowledge Organiser

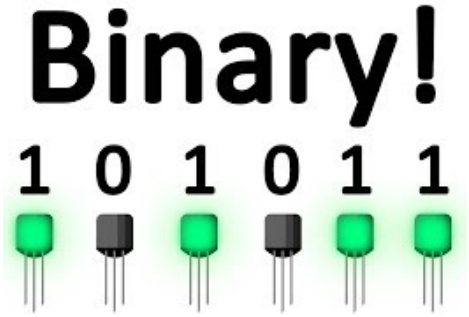
Binary – Data Representation

Key Words	
Binary number	A number system that contains two symbols, 0 and 1. Also known as base 2
Base 2	A number system where there are only 2 digits to select from. 0 – 1 as this is all binary can understand.
data	Units of information. In computing there can be different data types, including integers, characters and Boolean. Data is often acted on by instructions.
Denary (also known as decimal)	The number system you use. It contains 10 unique digits 0 to 9. Also known as decimal or base 10
Base 10	The number systems that we/humans use. Numbers 0-9 as it can make any number combination from that.

Binary Rules	Carry
0 + 0 = 0	0
0 + 1 = 1	0
1 + 0 = 1	0
1 + 1 = 0	1

Conversion table	128	64	32	16	8	4	2	1
Example binary number	0	0	0	1	0	1	1	1





Representing information with sequences of symbols, is necessary for storing, exchanging and processing information. Information in computers must be represented in a form convenient for processing.

Humans have invented lots of different ways to code information using different sounds, symbols or even lights!

Computers represent all data, including numbers, letters, symbols, images, videos and sounds using binary numbers. All binary numbers are made up of the digits) and 1.

0s and 1s are called binary digits, or bits. All characters are represented using sequences of bits.

Computers only use the two symbols 0 and 1 because all computers are built out of electrical switched which can only be on (1) or off (0).

ASCII – American Standard Code for Information Interchange

ASCII is a character set that uses numeric codes to represent characters. These include upper and lowercase English letters, numbers, and punctuation symbols.

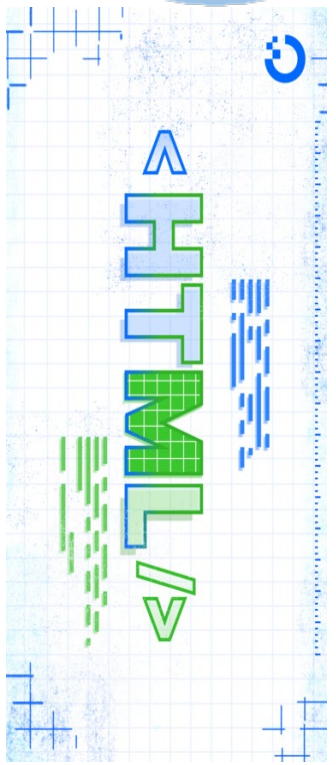
Example: a capital "T" is represented by 84, or 01010100 in binary.

Computer Science Knowledge Organiser

HTML

Key Words	
World Wide Web	Collection of webpages connected together by hyperlinks, using the Internet (Usually shortened to WWW)
Internet	A global network of computers all connected together
Webpage	A hypertext document connected to the world wide web
Website	A collection of webpages with information on a particular subject
Web browser	The software which displays a webpage or website on a computer
Uniform Resource Locator (URL)	An address that identifies a particular file or webpage on the internet
HTML	Hyper Text Mark-up Language – describes and defines the content of a webpage
Web script	A type of computer programming language used to add dynamic features to a webpages
Multimedia	Content that uses a combination of different types of media – for example, text, audio, images
Hyperlink	A link from a hypertext document to another location, activated by clicking on a highlighted word or image
Hotspot	An area on a computer screen which can be clicked to activate a function, especially an image or piece of text acting as a hyperlink
Navigation	The elements of a website that allows the user to move around the website. This is usually in the form of a menu or hyperlinked text or buttons
JPG	The main file type used for mages on the world wide web – uses lossy compression
PNG	Another type of image file used on the world wide web – supports transparency and uses lossless compression

