

# KNOWLEDGE ORGANISER BOOKLET

**YEAR 11 - Spring**

**CORE & HUMANITIES**





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**CORE & HUMANITIES**

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## Instructions for Use



For all of your subjects, there are certain **facts** that you **need** to know in order for you to best understand the content you study in lessons.

In this booklet are **Knowledge Organisers** for each subject, which contain the core concepts that you have to know to be successful in your lessons.

### How to use this Knowledge Organiser:



**Look:** read a specific section of the *Knowledge Organiser*;



**Cover:** cover it over or put it to one side;



**Write:** from memory, write out as much of the information as you can remember for that section;



**Check:** check back with the *Knowledge Organiser*. Anything missing or incorrect, add in green pen.



**Review:** information you didn't recall the first time by using different format, such as repeating the process or creating your own *flashcards* to revise from.



# Instructions for Use: Example



1. **LOOK:** carefully read the section of the *Knowledge Organiser* which you are learning.



2. **COVER:** cover it over or put it to one side



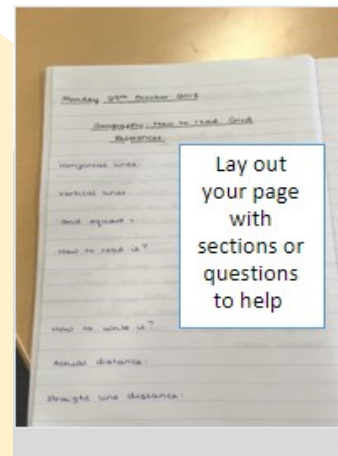
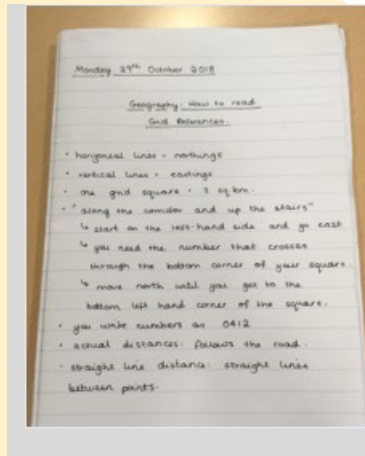
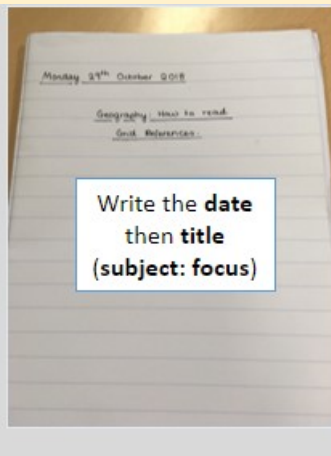
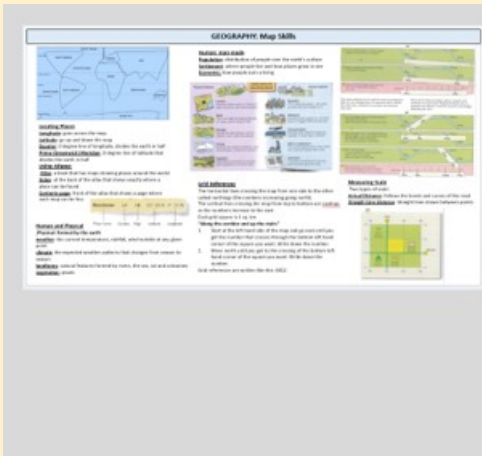
3. **WRITE:** write out as many details as you can from memory.



4. **CHECK:** check back over your answer with the *KO*. Anything which is missing or incorrect, add in green pen.



5. **REVIEW:** if you had significant gaps or parts you didn't understand, repeat the process from Step 1.



# Sparx Maths

We do not have a knowledge organiser for Maths. This is because the best way to remember and understand mathematics is to practice it. We use the **Sparx Maths** online platform to provide our students plenty of opportunities for practise and to develop their mathematical knowledge.

## What should we do each week?

Complete all of your compulsory section of **Sparx** homework and get it 100% correct. Don't worry, there are videos to help if you get stuck.

## How long should it take?

**Sparx** will adjust your homework, so it will take about 1 hour to complete. If you find yourself taking longer than this, you should ask your teacher for support on the topics you find most challenging.

## What if I get stuck?

You can watch the videos, ask a friend or parent, or your teacher, in person or by email.

## Why do I get different questions to my friends?

**Sparx** creates custom homework just for you - because you are an individual. This means your maths homework is designed around your ability and constantly challenges you to make improvements.

## Why do I have to get 100%

We believe you deserve the chance to do really well in Maths. Students who complete all the questions on **Sparx** learn more and get better results. You can also earn rewards.

# Sparx Maths

## Logging into Sparx Maths

- Visit [sparxmaths.com](https://sparxmaths.com) and click log in
  - Select your school from the drop-down menu
  - Log in using your [Sparx Maths](#) username and password
- Or**
- Log into [Sparx](#) using Microsoft. This will give you option to use your usual school log in to [Sparx Maths](#).
- Make sure you remember to add **@plymstockschool.org.uk** to your username

Register interest Log in ▼

3D shapes Algebra

Teacher login

Student login

**Select your school**

Start typing the name of your school to begin searching.

Plymstock School ▼

Continue

Log in to Sparx using Microsoft

or

Use your Sparx login

Username:

Password:

Show

## 'Checking Out Me History' – Knowledge Organiser

**What happens in the poem?** The speaker of the poem reflects on the history he has been exposed to in school. He considers what 'dem' (they – the government vis schools and the curriculum) have told him about history. He realises that he has been taught plenty of white British/European history – 1066 (The Battle of Hastings); the Battle of Waterloo; the 'discovery' of Christopher Columbus – but very little of black Caribbean history. The speaker reflects on three key figures in detail and concludes by saying that because he is checking out his own history (rather than relying on what 'dem' tell him) he is 'carving out' his own sense of identity.

### What is the context of the poem?

- John Agard was born and educated in Guyana (before moving to Britain).
- At the time, Guyana was part of the British Empire. This influenced what he learnt about in school.
- Although part of the South American mainland, Guyana is culturally considered to be part of the Caribbean.
- The Caribbean has been influenced by many different cultures: indigenous cultures; European cultures (especially through colonisation); African cultures (especially through the slave trade).
- Touissant L'Ouverture, Nanny de Maroon and Mary Seacole are black historical figures of importance – particularly in the Caribbean.

**What is the significance of the title?** The poem is about the speaker investigating – checking out – his history. Importantly, he is the one doing the checking out (he's not relying on what he's been told in school) and it is his history (rather than that decided by a distant government).

### What are the central ideas in this poem?

- Education can be powerful – it can develop (or limit) our sense of identity. This is also true of governments that can decide what is taught.
- There can be conflict between what we are taught and who we are.
- Identity can be shaped by a knowledge of history.
- We have the power to think for ourselves to shape our own identities (if we become actively involved).

Key Vocabulary	Definition	Example
identity	Who a person or thing is.	She now realised how much her childhood had shaped her _____.
curriculum	The subjects studied in school and what each subject includes.	Deciding what is taught as part of the school _____ is a difficult and important job.
colonisation	Sending people to live in – and govern – another country.	Rapid _____ followed the so-called 'discovery' of the Americas.
accusatory	In a way that suggests you think someone has done something bad.	There is a clear _____ tone to the writing, suggesting that the speaker thinks the government's actions were wrong.
dialect	A form of a language that is spoken in a particular area or by a particular group.	Although he didn't have a midlands accent, his _____ occasionally hinted at is Birmingham roots.
Standard English	'Neutral' English; the English of the classroom (although this is a very simplistic definition).	In academic writing, there is an expectation that everyone uses _____.

### Key Quotes:

'Bandage up my eye with me own history.'

'Blind me to me own identity'

'I carving out me identity'

Writer's Craft:	Explanation
Why does Agard write using Caribbean dialect?	This poem is all about his identity. His language is a part of who he is. Standard British English is the language of 'dem', the language of his education (in a colony of the British Empire). This poem is about discovering and asserting his identity – and throwing off the shackles of his limited education. His use of dialect here reinforces his sense of Caribbean identity.
Why does Agard use the image of a bandage and blindness?	The white of the bandage might symbolise white British history. He is only seeing white British history in school. This is preventing him from seeing the history he considers his own. He is, therefore, metaphorically blind to the truth, to his history and, therefore, to his identity. This is ironic because we normally think of education as illuminating the world, revealing truths, opening minds; however, here it is doing the opposite.
Why does Agard use light imagery when discussing black history.	Light illuminates and reveals. This contrasts with the 'blindness' the speaker has gained from his school education. Finding out about this history has shone a light on his true identity and dispelled the blindness he was suffering from. We could argue that Touissant has, therefore, been as much a beacon to the speaker as to the Haitian revolution. Similarly, we might argue that Mary Seacole has been a 'healing star' to the speaker (removing the 'bandage') and that the 'yellow sunrise' symbolises the new dawn of the speaker's identity with the knowledge of who he truly is.
Why does Agard use the image of carving?	Carving is about shaping a raw material to make it as you want. By looking into his history, he is shaping his identity, his sense of who he is. Carving involves cutting away excess to leave you with what you want. It may be that this image represents the speaker cutting away the cultural baggage of his education to find his true identity that has been hidden away.
How does the end relate to the beginning (structure)?	It's important to note the speaker's agency here. Throughout the poem, he has been the recipient of what 'dem' tell him. At the end he's taken matters into his own hands and is in control (he's shifted from being the object of the sentences to the subject). The power has shifted - he has been empowered by 'checking out' his history.



For more revision of 'COMH', search for 'Checking Out Me History' [poemanalysis.com](http://poemanalysis.com)

## 'Checking Out Me History' – Additional

**Additional Background**

**1066** = crucial to English history as it marked the take over of English society by the French.

**Dick Whittington** = folklore about a poor boy with nothing but a cat who became Lord Mayor of London.

**Touissant L'Ouverture** = the black leader of the Haitian revolution against French Colonial rule. He abolished slavery in Haiti and turned it into an independent republic.

**Nanny de Maroon** = The leader of former slaves in who led them to victory in Jamaica against British rule.

**Lord Nelson** = famous English admiral who inflicted a massive defeat on the French which meant the British Empire was strengthened.

**The Battle of Waterloo 1815** = the final defeat of the French army led by Napoleon which made Britain a world superpower.

**Shaka** = an influential leader of the Zulu nation (in South Africa). He united the Zulu people against other tribes and the increasing presence of the white settlers.

**Caribs and Arawaks** = the original inhabitants of the West Indies at the time when Columbus 'discovered' the islands. They were killed off by war or through exposure to European diseases that they had no immunity to.

**Florence Nightingale** = a famous British nurse. Famous for her work in the Crimean War and her innovations in hygiene.

**Robin Hood** = legendary English hero made famous from supposedly stealing from the rich to give to the poor.

**Mary Seacole** was a Jamaican woman who looked after soldiers in the same way that Nightingale did – a black woman who made a unique contribution to our history but has often been forgotten.

**Crimean War** = 1854-56 Russian Empire vs Britain, France and the Ottoman Empire. Lots of deaths occurred from fighting bit also from outbreaks of disease.

**Old King Cole and The Cow Jumped Over the Moon** = nursery rhymes.

**Checking Out Me History: Summary (Lit Charts)**

<https://www.litcharts.com/poetry/john-agard/checking-out-me-history> - accessed 17.11.23

The speaker repeatedly says how British colonizers taught students only what they—that is, the British—wanted those students to know.

The British education system essentially hid colonized people's history from them, in effect blinding people like the speaker to their true identities.

British educators taught colonized students about the Battle of Hastings, which was fought in 1066, and other irrelevant stuff like that. They taught students about Dick Whittington, who, according to British folklore, rose from poverty with the money he made from selling his cat to a rat-infested country. But the British educators never bothered to teach students about Toussaint L' Ouverture.

Toussaint was a visionary man who rose up from slavery. He beat back the battalions of the French Emperor Napoleon, which is how Haiti gained independence from the French and became the first black democracy in the Americas. Toussaint was a metaphorical thorn in France's side, and the powerful leader of the Haitian Revolution.

The speaker says more about was taught by the British, this time alluding to even more trivial things like the man who invented the balloon and popular English nursery rhymes. But the British never told the speaker about Nanny de Maroon.

Nanny was a visionary woman known for escaping slavery and founding her own town for other escaped slaves in the mountains of Jamaica. Nanny was a brave, ferocious fighter. Her actions provided a source of hope for other enslaved peoples, like a stream that flowed into a deeper river of freedom.

The British taught the speaker about Horatio Nelson, who was regarded as one of the greatest sea warriors in British history, and the Battle of Waterloo, which took place in Belgium in 1815 and marked the end of the Napoleonic wars and victory for the British. But the British never taught the speaker about Shaka de great Zulu, one of the most important monarchs from the Zulu Kingdom in Africa. The British taught the speaker about how Christopher Columbus came to America in 1492, but they never mentioned what became of the indigenous peoples of the Caribbean who were mostly killed and displaced after Columbus's arrival.

The British taught the speaker about Florence Nightingale, an English social reformer who gained fame as a nurse during the Crimean War. They even taught the speaker about mythological figures like Robin Hood and ole King Cole. But the British never taught the speaker about Mary Seacole.