Definitions: What does it do?	
<html>	Root of a HTML document
<body>	Contents of the page
<head>	Information about a page
<title>	Table title/defines title
<h1>,<h2>,<h3>	Headings
<p>	Paragraph
<img>	Image
<a>	Anchor (used in hyperlinks with href)
,	Order/unordered list
	List item
<table>	Creates and defines table
<tr>	Table row
<td>	Table data
	Bold
 	Linebreak
	Divider
<!-- -->	Comment




```
<!DOCTYPE html>
<html>
<head>
<title>My First Webpage</title>
</head>
<body>
<h1>My First Heading</h1>
<p>My first paragraph.</p>
</body>
</html>
```

Computer Science Knowledge Organiser

Year 8 Intro to Python

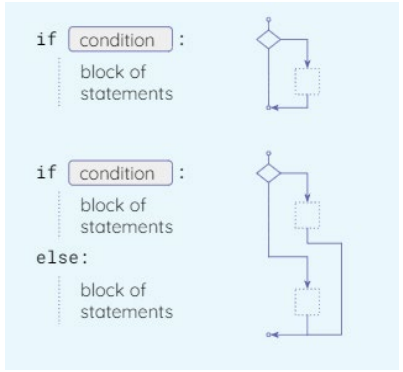
Python is a **text** based **programming language**. That can be used to create programs, games, applications and much more!

A **program** is a set of precise instructions, expressed in a **programming language**. **Translating** the programming language is necessary for a machine to be able to **execute** the instructions.

To execute a Python program, you need a **Python interpreter**.

This is a program that translates and executes your Python program.

A **selection** statement allows a computer to **evaluate** whether an **expression** is 'true' or 'false' and then perform an action depending on the outcome.



Arithmetic operators
+ addition
- difference
* multiplication
/ division
// integer division

Key terms

selection

algorithm

iteration

sequence

logical operators

input

variable

Arithmetic

output

You can use multiple branches using if, elif and else

Python helps by telling the programmer where the error is.
So if you see red error text—read it first.

Keywords	
Variable	Stores a value/data – Can be changed during the program
Float (FLOAT)	Decimal point
Integer (INT)	Whole number
Boolean (BOOL)	True or False
String (STR)	Letters, numbers, symbols inside speech marks
Data types	The different data that can be stored in a variable
Sequence	A set of instructions or rules that an algorithm uses have to be in the right order.
Syntax Error	A syntax error is a mistake in your Python program that prevents it from running (executing). Syntax errors are like spelling/grammar errors or logic error

Some common syntax errors in selection

- use if and else—no capitals
- A colon : is always required after the condition and after else.
- Use **indentation** to indicate which statements 'belong' to the if block and the else block.
- The == operator checks for equality.
- A single = is only used in assignments

Syntax Errors

All programming languages have rules for **syntax**, i.e. how statements can be assembled.

Programs written in a programming language must follow its syntax.

Programs with **syntax errors** cannot be translated and executed.

Computer Science Knowledge Organiser

Year 8 Mobile App

Key Words	
abstraction	Identify the important aspects to start with
algorithm	Precise sequence of instructions
Application (app)	Software designed to run on a mobile device
Computational thinking	Solving problems with or without a computer
debugging	Looking at where a program might have errors or can be improved
blocks	Scratch bricks that we can use to code algorithms
decomposition	Breaking down a problem into smaller parts
execute	A computer precisely runs through the instructions
GUI	Graphical User Interface
iteration	Doing the same thing more than once
selection	Making choices
sequence	Running instructions in order
variable	Data being stored by the computer

Sequence, **selection** and **iteration** are all processes. In order for computers to perform tasks there is more that is needed. For example a computer will take an **input** (this might be automatic or via human input) which the computer will then **process** and the **output** will be visible on the computer monitor.

A mobile application, most commonly called an app, is a type of application software designed to run on a mobile device, such as a smartphone or tablet computer.

App Lab is a **block or text based programming language**. This allows creation and sharing of apps.