Mary Seacole was from Jamaica and had to travel on her own a great distance to the site of the Crimean War. When she first volunteered to go to the war she was denied by the British War Office. However, the undeterred Mary Seacole still traveled independently to cold, snowy Russia where she helped heal the wounded troops and gave hope—like a bright sunrise—to sick and dying men.

The speaker repeats the opening line of the poem, lamenting how the British only taught colonized students what they wanted to teach them. Now, however, the speaker is learning the history of the speaker's own people, and by doing so the speaker is creating an identity.



## 'Storm on the Island' – Knowledge Organiser

**What happens in the poem?** The poem is from the perspective of someone living on an island that experiences powerful storms. The voice of the poem first points out how prepared the islanders are, building strong, squat houses to resist the wind. He also points out that they don't need to worry about crops growing away because they're not able to grow them on the land. Nor are there any trees which, he reflects, might as be able to distract you from the storm with the noise of the leaves and branches (even though the same wind is attacking your own house). He points out that the sound of the sea far at the bottom of the cliffs isn't comforting in the storm either because it gets whipped up and sprays against the windows of their houses. The sea's a little like a pet you thought was tame but which suddenly turns wild and aggressive, hissing at you. All they can really do when there's a storm is to sit in their houses while the wind attacks repeatedly. He reflects that it's funny that it's a big nothing that they fear (i.e. the wind is 'nothing' because it's invisible but they are afraid of its power).

### What is the context of the poem?

- Seamus Heaney was born in Northern Ireland.
- He wrote the poem at a time of tension – just before the start of a period of violence now referred to as the 'Troubles'.
- This was a period of conflict between groups who had different views about Northern Ireland's relationship with Ireland.

**What is the significance of the title?** A storm is a powerful, destructive, mindless force of nature. Using this word in the title helps to immediately evoke the raw power of nature that the islanders fear. In addition, the first eight letters of the poem's title spell 'Stormont'. This is the name given to Northern Ireland's parliament buildings. This hints that the 'storm' could be about the tension in Ireland prior to the Troubles.

### What are the central ideas in this poem?

- Heaney suggests that the natural world is more powerful than humans. However, this doesn't mean that humans are helpless.
- Fear and the power of nature comes from the unpredictability and uncertainty of the wind and the weather.
- Thinking calmly and rationally about something powerful and destructive doesn't stop you being afraid of it in the moment.
- Nature can be a source of safety and comfort; however it can quickly become a source of fear and helplessness. This is because of its unpredictability.

Key Vocabulary	Definition	Example
Helplessness	The feeling or state of being unable to do anything to help yourself or anyone else.	The islanders felt _____ when faced with the power of the storm.
Fear	An unpleasant emotion to a perceived danger or threat.	As he stepped into the dark room an overwhelming _____ filled him.
Isolation	Being alone or separate to other things.	It was a remote island and so the people lived in almost complete _____.
Power	The ability to control people or events.	The government seized _____ after 5 days of protests.
Nature	Animals, plants, rocks, etc.	As a young man he loved hiking and being close to _____.
Imagery	The use of words or phrases to create mental images.	In 'Storm on the Island', the phrase 'spits like a tamed cat turned savage' is a very effective use of _____.
Semantic field	A group of words related to the same topic or theme.	Smile, joy and laughter all belong to the _____ of happiness.

### Key Quotes:

'we are prepared'

'spits like a tame cat turned savage'

'a huge nothing that we fear'

Writer's Craft:	Explanation
Why does Heaney call it 'Storm on the Island'?	The obvious answer is that it's what the poem is about. However, the poem could have called it anything e.g. "Why we fear" or 'The invisible threat'. The word 'storm' is the embodiment of raw power. It connotes chaos, mindless destruction, unstoppable force. By foregrounding this in the title, it immediately sets up the idea of nature as a powerful, destructive force.
Why does Heaney describe how the houses are built?	The imagery of a squat building with walls sunk in rock evokes the idea of a bunker. This conveys an idea of strength and preparedness. The 'good' slate reinforces the idea of strength. However, this also evokes the idea of war (bunkers are used to shelter from attack). This helps to set up the idea of conflict and the battle between humans and nature being like a war (although, crucially, it's only nature that attacks here).
Why does Heaney employ the semantic field of war/violence?	Using the semantic field of war helps to establish this as a physical battle between humans and nature. The specific words used convey the power, relentlessness and brutality of the attack (e.g. pummels, bombarded). Importantly, these words are just describing what nature is doing to humans (showing the raw power of nature). The humans are only able to cover in their bunker-like homes (and unable to retaliate). However, the humans seem to survive this onslaught (so could we argue that nature's power has a limit in this poem?).
Why does Heaney employ the image of 'tame cat turned savage'?	The people on the island have been lulled into a sense of security by the usual calmness of the sea, similar to that of a 'tamed cat'. However, when the sea becomes dangerous and a threat, seemingly attacking the island, this creates a powerful fear of nature as something once believed to be predictable turns out to be the opposite ('turned savage')
How does the end relate to the beginning (structure)?	The poem starts by commenting on how prepared they are in their bunker-like houses. The tone throughout the poem is calm and reflective. It's still reflective at the end. However, the fear remains. This is a reminder that this poem is really about the fear created by the power of nature, rather than the actual destruction. Nothing is destroyed in this poem; no-one is killed; the people seem safe. However, the potential power of nature means that the fear remains.



For more revision of 'Storm on the Island', search for 'Storm on the Island [poemanalysis.com](http://poemanalysis.com)'

**'The Emigrée' – Knowledge Organiser**

**What happens in the poem?** The poem is written from the perspective of an emigrée – a woman who has had to leave her country for political reasons. The speaker left as a child and so only had limited experience of her homeland. However, she has a vivid positive impression of her home country that is completely fixed, even when she hears about the conflict that is happening there. Even though she is becoming physically more distant from her country ('there's no way back at all'), she finds her connection to it growing (particularly through her language). She now lives in a different city in a different country and her memory of her home country brings her comfort like a loved one, 'visiting' her in her imagination. This comfort is needed because she is not welcomed by her country with a nameless 'they' accusing and threatening her, seemingly because of her identity.

**What is the context of the poem?**

- **Emigration** is the act of leaving one's country permanently and going to live in another one. Someone who does this is an **emigrant**.
- An emigrée is someone – specifically, a woman - who has fled her home country for political reasons (e.g. civil war).
- Unlike Agard's poem, 'The Emigrée' isn't based on direct personal experience: Rumens herself has not had to flee her home country because of conflict.
- Rather she uses the poem to *explore* the experience.
- She also doesn't write about a particular nationality or conflict in her poem. This gives the poem a **universal quality** i.e. it gives us an insight into the experience of all emigrées rather than those connected to a particular time and place.

**What is the significance of the title?** The poem is written from the imagined perspective of an emigrée and attempts to capture what this traumatic experience is like.

**What are the central ideas in this poem?**

- Being an emigrée can be a traumatic experience; it can affect a person's sense of identity (which may in part be a way of coping with the trauma).
- Place can have a powerful effect on who we are.
- Identity can be a source of conflict, particularly when combined with a 'them and us' mentality.
- Memory can be powerful; it can also be unreliable.
- Imagination can be powerful – it can override facts and provide us with coping mechanisms.

Key Vocabulary	Definition	Example
identity	Who a person or thing is.	She now realised how much her childhood had shaped her _____.
<u>emigrée</u>	A woman who has left her country, usually for political reasons.	She has been an _____ since the war civil war had forced her to leave with her family.
universal	Existing everywhere or involving everyone.	The best literature explores the _____ experience of being human.
idealise	To think of or represent someone or something as better than that person or thing really is.	It is common for adults to _____ their childhoods, seeing this tie through rose-tinted spectacles.
branded	Burnt with a mark for identification.	It was such a powerful photo – the sadness in their eyes has been _____ onto my mind for all time.

**Key Quotes:** 'the bright, filled paperweight'      'branded by an impression of sunlight'      'There once was a country'

Writer's Craft:	Explanation
1. Why is the speaker's impression of her home country described as 'sunlight'?	Sunlight connotes life, happiness, warmth. These qualities represent the importance of her memories: they are a source of happiness and emotional comfort; they are her life. Light also suggest illumination, the idea of banishing darkness. These memories help to banish the darkness of her current situation. However, the idea of clarity and illumination is deliberately ironic – it's an idealised 'impression' that's being revealed rather than a true memory.
2. Why is this reference to 'sunlight' repeated throughout the poem?	The sunlight is omnipresent in this poem; it infuses everything. This conveys the influence of her 'memories' – they infuse her life and are omnipresent (even, and perhaps especially, in the challenging circumstances of the final stanza).
3. Why is the image of a 'bright filled paperweight' used to describe the speaker's original view of her home country?	A paperweight is solid, used to hold something in place (papers). In this case, the paperweight represents her original view of her country. We could argue that this 'paperweight' keeps her in place. The paperweight here is filled. This conjures the image of a design inside. Crucially, whatever is inside a paperweight is fixed and unchanging. This represents her 'memory' – her impression of her home country was fixed in place at a particular time and, like the contents of a filled paperweight, are entirely resistant to change.
4. Why has Rumens chosen to use the image of being branded?	Brading suggests the permanent marking of something. It has connotations of identity (e.g. branding traditionally being used to indicate ownership of cattle). This suggests that the sunlight (her positive impression of her home country) has permanently marked her with her identity. Taking this further, we could argue that branding has connotations of pain – this perhaps suggests that it is the pain of her experience (forced emigration, exile) that has helped to permanently cement her sense of identity.
5. Why does the writer use personification in the final stanza to describe the speaker's city?	It makes her memory seem even more concrete – tangible. This suggests that her impression is much more than just an idea to her. It also allows the writer to present the connection between the speaker and her city as being a loving relationship, one that brings comfort in the way spending time with a loved one would. However, it could be argued that the city is presented as vulnerable, with the speaker taking a protective role.
6. Why does the writer refer to 'they' rather than naming a specific group?	It makes the poem universal (applies to the <u>emigrée</u> experience more generally rather than tying it down to one conflict). It arguably also makes it more sinister (the threat of the unknown, the hint of a mob, being outnumbered). It captures the essence of 'them' and 'us' i.e. division in society based on perceptions of identity and belonging.



For more revision of 'COMH', search for 'The Emigrée' poemanalysis.com'

### The Emigrée: Summary (Lit Charts)

From Lit Charts: <https://www.litcharts.com/poetry/carol-rumens/the-emigree> (accessed 20.11.23)

#### The poem transformed into prose:

Once upon a time there was a country... I left that country when I was still just a kid. My memory of it, however, remains strong and clear as sunlight. That's because apparently I never saw the city in the late fall, a time of year that people tell me comes even to the calmest, warmest of places. So even when I hear really bad news about that country, it can't destroy my happy vision of my old home, which remains strong and clear in my mind, like a heavy paperweight resting on my thoughts. My home country might be filled with violence and dictators now, but I will forever associate it with a feeling of comfort and warmth, with sunlight.

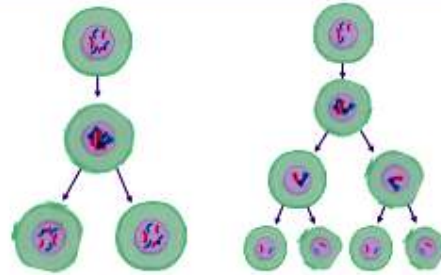
The city's white streets and beautiful hills become even clearer in my mind as time marches on, like an army tank rolling over the past, and as the vast distance between myself my city grows. When I left I took the few words from my native language that I knew as a child, carrying that vocabulary with me like a toy with nothing inside of it. Now, as I learn more words and grammar, my knowledge of that language expands. Soon I'll be totally fluent in it. Though the oppressive regime in my home country tries to ban that language, I can't stop speaking it. Those words are always on my tongue, tasting of the warmth and comfort that I associate with my home.

I don't have a passport and can never go back to my home. My old city visits me, though, flying to me on a white plane. My city lies in front of me as calmly as a piece of paper. I gently brush its hair and look lovingly into its bright eyes. My old city and I go dancing through the night in my new city, which is filled with walls. People gather around and accuse me of being a traitor. They tell me I'm a dark presence in their supposedly free city. Meanwhile, my home city takes cover behind me, afraid of them. They talk about death, but my shadow proves that the sun still shines.

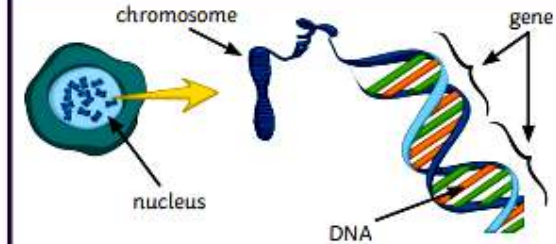
# Inheritance, Variation and Evolution Knowledge Organiser

## Keywords

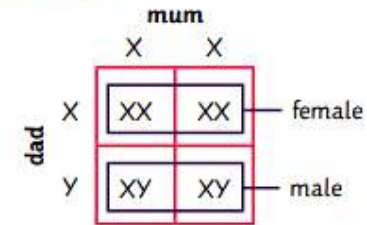
- allele** – An alternative form of a gene.
- asexual reproduction** – The production of offspring from a single parent by mitosis. The offspring are clones of the parent.
- chromosome** – Structures that contain the DNA of an organism and are found in the nucleus.
- cystic fibrosis** – A disorder of cell membranes that is caused by a recessive allele.
- DNA** – A polymer that is made up of two strands that form a double helix.
- dominant** – An allele that is always expressed, even if only one copy is present.
- fertilisation** – The fusion of male and female gametes.
- gamete** – Sperm cell and egg cell in animals; pollen and egg cell in plants.
- gene** – A small section of DNA that codes for a specific protein.
- genome** – The entire genetic material of an organism.
- genotype** – The combination of alleles.
- heterozygous** – A genotype that has two different alleles, one dominant and one recessive.
- homozygous** – A genotype that has two of the same alleles. Either two dominant alleles or two recessive alleles.
- meiosis** – The two-stage process of cell division that reduces the chromosome number of the daughter cells. It makes gametes for sexual reproduction.
- mutation** – A change in DNA.
- phenotype** – The characteristic expressed because of the combination of alleles.
- polydactyly** – Having extra fingers or toes. It is caused by a dominant allele.
- recessive** – An allele that is only expressed if two copies of it are present.
- sexual reproduction** – The production of offspring by combining genetic information from the gametes of two parents. Leads to variation in the offspring.



Mitosis	Meiosis
Produces two daughter cells.	Produces four daughter cells.
Daughter cells are genetically identical.	Daughter cells are not genetically identical.
The cell divides once.	The cell divides twice.
The chromosome number of the daughter cells is the same as the parent cells. In humans, this is 46 chromosomes.	The chromosome number is reduced by half. In humans, this is 23 chromosomes.
Used for growth and repair, and asexual reproduction.	Produces gametes for sexual reproduction.

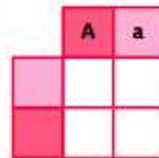


## Sex Determination



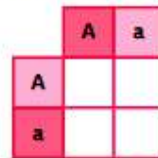
Females carry two X chromosomes.  
Males carry one X and one Y chromosome.

## How to Complete a Punnet Square



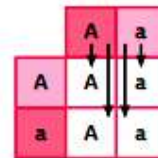
### Step 1:

Put the two alleles from one parent into the boxes at the top. This parent is a heterozygote. This means they have one dominant and one recessive allele.



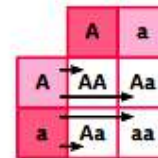
### Step 2:

Put the two alleles from the second parent into the boxes on the left. This parent is also a heterozygote.



### Step 3:

Put the alleles from the first parent into the two boxes underneath them.

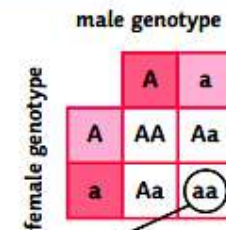


### Step 4:

Put the alleles from the second parent into the two boxes to the right of them.

## Probability

There are four possible combinations of gametes that offspring can inherit.



One of these four has the genotype aa – that's  $\frac{1}{4}$ , 25% or 0.25.

The recessive phenotype has a ratio of 1:3 because only one combination will show the phenotype while the other three will not.

Inheritance, Variation and Evolution Knowledge Organiser

**Keywords**

**embryo screening** – Genetic tests carried out on an embryo to see whether it carries a faulty allele.

**evolution** – A change in the inherited characteristics of a population over time through a process of natural selection.

**evolutionary tree** – A method used to show how scientists believe organisms are related.

**extinction** – The permanent loss of all members of a species.

**fossils** – The remains of organisms from millions of years ago which are found in rocks.

**genetic engineering** – The process by which scientists manipulate and change the genotype of an organism.

**natural selection** – The process by which organisms that are better suited to an environment are more likely to survive and reproduce.

**selective breeding** – Humans selecting animals or plants, that have a required characteristic, for breeding.

**speciation** – The process by which two species evolve from a single original species by natural selection. The two populations have become so different that they can no longer interbreed to produce fertile offspring.

**variation** - Differences in characteristics of individuals in a population.

**Variation**

Variation may be due to differences in:

- the genes that have been inherited (genetic causes);
- the conditions in which they have developed (environmental causes);
- a combination of genes and the environment.

**Evolution**

All species of living things have evolved from simple life forms by natural selection.

- If a variant/characteristic is advantageous in an environment, then the individual will be better able to compete.
- This means they are more likely to survive and reproduce.
- Their offspring will inherit the advantageous allele.



**Fossils**

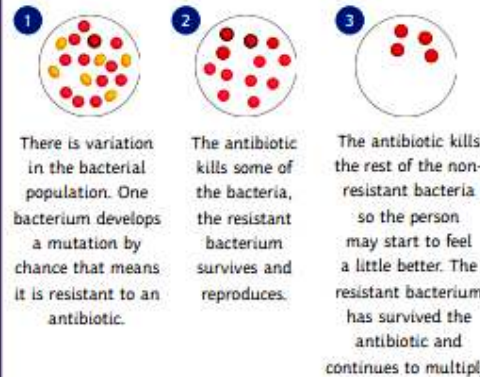
Fossils could be:

- the actual remains of an organism that has not decayed;
- mineralised forms of the harder parts of an organism, such as bones;
- traces of organisms such as footprints or burrows.

Many early life forms were soft-bodied so have left few traces behind.

Fossils help us understand how much or little organisms have changed as life developed on earth.

**Resistant Bacteria**

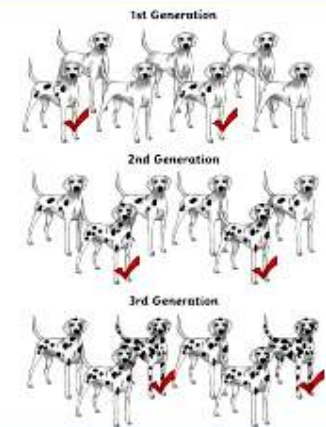


To reduce the rate at which antibiotic-resistant strains appear:

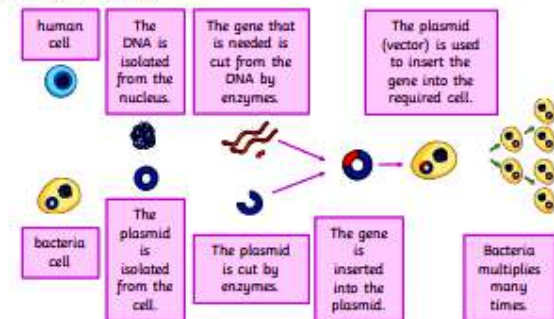
- Antibiotics should only be used when they are really needed, not for treating non-serious or viral infections.
- Patients should complete their courses of antibiotics, even if they start to feel better.
- The agricultural use of antibiotics should be restricted.

**Selective Breeding**

1. Choose parents who have the desired characteristic.
2. Select the best offspring and breed these to make the next generation.
3. These offspring are then bred again and again, over many generations, until a desired result is achieved.



**Genetic Engineering**



**Classification**


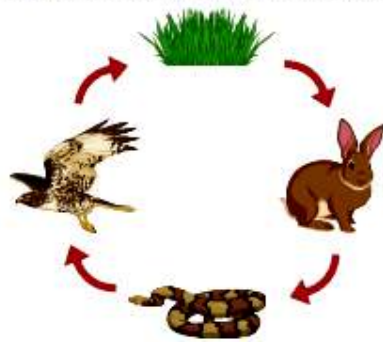
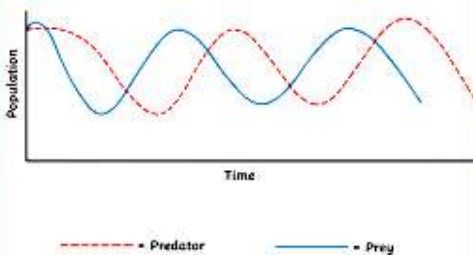
Linnaeus classified living things into kingdom, phylum, class, order, family, genus and species.

Organisms are named by the binomial system of genus and species.

Due to evidence from chemical analysis, there is now a 'three-domain system' developed by Carl Woese.

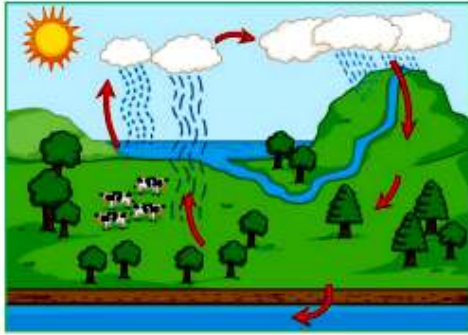
<b>Domain</b>	bacteria	archaea	eukaryota			
<b>Kingdom</b>	eubacteria	archaeobacteria	protista	fungi	plantae	animalia

AQA Biology (Combined Science) Unit 7: Ecology Knowledge Organiser

Keywords	Abiotic and Biotic Factors	Food Chains	Competition
<p><b>Biodiversity</b> - the variety of living organisms.</p> <p><b>Carrion</b> - decaying flesh and tissue of dead animals.</p> <p><b>Community</b> - made up of the populations of different species living in a habitat.</p> <p><b>Competition</b> - the negative interaction between two or more organisms which require the same limited resource.</p> <p><b>Consumers</b> - feed on other organisms for their energy. Can be primary, secondary or tertiary.</p> <p><b>Decomposers</b> - organisms which feed on dead and decaying organisms. They break down the biomass and release nutrients into the soil.</p> <p><b>Deforestation</b> - the removal and destruction of trees in forest and woodland.</p> <p><b>Ecosystem</b> - the interaction between the living organisms and the different factors of the environment.</p> <p><b>Global warming</b> - the increase of the average global temperature.</p> <p><b>Habitat</b> - where a living organism lives.</p> <p><b>Interdependence</b> - the interaction between two or more organisms, where it is mutually beneficial.</p> <p><b>Population</b> - the number of individual organisms of a single species living in a habitat.</p> <p><b>Predators</b> - organisms which kill for food.</p> <p><b>Prey</b> - the animals which are eaten by the predators.</p> <p><b>Producers</b> - convert the sun's energy into useful compounds through photosynthesis. They are green plants or algae.</p> <p><b>Scavengers</b> - organisms which feed on dead animals (carrion).</p> <p><b>Species</b> - organisms of similar morphology which can interbreed to produce fertile offspring.</p>	<p><b>Abiotic</b> factors are the non-living factors of an environment. E.g. moisture, light, temperature, CO<sub>2</sub>, wind, O<sub>2</sub> or pH.</p> <p><b>Biotic</b> factors are the living factors of an environment. E.g. predators, competition, pathogens, availability of food.</p> <p><b>Adaptations</b></p> <p>Adaptations are specific features of an organism which enable them to survive in the conditions of their habitat.</p> <p>Adaptations can be structural, behavioural or functional:</p> <ul style="list-style-type: none"> <li>• <b>Structural adaptations</b> are features of the organism's body e.g. colour for camouflage.</li> <li>• <b>Behavioural adaptations</b> are how the organism behaves e.g. migration to a warmer climate during colder seasons.</li> <li>• <b>Functional adaptations</b> are the ways the physiological processes work in the organism e.g. lower metabolism during hibernation to preserve energy.</li> </ul> <p>A plant or animal will not physically change to adapt to its environment in its lifetime. Instead, there is natural variation within the species and only organisms whose features are more advantageous in the environment survive. The survivors then go on to reproduce and pass on their features to some of their offspring. The offspring who inherit these advantageous features are better equipped to survive.</p> <p>Charles Darwin described this process as 'survival of the fittest'.</p> 	<p>The source of all energy in a food chain is the sun's radiation. It is made useful by plants and algae which produce organic compounds through photosynthesis.</p>  <p>The living organisms use the energy to produce biomass and grow.</p> <p>When a living organism is consumed, some of the biomass and energy is transferred. Some of the energy is lost.</p> <p>Remember: the arrow in a food chain indicates the direction of the flow of energy.</p> <p>Populations of predators and prey increase and decrease in cycles. The size of the predator population depends on the size of the prey population and vice versa. Overall, there is a stable community.</p>  <p>Population</p> <p>Time</p> <p>----- Predator</p> <p>————— Prey</p>	<p>Species will compete with one another and also within their own species to survive and to reproduce.</p> <p><b>Mutualism</b> occurs when both species benefit from a relationship.</p> <p><b>Parasitism</b> occurs when a parasite only benefits from living on the host.</p> <p>Animals compete for resources such as food, water and space/shelter. They may also compete within their own species for mates.</p> <p>Plants compete for resources including light, water, space and minerals. All these resources are needed for photosynthesis so the plant can make its own food. Plants do not need to compete for food.</p> <p><b>Deforestation and Land Use</b></p> <p>Humans use land for buildings, quarrying, mining, agriculture and landfill. As the human population increases and we take more land, there is less space for other organisms to live.</p> <p>Deforestation (to use wood as a fuel/material or to clear space for other uses) destroys habitats where other organisms live.</p> <p>Peat bogs are produced when decomposition occurs over a very long time. Peat stores a lot of carbon and can be extracted for use by gardeners or as an energy source. Burning peat releases a lot of carbon dioxide into the atmosphere which contributes to the greenhouse effect.</p> <p>Trees absorb carbon dioxide for photosynthesis, so as they are cut down and removed, less carbon dioxide is taken from the atmosphere. Furthermore, when the trees are burned, they release carbon dioxide back into the atmosphere. The excess carbon dioxide can lead to global warming and the changes to the ecosystem cause reduced biodiversity.</p>

AQA Biology (Combined Science) Unit 7: Ecology Knowledge Organiser

Water Cycle



**Convection** is the movement caused within a fluid as the hotter, less dense material rises and colder, denser material sinks under the influence of gravity. This results in the transfer of heat.