The point of an app is to connect and interact with users.
App creators tend to have an idea, a problem or a task that they want to develop user an app. These can be huge or relatively small ideas.
Decomposing the problem helps us make the task less daunting and more achievable. This involves breaking down the task into smaller more manageable parts to start with.

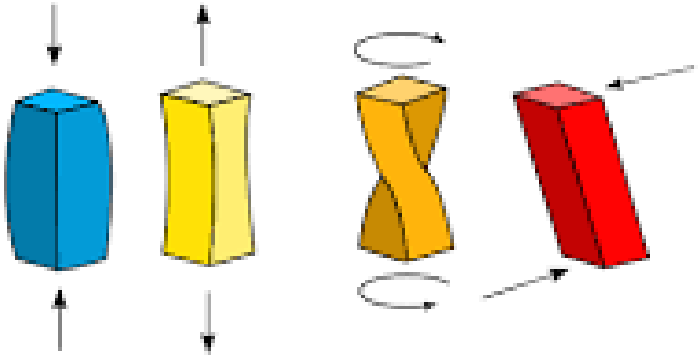
Most computers have an environment with tiles, icons and/or menus. These allow users to interact.
This type of interface is called the **graphical user interface (GUI)** because the user interacts with images through a mouse, keyboard or touchscreen. The GUI needs careful design consideration so that the user experience is a positive one so they want to continue to use it.

Making sure the app is successful and actually does what it was intended to do is important.
Setting **success criteria** should be determined at the start of the project and can be revisited frequently.
The success criteria should be clear and easy to follow.

Evaluating and **debugging** allow for judging the quality of the app and enables errors to be corrected and improvements to be made.

Mechanical Properties

Tensile Strength	Material's resistance to the tension caused by pulling force.
Compressive Strength	Material's resistance to a crushing or squeezing force.
Shear Strength	Material's resistance to two parallel forces acting in opposite directions.
Torsional Strength	Material's resistance to a twisting force.



Compression Tension Torsion Shear

Strength	The ability of a material to resist a force applied.
Hardness	The resistance of a material to scratching and wear.
Toughness	The ability of a material to not break when a force is suddenly applied.
Malleability	The ease with which the shape of a material can be changed without the material breaking.

Physical Properties

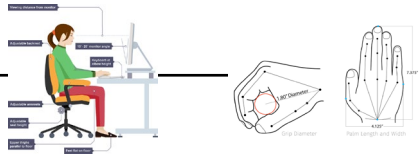
Density	The mass of a material per unit volume.
Electrical Conductivity	The ability of electricity to pass through a material.
Absorbency	The ability of a material to draw in moisture.

Design Specification – Key Questions

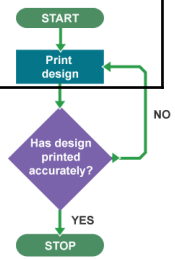
A	**Aesthetics**	What shape should the product be? What colour should be product be? What texture should the surface have?
C	**Cost**	What should the cost of the product be?
C	**Consumer**	Who is the client or the user of the product? What features of other similar products should it have? Does the client have any specific needs or wants for the product?
E	**Environment**	Should the product be made from recycled materials? How should the product be packaged? How will the product be disposed of when it is no longer needed?
S	**Safety**	What safety risks have to be considered? What safety standards must the product meet?
S	**Size**	How long, wide and tall should the product be? How much should the product weigh?
F	**Function**	What will the product be used for? How will it work? How should it be tested?
M	**Materials and Manufacturing**	What materials should the product be made from? Are there any limits on the sizes of the available materials? How many products need to be made? Which processes should be used to make the product?

Ergonomics and Anthropometrics

Anthropometrics is the practice of taking measurements of the human body and provides categorised data that can be used by designers. Anthropometrics help designers collect useful data, eg head circumferences when designing a safety helmet. In this example, as there is a large variation in size, the designer would need to build some adjustment into the safety helmet design.