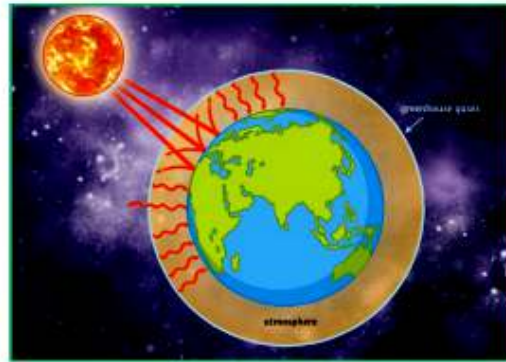
**Evaporation** occurs when heat energy from the surroundings (or a heat source) is transferred to water particles as kinetic energy. The particles begin to move more rapidly and can turn from a liquid into a gas.

**Condensation** occurs when moving particles transfer kinetic energy to the surroundings. The particles begin to move even more slowly and can turn from a gas into a liquid.

**Precipitation** occurs when rain, snow, sleet, or hail falls to (or **condenses** on) the ground.

**Transpiration** is the process by which water is carried through plants from roots to the stomata on the underside of leaves and it evaporates into the surroundings.

Global Warming



The **greenhouse effect** is the natural process where some of the Sun's radiation is trapped within the insulating layer of the atmosphere. This maintains a temperature suitable to support life on Earth.

Most of the radiation from the Sun is absorbed by the Earth when it reaches the surface. The rest of the infrared radiation is reflected from the surface and absorbed by the greenhouse gases and clouds in the atmosphere. This is then re-emitted in all directions.

However, due to many contributing factors, the global temperature is gradually increasing. Several gases, called greenhouse gases, trap the heat around the Earth; the most concerning is carbon dioxide. Human activities contribute to the excess amount of carbon dioxide in the atmosphere and so are a cause of global warming.

Global warming leads to the melting of ice caps, rising sea levels, flooding, changes to climate, changes in migration patterns, changes in species distribution and reduction in biodiversity.

RPI: Field Techniques Quadrats and Transects

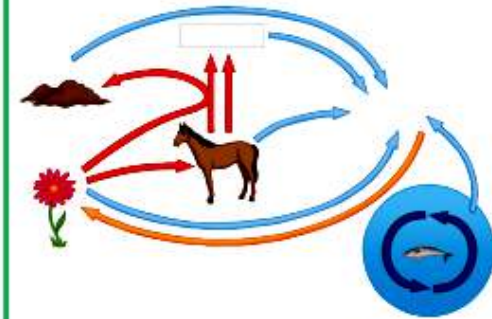
The distribution of an organism is affected by the environment and abiotic factors. Quadrats can be used to measure the frequency of an organism in a given area e.g. the school field. You could count the individual organisms or estimate the percentage cover. You must collect data from at least two areas to make a comparison. Quadrats should always be placed randomly.

Transects are used to measure the change of distribution across an area e.g. from the edge of a river and moving further from the water's edge. You could either count the number of organisms touching the transect at regular intervals or use a quadrat placed at regular intervals along the transect.

$$\text{mean} = \frac{\text{total number of organisms}}{\text{number of quadrats}}$$



Carbon Cycle

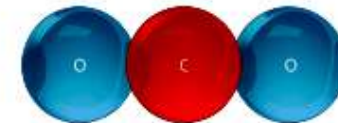


The main focus on the carbon cycle is its transfer to and from the atmosphere. When carbon is in the atmosphere, it combines with oxygen to form carbon dioxide, a greenhouse gas.

Carbon is transferred from the atmosphere when plants absorb carbon dioxide for photosynthesis and when the gas is dissolved into oceans.

Carbon is transferred to the atmosphere through respiration by animals, plants and bacteria and by combustion of fossil fuels (coal, oil and natural gas).

Dead animals and plants are decomposed and their matter is broken down by microbes and fungi. These organisms are collectively called decomposers. When the organisms are broken down, the microbes and fungi release carbon dioxide into the atmosphere through respiration.



## AQA GCSE Chemistry (Combined Science) Unit 9: Chemistry of the Atmosphere

## The Early Atmosphere

Approximately **4.6 billion years ago** the Earth was formed. Scientists have lots of ideas and **theories** about how the atmosphere was produced and the gases within it, but due to the lack of evidence, they cannot be sure.

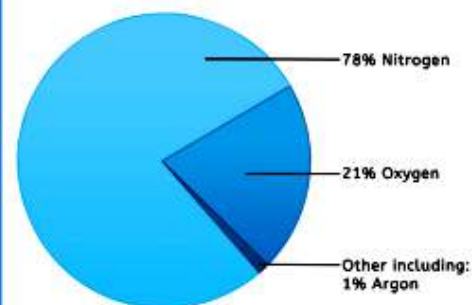
One theory suggested that **intense volcanic activity** released gases that made **Earth's early atmosphere** very similar to that of Mars and Venus. These planet's atmospheres mainly consist of carbon dioxide with little oxygen.

Nitrogen gas would have also been released from volcanoes and would have built up in the atmosphere.

**Water vapour** in Earth's early atmosphere would have **condensed** to create the **seas and oceans**. Carbon dioxide would have dissolved in the water, decreasing the level in the atmosphere.

## Percentage of Gases in the Atmosphere

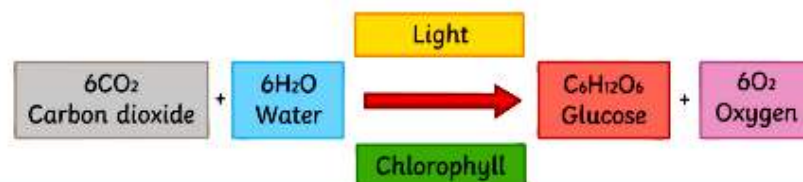
The pie chart below shows the abundance of each gas in our atmosphere.



## How Did the Levels of Oxygen Increase?

2.7 billion years ago, algae first produced oxygen. Gradually over time, the levels of oxygen in our atmosphere increased as plants evolved. This was followed by animals as the levels of oxygen increased to a level that would sustain more complex life.

**Oxygen** is produced by plants in the process of **photosynthesis**.



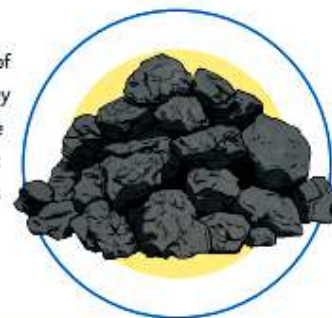
## How Did the Levels of Carbon Dioxide Decrease?

Carbon dioxide **dissolves** in water. As water vapour condensed and the oceans and seas formed, the carbon dioxide gas dissolved producing **carbonate compounds**. This process reduced the amount of carbon dioxide in the atmosphere. Carbonate compounds were then **precipitated**: limestone is an example of a sedimentary rock; it has the chemical name calcium carbonate.

Plants in the oceans absorbed **carbon dioxide** gas for **photosynthesis**. The organisms from the food chains that the plants supported were turned into fossil fuels. **Fossil fuels** are **non-renewable** and consist of **coal, crude oil, and gas**, all of which contain carbon.

Crude oil was formed millions of years ago. When aquatic plants and animals died, they fell to the bottom of the sea and got trapped under layers of sand and mud. Over time, the organisms got buried deeper below the surface. The **heat and pressure** rose, turning the remains of the organisms into crude oil or natural gas. Oxidation did not occur due to the lack of oxygen.

**Coal** is a fossil fuel formed from **giant plants** that lived hundreds of millions of years ago in swamp-like forests. When these plants died, they sank to the bottom of the swamp where dirt and water began to pile on top of them. Over time, pressure and heat increased and the plant remains underwent chemical and physical changes. The oxygen was pushed out and all that remained was coal.



## The Human Impact and the Greenhouse Effect

Scientists believe that human activities have resulted in the **increased** amount of greenhouse gases in the atmosphere. Activities such as **farming cattle** and **farming rice** release huge amounts of **methane** into the atmosphere.

Burning **fossil fuels** in cars and power stations releases large amounts of **carbon dioxide**. With large areas of the rainforest being cut down through **deforestation**, the excess carbon dioxide is not being absorbed by photosynthesis.

However, not everyone believes that humans are causing the rise in greenhouse gases. Some believe that the rise in global temperatures is associated with cycles of climate change and natural factors.

**Climate science** is often complicated as there are **difficulties** associated with **predicting future global temperatures**. The media present information that can be biased, inaccurate or lacks substantial evidence.

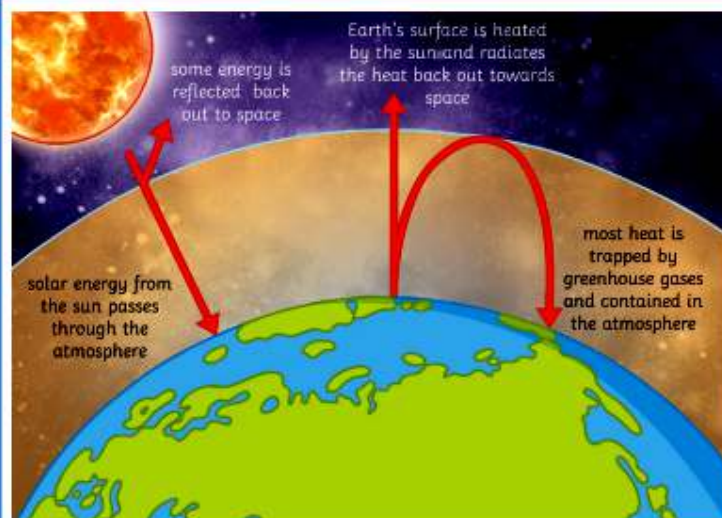
After reading an article on global warming, consider the trustworthiness of the source by considering these factors:

- Is the research done by an expert in that field and do they have the right skills and qualifications to report on the issue?
- Which organisation is reporting the evidence? If it is a newspaper, some stories are sensationalised in order to sell papers.
- Was the research funded by a legitimate organisation and was it conducted in a non-biased way? Think about the methods that were used to obtain the data and the impact the collection and analysis of this data had on the overall result.



## AQA GCSE Chemistry (Combined Science) Unit 9: Chemistry of the Atmosphere

## The Greenhouse Effect



A greenhouse is a house made of glass and is commonly used by gardeners to help grow plants and keep them warm. As the sun shines through the greenhouse, the air is heated up and becomes trapped by the glass and is prevented from escaping. During daylight, a greenhouse stays quite warm and this lasts into the night.

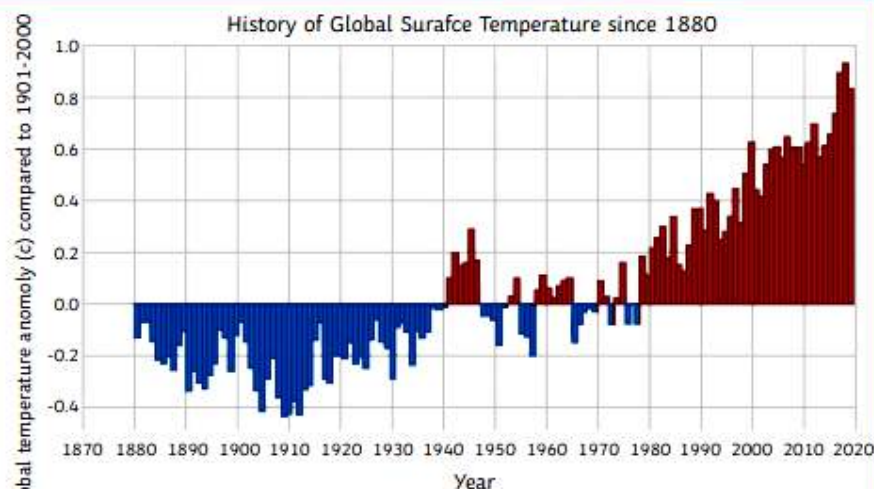
The earth and its atmosphere are very similar to that of a greenhouse. The greenhouse gases in the atmosphere trap the heat and keep the earth warm. The main greenhouse gases are **carbon dioxide**, **water vapour** and **methane**. During the daylight, the sun warms up the earth's surface. During the night, as the earth begins to cool and release the heat back into the atmosphere, some of the heat is trapped by the greenhouse gases in the atmosphere.

If the **greenhouse effect** becomes too **strong**, the earth will get too warm and melt the Arctic ice. As we burn more fossil fuels, the levels of **carbon dioxide** and the other greenhouse gases **increase** in our atmosphere which makes the greenhouse effect stronger.

## What is the Difference Between Climate Change and Global Warming?

Since the Earth was formed over 4.6 billion years ago, its climate has constantly been changing with several ice ages followed by warmer temperatures. Changes in the Sun's energy reaching the Earth and volcanic eruptions were responsible for the changes until about 200 years ago.

Global warming is different to climate change and is used to explain how the earth's climate has warmed up over the past 200 years. Scientists believe that the warming of the climate is due to the activities of humans.



## Carbon Footprint

The carbon footprint is the total amount of **carbon dioxide** and other greenhouse gases emitted over the full life cycle of a product, service or event.

An individual's carbon footprint is a calculation of all the activities that that person has taken part in throughout the year.

These activities might involve flying abroad or **travelling** by bus or rail. Each of which might be powered by petrol or diesel. **Heating a home** in winter by using a gas-powered boiler and using electricity to power lights and electronic devices. **Food** also has a **carbon footprint**, for example, beef and rice produces huge amounts of methane when farmed.



## Nitrogen

Nitrogen and oxygen react together to make oxides of nitrogen. This occurs inside a **car engine** where there is a high temperature and pressure. Many compounds can be formed when nitrogen reacts with oxygen. The two that are formed inside a car engine are NO and NO<sub>2</sub>.

Nitrogen compounds are grouped together with the general formula NO<sub>x</sub>. Nitrogen compounds, along with sulfur dioxide, are also responsible for acid rain.

Compounds of nitrogen oxides react in the atmosphere with ultraviolet light from the sun to produce **photochemical smog**. The smog is most noticeable during the morning and afternoon and occurs mainly in densely populated cities.

The presence of smog can have a **major impact on human health**, particularly to those who suffer with **asthma**.

## Combustion

**Complete combustion** occurs when there is **enough oxygen** for a fuel to burn. A hydrocarbon will react with oxygen to produce carbon dioxide and water.

propane + oxygen  $\rightarrow$  carbon dioxide + water



**Incomplete combustion** occurs when there isn't **enough oxygen** for a fuel to burn. The products in this reaction are water and poisonous **carbon monoxide**. Carbon particles (soot) may also be seen.

ethane + oxygen  $\rightarrow$  carbon monoxide + water



**Carbon monoxide** is a poisonous gas. It is often called the **silent killer** due to it being colourless and odourless. Carbon monoxide works by binding to the **haemoglobin** in your red blood cells. This prevents them from carrying oxygen to the cells around your body. Carbon monoxide detectors are used to detect levels of the gas in the surrounding air and are often placed near gas-powered boilers to detect gas leaks.

**Particulate carbon** irritates the lining of the lungs making asthma worse and could cause cancer. **Global dimming** is caused by particulates of carbon blocking out the Sun's rays and may reduce rainfall.

## Sulfur Dioxide

Sulfur dioxide is an **atmospheric pollutant**. It is a gas that is produced from the burning of **fossil fuels**. Sulfur dioxide is able to dissolve in rainwater and produces **acid rain**. Acid rain causes damage to forests, kills plants and animals that live in aquatic environments, and damages buildings and statues as the acid rain erodes the stone that they are made from.

sulfur + oxygen  $\rightarrow$  sulfur dioxide

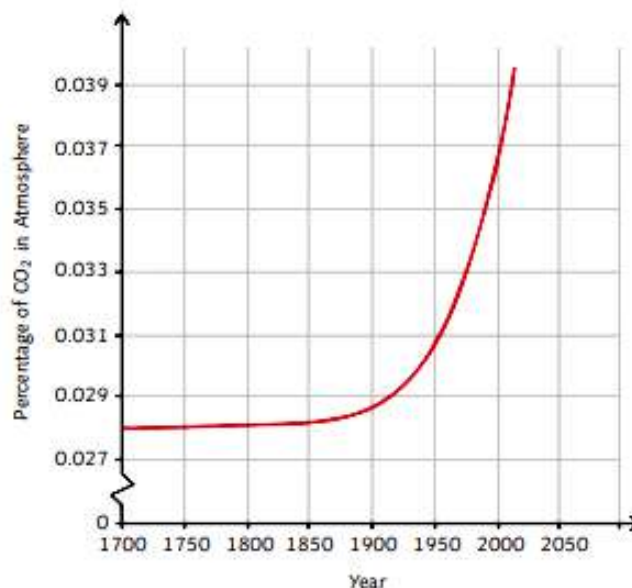


Sulfur dioxide can be further oxidised to form sulfur trioxide.

### What is the Link Between Carbon Dioxide and Global Warming?

There is a strong correlation between the percentage concentration of carbon dioxide in the atmosphere and increased global temperatures.

The impact of this is that the polar ice caps are melting, sea levels are rising and habitats and rainfall patterns are changing. The impact of which is already being felt around the globe. The consequences of human activity will affect us all.



AQA Combined Science: **Physics Topic 7 Magnetism and Electromagnetism**

**Poles of a Magnet**

A magnet has two ends called **poles**: the **north pole** and the **south pole**. The magnetic forces of the magnet are strongest at the poles.



When two magnets are brought close together, they will **attract** or **repel**, depending on which poles are brought together:

- **Like poles** will **repel** one another e.g. N-N or S-S.
- **Opposite poles** will **attract** e.g. N-S.

The forces exerted between the poles of two magnets are a type of **non-contact force**: the magnets do not have to be touching for the effect to be observed.

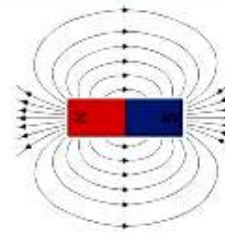
Remember that only **iron, cobalt** and **nickel** (or alloys containing these metals) are magnetic.

A **permanent magnet** is one with its own magnetic field. The magnetism cannot be turned on or off e.g. a bar magnet or a horseshoe magnet.

An **induced magnet** is a material which becomes magnetic only when placed within a magnetic field. Induced magnets only attract other materials and lose most (if not all) of their magnetism when removed from the magnetic field e.g. iron filings.

**Magnetic Fields**

The **magnetic field** is the area surrounding a magnet where the force is acting on another magnet or magnetic material. It can be observed using a compass placed at different points around a bar magnet. The field lines can be drawn by using the compass to mark the direction at a range of points.



A magnet always causes a magnetic material to be **attracted**. The strength of the magnetic field is determined by the proximity to the magnet.

When looking at a diagram of magnetic field lines, the force is strongest where the lines are closest together. The magnetic field of the magnet is strongest at the poles. The direction of the magnetic field shows the direction the force would act on another north pole. As a result, magnetic field lines always come away from the north pole (like poles repel) and towards the south pole (unlike poles attract).



The earth produces a magnetic field and a magnetic compass uses this to help aid navigation. The core of the earth is made of iron (a magnetic material). A compass contains a small bar magnet shaped as a needle, which points in the direction of the earth's magnetic field.

**Plotting Magnetic Field Lines**

A magnetic compass can be used to plot and draw the magnetic field lines around a magnet.

You should be able to describe this method for a bar magnet.

1. Place the bar magnet in the centre of a sheet of plain paper.
2. Using a magnetic compass, position it on the paper somewhere around the magnet.
3. Observe the direction of the needle and carefully draw a dot at the circumference of the magnet, in line with each end of the needle. Make sure you include an arrow to indicate the direction of north.
4. Repeat steps 2 and 3 for several positions around the magnet.
5. Join the arrows to complete the magnetic field lines and whole pattern.



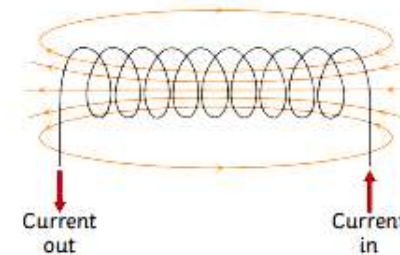
**Electromagnetism**

A circular **magnetic field** is produced when a current is passed through a conducting wire. This produces an **induced magnet**.

Switching off the current causes the magnetism to be lost.

The strength of the magnetic field can be increased by increasing the current flowing through the wire. The strength of the magnetic field is stronger closer to the wire.

Coiling the wire to form a **solenoid** will also increase the strength of the magnetic field. The strength of the magnetic field created by a solenoid is strong and uniform throughout.



To increase the strength of the magnetic field around a solenoid you can...

- add an iron core;
- increase the number of turns in the coil;
- increase the current passing through the wire.

An **electromagnet** is a solenoid with an iron core. Electromagnets are **induced magnets** and can be turned on and off.



Electric motors, loudspeakers, electric bells and remotely controlled door locks all use **electromagnets**.

### The Motor Effect and Fleming's Left-Hand Rule

When a wire carrying a current is exposed to the magnetic field of another magnet, then a **force** is produced on the wire at a **right angle** to the direction of the magnetic field produced.

This is called the **motor effect**.

The force produced by the motor effect can be calculated using this equation:

$$\text{force (N)} = \text{magnetic flux density (T)} \times \text{current (A)} \times \text{length (m)}$$

For example:

A current of 8A is flowing through a wire that is 75cm long. The magnetic field acting at a right angle on the wire is 0.5T. Calculate the force.

$$F = B \times I \times l$$

Remember: the equation uses length measured in m. The question gives you the length in cm so you need to convert it before you calculate your answer.

$$F = 0.5 \times 8 \times 0.75$$

$$F = 3\text{N}$$

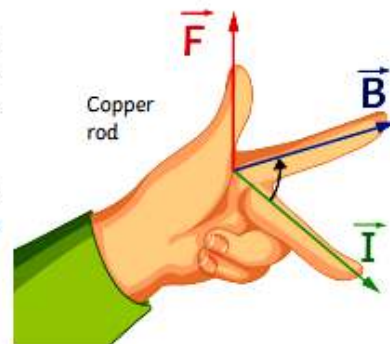
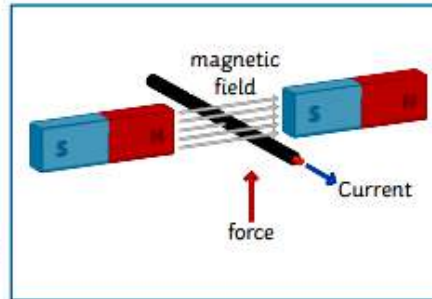
From the equation we can see that the force acting on a given length of wire (e.g. 1m) will be increased if the current increases or the magnetic flux density increases. If the current flowing through a wire is **parallel** to the magnetic field, then **no force** is produced – there is no motor effect.

You might be shown a diagram and asked to indicate the direction of the force produced.

**Fleming's left-hand rule** can help you do this because it represents the **relative orientation** of the force produced by the motor effect.

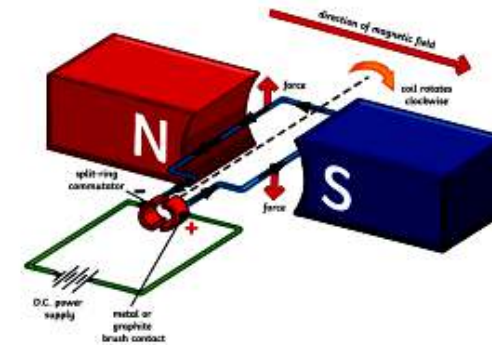
Remember:

- Use your **left hand!**
- The angle between your index finger and middle finger should be a **right angle** on the horizontal plane.
- The angle between your index finger and thumb should be a **right angle** on the vertical plane.
- Your **thumb** represents the direction of the **force**.
- Your **index finger** represents the direction of the **magnetic field**.
- Your **middle finger** represents the direction of the **current** flowing through the wire.



### Electric Motors

When the wire carrying the current is **coiled**, the motor effect acting on it causes the wire to **rotate**. This is how an **electric motor** works.



As the **current** flows (from negative to positive), the force produced in each side of the coil acts in **opposite directions**, causing the coil to **rotate** overall.

When the coil reaches a **vertical position**, the force produced is now **parallel** to the magnetic field line and so would be **zero**. This would cause the motor to stop rotating.

To maintain the rotation of the coiled wire, a **split ring commutator** is used to supply the current to the wire. The DC supply reaches the split ring via graphite or metal **brushes** which maintain the connection while allowing it to rotate freely on the **axle**.




The two halves of the split ring commutator ensure that the **current supplied** to the wire **changes direction** each half-turn (or that the current supplied is the same direction on each side of the motor) and as a result, the force produced maintains a **constant rotation** in one direction overall.

**1. Resource Challenges**

Resources are things that humans require for life or to make our lives easier. Humans are becoming increasingly dependent on exploiting these resources, and as a result they are in high demand.

**2. Significance of Water**

Resources such as food, energy and water are what is needed for basic human development.

FOOD 	WATER 	ENERGY 
Without enough nutritious food, people can become <b>malnourished</b> . This can make them ill. This can prevent people working or receiving education.	People need a supply of <b>clean and safe water</b> for drinking, cooking and washing. Water is also needed for food, clothes and other products.	A good supply of energy is needed for a basic standard of living. People need <b>light and heat</b> for cooking or to stay warm. It is also needed for industry.