Ergonomics can incorporate the use of **anthropometric data** when designing products to improve the user experience. If a designer doesn't use anthropometric data during the design process, it can lead to a poor user experience that causes discomfort, pain and potential injury. **Ergonomics** is a consideration that leads to a product being designed in a way to make it easy to use. Size, weight, shape, position of buttons and controls are all aspects that contribute to it being ergonomically designed.



How can we reduce our impact on the environment?

Use **renewable** materials rather than non-renewable means these can be replenished.
If non-renewable materials are used such as plastic (oil) **carbon emissions** are given off resulting in global warming.
Choosing **biodegradable** materials means they will break down naturally when the product comes to the end of its life. Non-biodegradable materials that have not been recycled will end up in the landfill or the sea damaging animals and habitats.
Apply the **6Rs** to ensure minimal impact on the planet.

Microcontrollers are programmable components that acts like a small computer within a single integrated circuit.

Peripheral Interface Controller **PIC** is a commonly used microcontroller

Flowchart program is a set of instructions laid out using flowchart symbols that tells a microcontroller what to do.

Advantages And Disadvantages Of Using Plastics

- Plastics are made from a **non-renewable** resources which cannot be replaced.
- Plastics are **non-biodegradable** and will not decay if disposed of in landfills or the the sea causing damage to animals and habitats.
- Not all plastics can be recycled.

\+ Plastics are **strong** and **durable.**
\+ Plastics come in a range of sizes and colours.
\+ Plastics can be easily shaped.
\+ Plastics are **insulators** and are **waterproof.**

The **Green Dot** does not necessarily mean that the packaging is recyclable, will be recycled or has been recycled.

The **Mobius Loop**. This indicates that an object is capable of being recycled, not that the object has been recycled or will be accepted in all recycling collection systems.

Age warning logo
This indicates the product is not suitable for under 3 year olds.

Tools and Equipment	Name	• Use • Safety point
	Coping Saw	To cut wood **Safety Rules when using it** Work should be clamped in a **vice**
	Half Round File	Smoothing wood or Styrofoam **Safety** Work should be clamped in a vice
	Vice	Used to hold work in place **Safety** Allows work to be safely clamped while being cut or smoothed
	Pillar Drill	Used to drill holes in wood or plastic **Safety** You must wear goggles, an apron, tie your hair back, have the guard down and worked clamped securely




Computer Aided Design
Computer Aided Manufacture

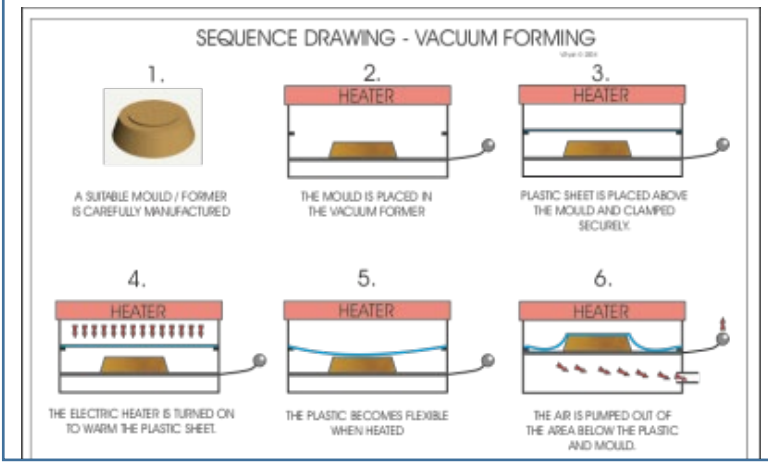
CAD	This is using computer software to draw and model a product. **Examples:** 2D Design, Photoshop, Macromedia Fireworks and Sketch Up **Advantages:** • Designs can be shared electronically • Accurate • Designs can be easily edited **Disadvantages:** • Software and training can be expensive • Security issues
CAM	This is using computer software to control machine tools to make products. **Examples:** Laser Cutter, 3D printer **Advantages:** • Faster • Complicated shapes are easily produced • Exact copied are easily made • Machines can run 24/7 **Disadvantages:** • High initial set up costs as CAM machines are expensive


Most polymers are synthetic. This means they are man-made. They are usually made from crude oil which can be obtained by drilling underground or under sea level. Crude oil is a non-renewable resource- this means that it is not replaced as it is used.

Thermoplastic polymers can be reshaped when heated. They can also be recycled.

Thermosetting polymers cannot change shape when reheated and cannot be recycled. They have extra links between the individual chains of polymer. These links stop the chains being able to move, meaning that thermosetting polymers are typically stronger and more rigid than thermoplastics polymers.

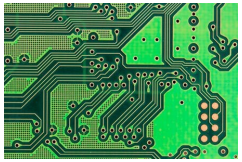
Vacuum Forming is a process that uses heat and air pressure to shape a thermoplastic. It can be used to manufacture **blister packaging.**





Thermoplastic Polymers

Type	Properties	Uses
HDPE *High Density Polyethylene*	Strong and stiff	Pipes, buckets, bowls
PET *Polyethylene Terephthalate*	High strength and good toughness. Heat resistant	Drinks bottles and food packaging
HIPS *High Impact Polystyrene*	Reasonable strength and good toughness	Packaging
Acrylic	Can be transparent Hard wearing and tough	Plastic windows, bath tubs


Thermosetting Polymers

Type	Properties	Uses
Epoxy Resin	High strength, stiff and brittle Excellent temperature resistance	Printed circuit boards, cast electrical insulators
Melamine Formaldehyde	Strong, stiff and hard Resistant to many chemicals and stains	Laminate coverings for kitchen worktops
Urea Formaldehyde	Good strength, rigid and hard Warm to the touch	Plugs and plug sockets

Metal sources

Ores are naturally occurring rocks that contain metal or metal compounds in sufficient amounts to make it worthwhile extracting them.

Iron ore is used to make iron and steel. Copper is easily extracted, but ores rich in copper are becoming more difficult to find.

Metals are grouped into the following categories or classifications:

- **ferrous** - contain iron, rust easily and are magnetic, eg iron and steel
- **non-ferrous** - do not contain iron, do not rust and are not magnetic, eg copper and aluminium
- **alloys** - a mixture of more than one metal, eg bronze or brass.

Environmental impact

When considering the ecological and social implications of using metal, its non-renewable nature is the main concern. Metal cannot be grown and is a finite resource - there is only a certain amount within the Earth's crust.

Steel is made in huge and exceedingly hot cauldrons. Its production uses a lot of energy and contributes approximately 5 per cent of the world's greenhouse gas emissions.

Ferrous metals

	Strength and weaknesses (properties).	Uses
Cast iron	Cheap to produce, easy to cast, is rigid, has high compressive strength, machines and absorbs vibrations well, has low tensile strength, it is brittle and cannot be forged	Pans, brake discs, large castings
High-carbon steel (tool steel)	Hard but brittle, less malleable than mild steel, good electrical and thermal conductivity	Taps and tools, eg screwdrivers and chisels
Low-carbon steel (mild steel)	Ductile and tough, easy to form, braze and weld, good electrical and thermal conductivity but poor resistance to corrosion	Nuts, bolts, screws, bike frames and car bodies

Non Ferrous metals

	Strength and weaknesses (properties).	Uses
Aluminium	Light in weight and malleable but strong, a good conductor of heat and corrosion resistant	Drink cans, saucepans, bike frames
Copper	An excellent electrical conductor of heat and electricity, extremely malleable and can be polished, oxidises to a green colour	Plumbing fittings and electrical wires, professional chef's saucepans
Silver	A precious metal that is soft and malleable when heated, highly resistant to corrosion and an excellent electrical conductor of heat	Jewellery