**3. Demand outstripping supply**

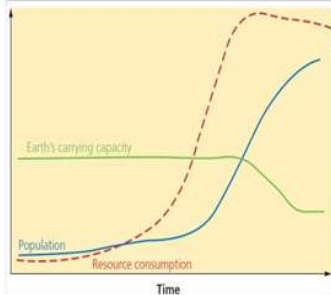
The demand for resources like food, water and energy is rising so quickly that supply cannot always keep up. Importantly, access to these resources vary dramatically in different locations

**4. Population Growth** 

- Currently the global population is **7.3 billion**.
- Global population has risen **exponentially** this century.
- Global population is expected to reach **9 billion by 2050**.
- With more people, the **demand** for food, water, energy, jobs and space **will increase**.

**5. Economic Development** 


- As **LICs** and **NEEs** develop further, they require **more energy** for industry.
- **LICs** and **NEEs** want similar lifestyles to **HICs**, therefore they will need to **consume more resources**.
- Development means **more water is required** for food production as diets improve.




**6. Resource Reliance Graph**

**Consumption** – The act of using up resources or purchasing goods and produce.  
**Carry Capacity** – A maximum number of species that can be supported.

**Resource consumption exceeds Earth's ability to provide!**

**7. Changing Technology and Employment** 

- The demand for resources has driven the **need for new technology** to reach or gain more resources.
- More people in the **secondary and tertiary industry** has increased the **demand for resources** required for electronics and robotics.

**Food in the UK** 

**8. Growing Demand**

- The UK imports about 40% of its food. This increases people's **carbon footprint**.
- There is growing demand for greater choice of **exotic foods** needed all year round.
- Foods from abroad are more affordable.
- Many food types are unsuitable to be grown in the UK.

**9. Impact of Demand**

**Foods can travel long distances (food miles). Importing food adds to our carbon footprint.**

- + Supports workers with an income
- + Supports families in LICs.
- + Taxes from farmers' incomes contribute to local services.
- Less land for locals to grow their own food.
- Farmers exposed to chemicals.

**10. Agribusiness** 

**Farming is being treated like a large industrial business. This is increasing food production.**

- + Intensive farming maximises the amount of food produced.
- + Using machinery which increases the farms efficiency.
- Only employs a small number of workers.
- Chemicals used on farms damages the habitats and wildlife.

**11. Sustainable Foods** 

**Organic foods that have little impact on the environment and are healthier have been rising. Local food sourcing is also rising in popularity.**

- Reduces emissions by only eating food from the UK.
- **Buying locally sourced** food supports local shops and farms.
- A third of people **grow their own food**.

**Unit 2c** 

**The Challenge of Resource Management**

**Energy in the UK** 

**12. Growing Demand**

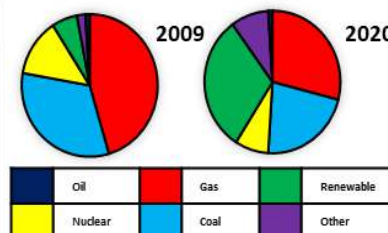
The UK **consumes less energy** than compared to the 1970s despite a smaller population. This is due to the **decline of industry**.

**13. Energy Mix**

The majority of UK's energy mix comes from **fossil fuels**. By 2020, the UK aims for 15% of its energy to come from **renewable sources**. These renewable sources do not contribute to **climate change**.

**14. Changes in Energy Mix**

- 75% of the UK's oil and gas has been used up.
- Coal consumption has declined.
- UK has become too dependent on imported energy.



**Water in the UK** 


**17. Growing Demand**

**The average water used per household has risen by 70%. This growing demand is predicted to increase by 5% by 2020. This is due to:**

- A growing UK population.
- Water-intensive appliances.
- Showers and baths taken.
- Industrial and leisure use.
- Watering greenhouses.

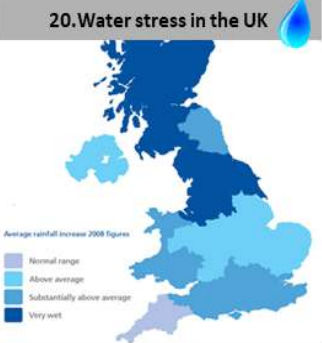
**18. Deficit and Surplus**

The north and west have a **water surplus** (more water than is required).  
 The south and east have a **water deficit** (more water needed than is actually available).  
 More than half of England is experiencing **water stress** (where demand exceeds supply).

**19. Pollution and Quality** 

**Cause and effects include:**

- Chemical run-off from farmland can destroy habitats and kills animals.
- Oil from boats and ships poisons wildlife.
- Untreated waste from industries creates unsafe drinking water.
- Sewage containing bacteria spreads infectious diseases.



**21. Management**

UK has **strict laws** that limits the amount of discharge from factories and farms.  
**Education campaigns** to inform what can be disposed of safely.  
**Waste water treatment plants** remove dangerous elements to then be used for safe drinking. Pollution traps catch and filter pollutants.

**22. Water Transfer**

Water transfer involves moving water through pipes from areas of surplus (Wales) to areas of deficit (London).  
**Opposition includes:**

- Effects on **land and wildlife**.
- High maintenance **costs**.
- The **amount of energy** required to move water over long distances.

**Energy in the UK (continued)**

**15. Significance of Renewables**

- + The UK government is investing more into low carbon alternatives.
- + UK government aims to meet targets for reducing emissions.
- + Renewable sources include wind, solar and tidal energy.
- Although infinite, renewables are still expensive to install.
- Shale gas deposits may be exploited in the near future

**16. Exploitation**

<b>Nuclear</b>	New plants provide job opportunities. Problems with safety and possible harm to wildlife. Nuclear plants are expensive.
<b>Wind Farm</b>	Locals have low energy bills. Reduces carbon footprint. Construction cost is high. Visual impacts on landscape. Noise from wind turbines.

Option: WATER



Water security is when people have good access to enough clean water to sustain well-being and good health. Water insecurity is when areas are without sufficient water supplies. Water Stress is when less than 1700m<sup>3</sup> is available per person.

Human	Physical
<ul style="list-style-type: none"> <li>• <b>Pollution caused</b> from human and industrial waste being dumped into peoples water sources.</li> <li>• <b>Poverty prevents</b> low income families affording water.</li> <li>• <b>Limited infrastructure</b> such as a lack of water pipes and sewers.</li> <li>• <b>Over-abstraction</b> is when more water is taken than is replaced.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Climate</b> needs to provide enough rainfall to feed lakes and rivers. Droughts affect supply if water.</li> <li>• <b>Geology</b> can affect accessibility to water. Permeable rock means sourcing water from difficult aquifers, whereas impermeable allows water to run-off into easily collected basins.</li> </ul>

Impact of Water Insecurity

Food production	Industrial output
<p>The less water available for irrigating crops the less food that will be produced. This could lead to starvation.</p>	<p>Manufacturing industries depend heavily on water. A severe lack of water can impact economic output.</p>
Disease and Water Pollution	Water conflict
<p>Inadequate sanitation systems pollutes drinking water. Fertilisers and industrial chemicals can also pollute water supplies.. Diseases such as cholera and typhoid are caused by untreated sewage. In some areas people are forced to drink this water which can cause illness or death</p>	<p>Water sources that cross national borders can create tensions and even war between countries. For an example, if one country tries to improve its water security by taking more water from a river which reduces supplies downstream.</p>

Increasing Water Supply	CS South North Water Transfer Project – China	Sustainable Water Supply	C.S. NEE - The Wakel River Basin
<p><b>Water diversion</b> - Involves diverting water to be stored for longer periods. Often water is pumped underground to prevent evaporation.</p> <p><b>Dams and Reservoirs</b> - Dams control flow and storage of water. Water is released during times of water deficit. This is usually along pipelines. For example, Burrator Reservoir. In some cases, reservoirs cause conflict because they flood land.</p> <p><b>Water transfer</b> – includes schemes to move water from areas of surplus to areas of deficit. This is usually done using pipes or canals.</p> <p><b>Desalination</b> – Involves the extraction of salt from sea water to produce fresh drinking water. The seawater can either be heated or evaporated then passed through a special membrane. However, this is very expensive. Wealthy desert countries often use this method e.g. UAE.</p>	<p><b>To cope with water insecurity, the Chinese government has planned a \$62 billion project that will transfer 44.8 billion cubic litres of water every year from the south to the north.</b> </p> <p><b>Advantages</b></p> <ol style="list-style-type: none"> <li>1) It provides water to the people in the cities of Beijing and Tianjin.</li> <li>2) It allows industry to continue to develop, bringing wealth to the country.</li> <li>3) It provides water for irrigating farmland so crops can be grown.</li> </ol> <p><b>Disadvantages</b></p> <ol style="list-style-type: none"> <li>1) Large areas have been flooded, destroying natural habitats.</li> <li>2) Raising the dam of the Danjiangkou Reservoir flooded productive farmland and forced 345 000 people to move. Most of them now have less land and poorly built housing. Many received little compensation and are now unemployed.</li> <li>3) The water it supplies to Beijing is very expensive for consumers as the project has cost so much. The project only supplies urban areas and those who can afford it</li> </ol>	<p><b>Ensures water supplies don't cause damage to the environment whilst also supporting the local economy.</b></p> <p><b>Water conservation</b> - Aims to reduce the amount of water wasted. For example, fixing leaking pipes or using water meters. Educating people can also help to reduce their supply e.g. taking shorter showers.</p> <p><b>Groundwater Management</b> - Involves the monitoring of extracting groundwater. Laws can be introduced. When groundwater supplies are between countries there are usually international agreements in place to ensure one country doesn't take more water than it should.</p> <p><b>Recycling and 'Grey' Water</b> - Means taking water that has already been used and using it again rather than returning it to a river or the sea. This includes water taken from bathrooms and washing machines.</p>	<p><b>A project in India that aims to improve water use by encouraging greater use of rainwater harvesting techniques.</b></p> <p><b>How does the project work?</b></p> <ul style="list-style-type: none"> <li>• Provides 'taankas' that store water underground.</li> <li>• Small dams called 'johed' interrupt water flow and encourages infiltration.</li> <li>• Villages take turns to irrigate their fields so water is not overused.</li> <li>• Maintained by farmers Greater education for awareness.</li> </ul> <p><b>Sustainable</b> because</p> <ul style="list-style-type: none"> <li>• Local people involved and educated about water management</li> <li>• Simple/appropriate technology</li> <li>• Low cost</li> </ul>

## HITLER'S EARLY LIFE AND WORLD WAR ONE

- Hitler was originally from Austria
- He spent time in Vienna and was homeless
- Travelled to Munich in Germany and joined the German army
- Served as a messenger
- Won the Iron Cross during World War One
- Was gassed near the end of the war
- Spies on extremist parties for the army after the war. Meets Anton Drexler of the German Workers Party (DAP) and discovers a talent for public speaking. Forms the Nazi Party (NSDAP)



## NAZI IDEAS (THE 25 POINT PROGRAM)

The Nazi party program originally had 25 key ideas. Some of the key Nazi ideas were

- Cancellation of the Treaty of Versailles
- Lebensraum
- No democracy-one strong Fuhrer or leader
- Nationalism
- A strong Germany
- End reparations
- Anti-Semitism
- Helping poor farmers and shopkeepers
- Anti-big business

## THE MUNICH PUTSCH (1923)

### Positives:

Hitler became famous  
Nazi ideas became well known  
Hitler received a lenient sentence of 5 years and only served 9 months  
Hitler realised he would need to present himself as a legal politician

### Negatives:

The army stopped the putsch  
16 Nazis were killed  
The Nazis party was leaderless once Hitler was imprisoned



## PAPER 3 WEIMAR AND NAZI GERMANY: KNOWLEDGE ORGANISER KEY TOPIC 2-HITLER'S RISE TO POWER, 1919-33

## THE BAMBERG CONFERENCE (1926)

- Hitler calls the meeting to unite the party
- The Nazi party is divided between the more socialist north and the more nationalist south
- Otto Strasser represents the north
- Hitler speaks at length and unites the party
- Hitler impresses Josef Goebbels who had originally sided with Strasser.
- The party is united after the Bamberg Conference.

## WHY DID THE NAZI PARTY GROW AND SUPPORT INCREASE?

1929-Wall Street Crash. US loans are recalled and this plunges Germany into economic depression

Support for the Nazis increases during times of economic hardship

6 million Germans are unemployed

Nazi propaganda promises 'work, freedom and bread'

Middle class Germans are radicalised and begin to support extremist groups like the Nazis

## HOW DID HITLER BECOME CHANCELLOR IN 1933?

- Hitler was an excellent speaker
- The Nazis were skilled at propaganda and used posters, radio and slogans
- The SA intimidated political enemies like the communists and used violence. The SA was led by Ernst Rohm and numbered 2 million men
- The Nazis targeted groups like the young, unemployed and farmers
- Hitler was not voted into power. Von Papen persuaded President Hindenburg to make Hitler Chancellor hoping they could control Hitler

## KEY INDIVIDUALS:

Person	Key details:
Anton Drexler 	Leader of the German Workers Party (DAP) which Hitler transformed into the Nazi Party.
Josef Goebbels 	Took Strasser's side but began supporting Hitler during the Bamberg Conference.
President Hindenburg 	President of Weimar Germany from 1926. Persuaded to allow Hitler to become Chancellor by Franz Von Papen.
Adolf Hitler 	Leader of the Nazi Party. Leader at the Munich Putsch. Imprisoned at Landsberg. Became Chancellor in 1933.
Ernst Rohm 	Leader of the Nazis paramilitary brown shirts known as the Stormtroopers or SA.
Otto Strasser 	Nazi who represented the north at the Bamberg Conference.
Franz Von Papen 	Weimar Chancellor. Came to an agreement with Hitler. Thought he could control Hitler. Persuaded Hindenburg to allow Hitler to become Chancellor in 1933.