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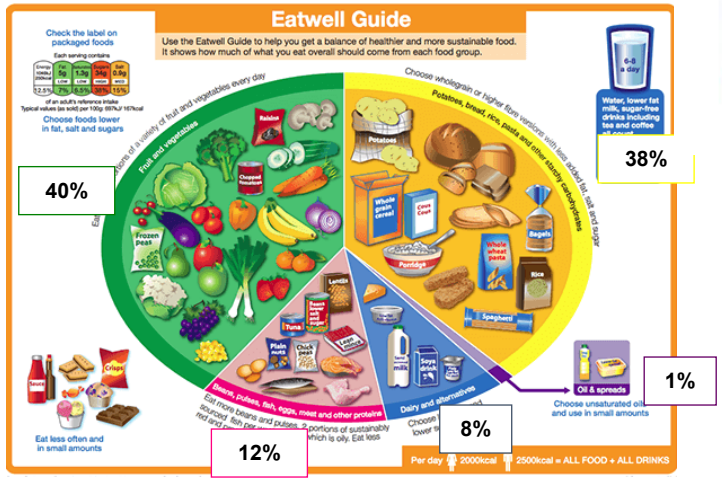

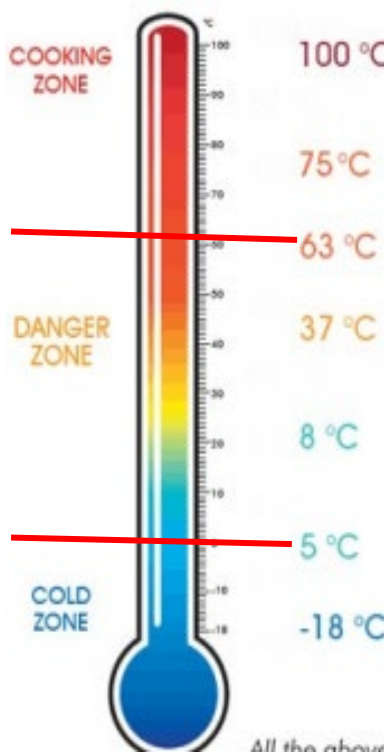

Danger zone: because microorganisms multiply quickly at this temperature 5◦C to 63◦C

Fridge :0◦C to 4◦C

Freezer:
-18◦C to -23◦C

Microorganisms are dormant below 5◦C.

Above 63◦C they are killed.
Reheat foods :75◦C

Key Words

Microorganisms- Mould, Yeast. Bacteria
Fermentation-Yeast+FATTOM= Carbon dioxide and Alcohol
Pathogens: Bad bacteria
Salmonella-raw meat, poultry, eggs, unpasteurized milk
Listeria- Soft cheeses, ready meals, pates , deli meats
Campylobacter-raw meats, unpasteurised milk and contaminated water

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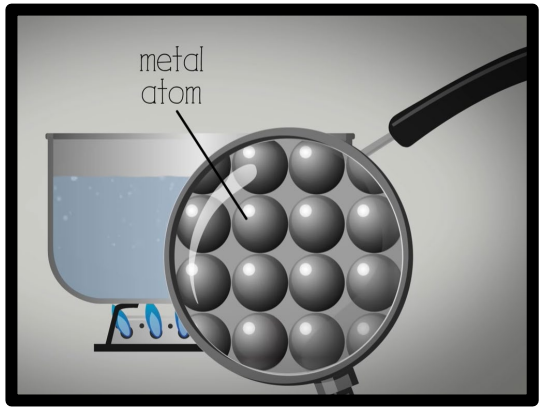
Functional and chemical properties of ingredients in cake and bread making

Cupcakes	
Self raising flour	Make the cake rise, Structure, dextrinises –add colour
Caster sugar	Sweetness, aeration
Margarine	Makes the cake moist, aeration
Egg	Binds mixture

Bread	
Strong flour	Structure, Gluten stretches helps bread rise and sets shape
Yeast	Produce CO2 when all conditions provided so makes bread rise.
Water	Binds ingredients, provides moisture for yeast.



Why food is cooked:

1. To make it safe to eat
2. To improve the shelf life
3. To develop flavour
4. To improve texture
5. To give variety

Methods of heat transfer

Convection - when the environment (air, water or oil) is heated up.
e.g. - baking a cake
- boiling an egg

Conduction - when heat is transferred directly.
e.g. - frying an egg

Radiation - when heat radiates
e.g. - toast

Effect of cooking on protein

Protein denaturation:

the process of altering a protein's molecular characteristics or properties

Proteins: Coagulation

The process of turning a liquid into a solid

Example: Egg

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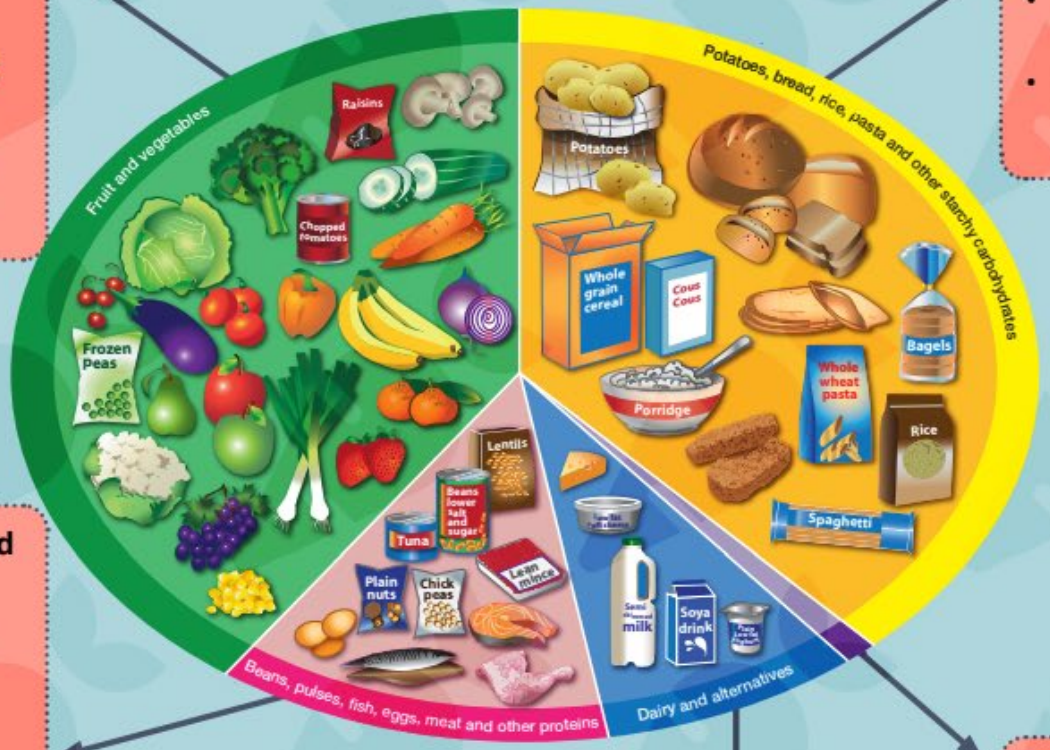
The Eatwell Guide



Fruit & vegetables

- 5 portions a day.
- 1 portion is a handful or 80g.
- Eat a balance of fruit and vegetables.
- Fruit and vegetables should make up at least 1/3 of each meal.
- It doesn't matter how you eat them: fresh, frozen, tinned, dried or in a juice format.

Starchy foods:

- Choose wholegrain or high fibre verisons.
- Each meal should be bsed on at least 1/3of starchy carbohydrates.
- Starchy carbohydrates include: pasta, rice, potatoes, bread, breakfast cereals.

Water

Don't forget to drink water to prevent dehydration.

Sugar

Eat sugary / sweet foods in small quantities and less often.

Protein-rich, non-dairy foods / Dairy and alternatives

1/3 of your meals should be made up from any combination of the following:

- dairy foods
- animal protein foods
- peas and beans
- dairy and meat alternatives.

Oils and spreads

Although important we should eat these sparingly and use low fat options.