## KEYWORDS:

Keywords	Definition
Anti-Semitism	Very popular theory at the time blaming Jews for Germany and the world's problems.
Bamberg Conference	1926 meeting where Hitler united the Nazi party after coming out of prison.
Lebensraum	Key Nazi idea about expanding Germany and the need for 'living space' in the East.
Legal Hitler	Nickname given to Hitler after coming out of Landsberg prison. Hitler realised he would need to present himself as a legal and respectable politician.
Munich Putsch	Hitler's failed 1923 attempt to seize power.
Nationalism	Pride and love for your country. Nationalism was another key Nazi idea.
SA	Also known as the Stormtroopers or Brown Shirts. The 2 million strong Nazi army led by Ernst Rohm.
Wall Street Crash	Economic crash that happened in America and caused a world-wide Great Depression. Led to 6 million being unemployed by 1933 in Germany.

## KNOWLEDGE CHECKER:

Required knowledge	R	A	G
Hitler's early career: joining the German Workers' Party and setting up the Nazi Party, 1919–20.			
The early growth and features of the Party. The Twenty-Five Point Programme. The role of the SA.			
The reasons for, events and consequences of the Munich Putsch.			
Reasons for limited support for the Nazi Party, 1924–28. Party reorganisation and Mein Kampf. The Bamberg Conference of 1926.			
The growth of unemployment – its causes and impact. The failure of successive Weimar governments to deal with unemployment from 1929 to January 1933. The growth of support for the Communist Party.			
Reasons for the growth in support for the Nazi Party, including the appeal of Hitler and the Nazis, the effects of propaganda and the work of the SA.			
Political developments in 1932. The roles of Hindenburg, Brüning, von Papen and von Schleicher.			
The part played by Hindenburg and von Papen in Hitler becoming Chancellor in 1933.			



**HOW DID HITLER BECOME A DICTATOR?  
(THE CONSOLIDATION OF POWER)**

**REICHSTAG FIRE:** Fire was blamed on Dutch Communist Van Der Lubbe.  
**EMERGENCY DECREE:** Allowed the Nazis to ban meetings and newspapers and arrest Germans without a warrant.  
**MARCH ELECTIONS:** Nazi vote increased but Hitler still did not have enough support.  
**ENABLING ACT:** Allowed the Nazis to pass laws without having to get the support of the Reichstag.  
**NIGHT OF THE LONG KNIVES:** Internal opposition was removed such as Ernst Rohm.  
**DEATH OF HINDENBURG:** Hitler took on the role of President.  
**ARMY OATH:** Army swore an oath to Hitler.



**THE ROLE OF THE GESTAPO, THE SS, SD AND CONCENTRATION CAMPS**

**Gestapo:** The Nazis secret police. Part of the SS.  
**The SS:** A key Nazi organisation that helped enforce the dictatorship. Led by Heinrich Himmler. Administered the Concentration Camps. The Gestapo was part of the SS. There were also the elite Waffen SS military units.  
**The SD:** Intelligence agency of the SS.  
 The first concentration camps were temporary prisons set up by the SA and the SS in disused factories or warehouses. Some were local camps taking overflow from nearby jails. The first concentration camp opened at Dachau in 1933 and others followed including Buchenwald, Mauthausen and Sachsenhausen.

**THE CONTROL OF THE LEGAL SYSTEM, JUDGES AND LAW COURTS**

The Nazis took over control of the legal system. The number of crimes punishable by death increased from 3 to 46. Listening to the BBC world service was a crime punishable by death.  
 Judges had to swear an oath of loyalty to the Nazis and join the National Socialist League for the Maintenance of the Law (NSRB)  
 From 1936, judges had to wear the Swastika and Nazi eagle on their robes. Trials of suspects did take place but those charged were invariably found guilty.



**PAPER 3 WEIMAR AND NAZI GERMANY: KNOWLEDGE ORGANISER  
KEY TOPIC 3-NAZI CONTROL AND THE NAZI DICTATORSHIP, 1933-39**

**NAZI POLICIES TOWARDS THE CATHOLIC AND PROTESTANT CHURCHES**

Catholic (1/3 of Germans)	Protestant 2/3 of Germans
1933 Concordat-Church promised to stay out of politics and the Nazis said they would allow Catholic education to continue Hitler broke the agreement within a year. Catholic schools were told to remove Christian symbols like the crucifix. Later, Catholic schools were taken over by the Nazis.	Reich Church set up under Reich Bishop Muller. Many Protestants opposed the Nazis. Those that did oppose the Nazis were led by Pastor Martin Niemoller. Niemoller set up a rival church called the 'Confessional Church'. Over 6,000 pastors supported the Confessional Church, which left only 2,000 in the Reich Church








**JOSEF GOEBBELS AND PROPAGANDA**

Propaganda involves posters, films, radio, books and rallies  
 Josef Goebbels was propaganda minister  
 Mass production of cheap radios was ordered and by 1939 70% of German homes had a radio.  
 About 1,300 films were produced by the Nazis although only about 200 were propaganda films.  
 Jud Suss which told the story of an 'evil' Jew and Ohm Kruger, an anti-British film about the Boer War.  
 The 1936 Berlin Olympics was a very important propaganda spectacle. The Nazis could use it to advertise their successes. A new stadium was built that could hold 110,000 people. A film was also made about the Olympics by Leni Riefenstahl who was a well-known German film director who made numerous propaganda films for the Nazis-the film was called Olympiade. She also made the film Triumph of the Will

**OPPOSITION FROM THE CHURCHES AND THE YOUNG**

**The Swing Youth:** Listened to jazz music and refused to follow Nazi rules.  
**The Edelweiss Pirates:** Groups had names like the Navajos. Beat up Hitler Youth patrols and caused trouble.  
**The Confessional Church:** Formed by Martin Niemoller who did not agree with the Reich Church. Niemoller was arrested and imprisoned in a concentration camp.  
 Some Catholic priests opposed the Nazis. Over 400 were arrested and imprisoned at the Dachau concentration camp.  
 Pope Pius XI showed his opposition by issuing his famous statement criticizing the Nazis called 'With Burning Anxiety.'

## KEY INDIVIDUALS

Person:	Details:
Josef Goebbels 	Minister for Enlightenment and Propaganda
Heinrich Himmler 	Leader of the SS
Adolf Hitler 	Fuhrer, dictator of Germany.
Martin Niemoller 	Created the Confessional Church in opposition to the Nazis.
Pope Pius XI 	Eventually became critical of the Nazis publishing the letter 'With Burning Anxiety'.
Leni Riefenstahl 	Produced propaganda films like Triumph of the Will.
Marius Van Der Lubbe 	Dutch Communist blamed for starting the 1933 Reichstag Fire.

## KEYWORDS

Keyword:	Definition:
Concordat	Agreement between the Catholic Church and the Nazis. The church promised to stay out of politics and the Nazis allowed Catholic education to continue.
Confessional Church	Church created in opposition to the Reich Church by Martin Niemoller.
Consolidation of power	How Hitler went from being Chancellor to dictator.
Dictatorship	Government with one leader and no democracy.
Emergency Decree	Law passed which allowed the Nazis to ban meetings, newspapers etc. Police could arrest and imprison without a warrant or trial.
Enabling Act	Allowed the Nazis to pass laws without approval of the Reichstag (parliament).
Propaganda	Radio, film, rallies, posters. Produced to convince and persuade.
Reichstag Fire	Blamed on a Dutch communist Van Der Lubbe. Many historians now believe the Nazis started the fire to give them the excuse to start creating the Nazi dictatorship.
'With Burning Anxiety'	Letter written by Pope Pius XI.

## KNOWLEDGE CHECKER:

Required knowledge	R	A	G
The Reichstag Fire. The Enabling Act and the banning of other parties and trade unions.			
The threat from Röhm and the SA, the Night of the Long Knives and the death of von Hindenburg. Hitler becomes Führer, the army and oath of allegiance.			
The role of the Gestapo, the SS, the SD and concentration camps.			
Nazi control of the legal system, judges and law courts.			
Nazi policies towards the Catholic and Protestant Churches, including the Reich Church and the Concordat.			
Goebbels and the Ministry of Propaganda: censorship, Nazi use of media, rallies and sport, including the Berlin Olympics of 1936.			
Nazi control of culture and the arts, including art, architecture, literature and film.			
The extent of support for the Nazi regime.			
Opposition from the Churches, including the role of Pastor Niemöller.			
Opposition from the young, including the Swing Youth and the Edelweiss Pirates.			

## GCSE French MUST-KNOW Structures

Adjectives		Verbs (present)	
passionnant	exciting	C'est	It is
divertissant	entertaining	Ils/elles sont	They are
ennuyeux	boring	Il y a	There is/are
cher	expensive	Je suis	I am
vieux	old	J'ai	I have
propre	clean	Je vais	I am going/I go
difficile	difficult	Je fais	I am doing/I do
nouveau	new	Je préfère	I prefer
utile	useful	On peut	You can
Verbs (reference to the past)		Verbs (reference to the future)	
C'était	It was	Ce sera	It will be
Il y avait	There was/were	Il y aura	There will be
J'étais	I was	Je serai	I will be
J'avais	I had	J'aurai	I will have
Je suis allé(e)	I went	J'irai	I will go
J'ai fait	I did	Je ferai	I will do
Je voulais	I wanted	Je voudrais	I would like
J'aimais	I loved	Je veux	I want
Opinions		Connectives	
À mon avis	In my opinion	Mais	But
Je pense que	I think that	Aussi	Also
Selon moi	According to me	Cependant	However
Personnellement	Personally	Parce que/car	Because
Adverbs		Detail	
très	very	Par exemple	For example
assez	quite	Surtout	Above all
trop	too much	Peut-être	Maybe
un peu	a bit	Souvent	Often
OMG		Sequencers	
Ça me fait rire	It makes me laugh	D'abord	Firstly
Ça m'aide à décompresser	It helps to relax	Ensuite	Then
Ça me rend heureux	It makes me happy	Enfin	Finally
Ils sont en train de + infinitive verb	They are in the process of ___ - ing	Après	Afterwards

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### Opinions and justifications

Verb in the 3 tenses	Adjective/Noun/Action
c'était (it was) c'est (it is) ce sera (it will be)	enrichissant ( <i>enriching</i> ) utile ( <i>useful</i> ) passionnant ( <i>exciting</i> ) important divertissant ( <i>entertaining</i> ) essentiel ludique ( <i>fun</i> ) facile ( <i>easy</i> )
ça m'a donné (it gave me) ça me donne (it gives me) ça me donnera (it will give me)	confiance ( <i>confidence</i> ) l'esprit d'équipe ( <i>team spirit</i> ) le sentiment d'être utile ( <i>the feeling of being useful</i> ) le sentiment de fierté ( <i>the feeling of pride</i> )
ça m'a fait (it made me) ça me fait (it makes me) ça me fera (it will make me)	rire ( <i>to laugh</i> ) sourire ( <i>to smile</i> ) pleurer ( <i>to cry</i> ) du bien ( <i>some good</i> )
ça m'a aidé à (it helped me) ça m'aide à (it helps me) ça m'aidera à (it will help me)	décompresser ( <i>to relax</i> ) oublier mes soucis ( <i>to forget my worries</i> ) voyager ( <i>to travel</i> ) rencontrer de nouvelles personnes ( <i>to meet new people</i> )
ça m'a permis de/d' (it allowed me) ça me permet de/d' (it allows me) ça me permettra de/d' (it will allow me)	élargir mes compétences ( <i>to widen my skills</i> ) trouver un boulot ( <i>to find a job</i> ) aider les autres ( <i>to help others</i> ) participer à la vie en société ( <i>to participate in society</i> ) attirer les touristes ( <i>to attract tourists</i> ) développer l'économie ( <i>to develop the economy</i> )

Ne...pas	Not	Ne..ni...ni	Neither..nor
Ne...jamais	Never	Ne...rien	Nothing
Ne...plus	Not anymore	Ne..que	Only
Ne...personne	No one	Ne...aucun	Not any,none

Last week	<b>la semaine dernière</b>	Next week	<b>la semaine prochaine</b>
Last year	<b>l'année dernière</b>	Next year	<b>l'année prochaine</b>
Last month	<b>le mois dernier</b>	Next month	<b>le mois prochain</b>
Yesterday	<b>hier</b>	Tomorrow	<b>demain</b>
Recently	<b>récemment</b>	In the future	<b>à l'avenir</b>
Today	<b>aujourd'hui</b>	Often	<b>souvent</b>
Usually	<b>d'habitude</b>	Every day	<b>tous les jours</b>
On Saturday	<b>le samedi</b>	Always	<b>toujours</b>

Il va sans dire que	It goes without saying that
Sans hésiter, je dirais que	Without hesitation, I would say that
Sans aucun doute	Without any doubt
Je le recommanderais	I would recommend it
Je suis convaincu(e) que	I am convinced that
Je suis persuadé(e) que	I am persuaded that
Les lecteurs seront d'accord avec moi si je dis que	Readers will agree with me if I say that
Mes parents seront d'accord avec moi si je vous dis que	My parents will agree with me if I tell you that

C'est le meilleur	It is the best
Le mieux, c'était	The best was
Le pire, ce serait	The worst would be
J'ai changé d'avis	I changed my mind
Ceci dit	Having said that
Malgré cela	Despite this
Avec un peu de chance	Hopefully
Je suis d'accord/je ne suis pas d'accord	I agree/I disagree
Mes parents disent que	My parents say that

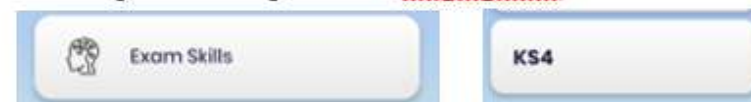
comme	as, like
tout le monde	everybody
sauf	except
quelqu'un	someone
quelque chose	something
ça/cela	that
chose (f)	thing
fois (f)	time
sans	without

Question words

Vocabulaire

comment?	how / what like?
combien (de)?	how much / how many?
que?: quoi?	what?
qu'est-ce qui?	what? (as subject)
qu'est-ce que?	what? (as object)
à quelle heure?	at what time
quel/quelle?	what/ which
quand?	when?
où?	where?
lequel/laquelle/lesquels/lesquelles?	which one(s)
qui?	who?
pourquoi?	why?