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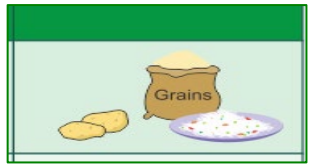
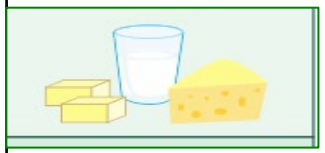
Nutrient	Functions	Sources
Protein	Growth – known as the body's building blocks.	Animal products – meat, fish, dairy; plants – lentils, nuts, seeds
Carbohydrates	Source of energy. Divided into: simple carbohydrates – sugars and complex carbohydrates – starches and dietary fibre. Starches provide slow releasing energy and add bulk	complex – bread, pasta, rice, potatoes (chose wholemeal versions for fibre and potato with the skin
Fats	Source of energy. Four types: monounsaturated, polyunsaturated (omega 3 and 6), saturated and trans fats. Fats are stored under the skin and are essential for health. Too much fat can cause health problems	Monounsaturated – olive oil, avocados; polyunsaturated – oily fish, nuts, sunflower oil, soya beans; saturated – full-fat dairy, fatty meats; and trans fats – many snack foods
Vitamin	Essential for many processes, eg bone growth, metabolic rate, immune system, vision, nervous system. Need small amounts only.	A – dairy, oily fish, yellow fruit; B – vegetables, wholegrain cereals; C – citrus fruit, broccoli, sprouts; D – oily fish, eggs, fortified cereals
Minerals- Calcium	Essential for many processes, eg bone growth/strength, nervous system, red blood cells, immune system. Need small amounts only	Calcium – milk, canned fish, broccoli; iron – watercress, brown rice, meat; zinc – shellfish, cheese, wheatgerm; potassium – fruit, pulses, white meat





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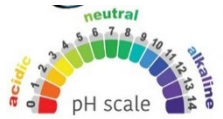
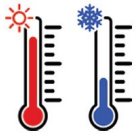
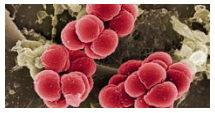
Conditions for Microorganism growth **(FATTOM)**

 **F**	**F**ood-Food provides energy and nutrients for bacteria to grow. High risk foods particularly protein foods such as chicken and dairy products are rich in nutrients and moisture and so promote bacterial growth.
 **A**	**A**cid-Most bacteria reproduce best at a neutral pH level of 7. Acidic foods with a pH below 7, or alkaline foods with a pH above 7, may stop or slow down the rate of bacterial growth.
 **T**	**T**ime- If provided with the optimum conditions for growth, bacteria can multiply to millions over a small period of time via binary fission. This is when a bacterium divides in two every 20 minutes.
 **T**	**T**emperature-Bacteria need warmth to grow. The temperature a food is stored, prepared and cooked at is crucial. If this is not followed correctly then the food will not be safe to eat. The optimum temperature range for bacterial growth is between 5-63°C. This is known as the **danger zone** as it is dangerous for some foods to be in this temperature range for prolonged periods of time**.**
 **O**	**Ox**ygen-Microorganisms that that require oxygen to grow are called aerobic such as most yeast.
 **M**	**M**oisture-Bacteria need moisture in order to grow. This is why they grow on foods with high moisture content such as chicken. Foods that are dehydrated or freeze-dried can be stored for much longer as the moisture has been removed.

Yeast, Mould, Bacteria (Bad bacteria are known as Pathogens

Some Pathogens that causes Food Poisoning:

*Campylobacter-Raw or undercooked meat, particularly raw poultry
Unpasteurised milk
Untreated water.



*E. coli-Raw or undercooked meat and poultry or related products (eg gravy)
Raw seafood products
Unpasteurised milk or products made from it (eg cheese)
Contaminated water
*Listeria-Unpasteurised milk or products made from it
Soft cheeses (eg camembert, brie)
Ready-to-eat foods (eg pre-packed sandwiches, pâté, deli meats)
Unwashed vegetables contaminated with soil
*Staphylococcus aureus-humans carry this in their nose and throat and can be transmitted by coughing or sneezing. Ready-to-eat foods that are hand-made (eg sandwiches)
Cooked meats, Unpasteurised milk and related products.
*Salmonella-raw or undercooked poultry and meat, eggs and unpasteurised milk