Listening and Reading Skills on LanguageNutz



5. Opinions and justifications

Present tense opinion phrases

Meiner Meinung nach.....	In my opinion
Meines Erachtens.....	In my opinion
Meiner Ansicht nach	In my opinion
Ich bin der Meinung, dass....	I am of the opinion that....
Ich finde, dass...	I find that...
Ich denke, dass...	I think that..
Ich glaube, dass....	I believe that..
Für mich.....	For me...
Ich mag...	I like....
Das gefällt mir....	I like it
Das gefällt mir nicht	I don't like it
Es ist ziemlich langweilig	It is quite boring
Ich freue mich darauf	I am looking forward to it
Das macht Spaß	That is fun
Ein vorteil davon ist	An advantage of it ist
Ein Nachteil davon ist	A disadvantage is

Past tense opinion phrases

Das hat mir gut gefallen	I liked it
Es war besonders interessant	It was especially interesting
Es war ziemlich langweilig	It was quite boring
Ich fand die Reise entspannend	I found the journey relaxing
Ich fand das unterhaltsam /	I found it entertaining (imperfect)
Ich habe das unterhaltsam gefunden	I found it entertaining (perfect)
Leider gab es	Unfortunately there was...
Das hat Spaß gemacht	That was fun

Future tense opinion phrases

Es wird sehr interessant sein	It will be very interesting.
Es wird ziemlich langweilig sein	It will be quite boring.
weil es toll sein wird	because it will be great.
Ich freue mich darauf	I am looking forward to it.

3. Basic verbs in the past, present and future tenses

It is	<b>Es ist</b>	I am	<b>Ich bin</b>
It was	<b>Es war</b>	I do	<b>Ich mache</b>
It will be	<b>Es wird...sein</b>	I did	<b>Ich habe...gemacht</b>
I go	<b>Ich gehe</b>	I would like to do	<b>Ich möchte ...machen</b>
I went	<b>Ich bin...gegangen</b>	I like	<b>Ich mag</b>
I would like to go	<b>Ich möchte .gehen</b>	I hate	<b>Ich hasse</b>
There is/are	<b>Es gibt</b>	I do not like	<b>Ich mag...nicht</b>
I have	<b>Ich habe</b>	I prefer	<b>Ich (verb) lieber</b>
I live	<b>Ich wohne</b>	There is	<b>Es gibt</b>
To live	<b>wohnen</b>	There was	<b>Es gab</b>
You can	<b>Man kann</b>	They are	<b>Sie sind</b>
I can	<b>Ich kann</b>	I must	<b>Ich muss</b>
You must	<b>Man muss</b>	I want	<b>Ich will</b>

4. Asking and understanding questions

<b>Du hast</b>	You have	<b>Warum</b>	Why
<b>Du bist</b>	You are	<b>Was</b>	What
<b>Du machst</b>	You do	<b>Um wieviel Uhr</b>	At what time
<b>Du hast .gemacht</b>	You did	<b>Wer</b>	Who
<b>Du wirst ...machen</b>	You will do	<b>Welcher/welche/ welches/welchen</b>	Which
<b>Wieviel</b>	How much	<b>Wie</b>	How
<b>Wo</b>	Where	<b>Wie lange</b>	How long

4. Time elements

Last week	<u>letztes Wochenende</u>	Next week	<u>nächste Woche</u>
Last year	<u>letztes Jahr</u>	Next year	<u>nächstes Jahr</u>
Last month	<u>letzten Monat</u>	Next month	<u>nächsten Monat</u>
Yesterday	<u>gestern</u>	Tomorrow	<u>morgen</u>
Recently	<u>neulich</u>	In the future	<u>in der Zukunft</u>
Today	<u>heute</u>	Often	<u>oft</u>
Usually	<u>normalerweise</u>	Every day	<u>jeden Tag</u>
On Saturday	<u>am Samstag</u>	Always	<u>immer</u>

5. Adverbs

<u>sehr</u> - very
<u>ziemlich</u> - quite
<u>ein bisschen</u> - a bit
<u>zu</u> - too
<u>wirklich</u> - really
<u>fast</u> - almost
<u>immer weniger</u> - less and less
<u>immer mehr</u> - more and more

6. Connectives

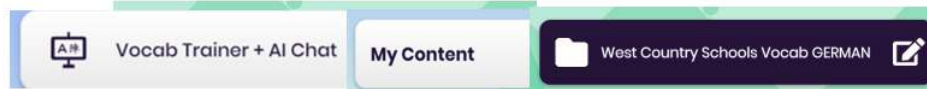
Also	<u>auch</u>	And	<u>und</u>
But	<u>aber</u>	If	<u>wenn</u>
However	<u>jedoch</u>	When	<u>Wenn/als</u>
Although	<u>obwohl</u>	Where	<u>wo</u>

7. Sequencers

firstly	<u>zuerst</u>	then	<u>dann</u>
finally	<u>endlich</u>	afterwards	<u>nachher</u>

To practise Listening and Reading Skills

- 1) LanguageNut - you have your own log on and you can filter the content -
  - a. High Frequency Vocab - directly linked to our booklet. (click on Vocab trainer - My content - WEST Country Schools vocab German)



- b. Or by Exam skills and topics



Convincing Language					
1	Man muss/soll/darf	one must/should/is allowed to	9	Wegen / trotz der Tatsache, dass...	Because / despite the fact that
2	Ich bin der Ansicht/Meinung, dass..	I'm of the view that..	10	Ohne Zweifel würde ich sagen, dass...	Without a doubt I would say that
3	Ich würde sagen, dass....	I would say that...	11	Im Großen und Ganzen	On the whole
4	Meiner Meinung nach ist/sind...	In my opinion ...	12	Ich würde das empfehlen	I would recommend it
5	Es muss erwähnt werden, dass...	It must be mentioned, that..	13	Ich bin davon überzeugt, dass...	I am convinced that...
6	Deshalb / deswegen	Therefore	14	Der größte Vorteil/Nachteil besteht darin, dass..	The biggest advantage/disadvantage is that...
7	Trotzdem/dennoch	Nevertheless	15	Auf der anderen Seite...	On the other hand
8	Außerdem / Jedoch	Besides / however	16	Das ist nicht nur ..., sondern auch ...	That is not only ... but also ...



# PERSONAL DEVELOPMENT KNOWLEDGE ORGANISER YEAR 11



## UNIT 3: RELATIONSHIPS AND SEX EDUCATION

### LESSON 8: PERSONAL VALUES

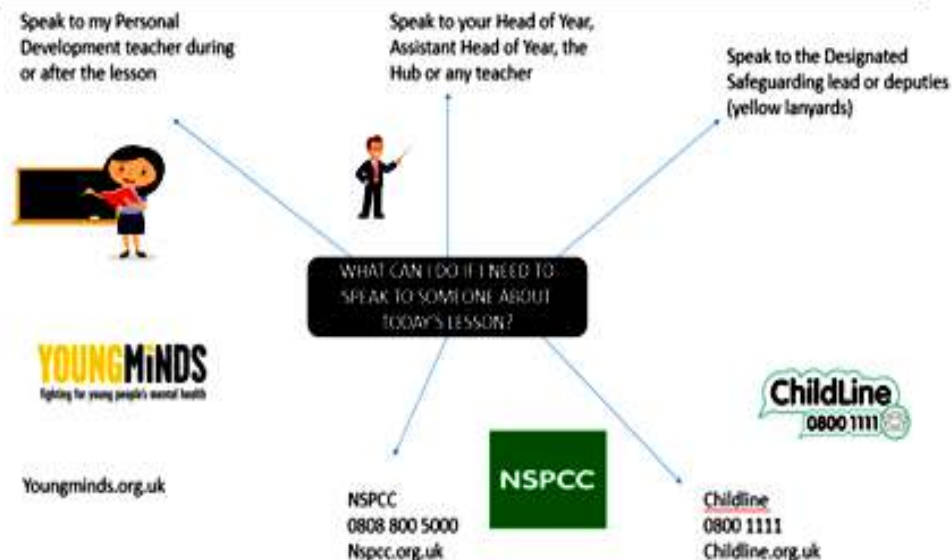
- In this lesson we learned about coercive control and watched a documentary about a coercive relationship.
- Coercive control means continuous patterns of behaviour that are intended to exert power or control over a person.
- In the video we see one character exercising coercive control over his girlfriend by isolating her from her friends, lying to her, reading her mobile phone messages, making her financially reliant on him and threatening her.

### LESSON 9: CONTRACEPTION AND FERTILITY

- Fertility is the ability to conceive a child.
- Contraception is the deliberate use of artificial methods or other techniques to prevent pregnancy as a consequence of sexual intercourse.
- As a person gets older their fertility decreases.
- There are a number of routes to parenthood such as natural conception, IUI, IVF, Co-parenting, adoption, fostering, surrogacy and egg freezing. How much do you know about each route to parenthood?

### LESSON 10: SEXUAL HEALTH

- An STI is a sexually transmitted infection
- Chlamydia is the most common STI amongst young people in the UK. Other examples of STIs are Gonorrhoea, HIV, Genital Warts and Genital Herpes.
- Condoms can prevent many STIs
- Most STIs can be treated using antibiotics. However, HIV, for example, cannot be treated using antibiotics.
- If you suspect you have an STI you should visit a sexual health clinic.



PLYMSTOCK SCHOOL  
PERSONAL DEVELOPMENT  
YEAR 11 LEARNING JOURNEY

UNIT 6:  
LIVING IN THE WIDER  
WORLD

LESSON 17:  
EXAMS

LESSON 18:  
EXAMS

LESSON 19:  
EXAMS

POST  
16



LESSON 16:  
CREDIT AND DEBIT



LESSON 15:  
MORTGAGES



LESSON 14:  
WAGES

UNIT 5:  
LIVING IN THE WIDER  
WORLD

UNIT 4:  
RELATIONSHIPS

LESSON 11:  
DIFFERENT FAMILIES AND  
PARENTAL RESPONSIBILITY



LESSON 12:  
PREGNANCY CHOICES  
AND OUTCOMES



LESSON 13:  
HONOUR MARRIAGE



LESSON 10:  
SEXUAL HEALTH



LESSON 9:  
CONTRACEPTION  
AND FERTILITY



LESSON 8:  
PERSONAL VALUES

UNIT 3:  
RELATIONSHIPS

UNIT 2:  
HEALTH AND  
WELLBEING



LESSON 8:  
RESPONSIBLE  
HEALTH CHOICES



LESSON 6:  
ILLNESS SIGNS AND  
SYMPTOMS



LESSON 7:  
PREVENTING ILLNESS



LESSON 4:  
ACTION PLAN



LESSON 3:  
MENTAL HEALTH  
AND EXAM STRESS



LESSON 2:  
MENTAL HEALTH  
AND REVISION



LESSON 1:  
RESILIENCE

UNIT 1:  
HEALTH AND  
WELLBEING

Y11

Be Kind

Work Hard

Aim High

For more activities visit the remote curriculum page of the Plymstock school website under the curriculum heading.

Year 11  
Remote Curriculum

KEY TERMS:

KEY TERM	DEFINITION:
Coercive control	Coercive control means continuous patterns of behaviour that are intended to exert power or control over a person.
Contraception	The deliberate use of artificial methods or other techniques to prevent pregnancy as a consequence of sexual intercourse.
Fertility	The ability to conceive a child.
IVF	A medical procedure whereby an egg is fertilized by sperm in a test tube or elsewhere outside the body.
STI	Sexually Transmitted Infection

OUR VALUES



BE KIND



WORK HARD



AIM HIGH











Plymstock School  
Achieving Excellence through Education and Culture



## Is it ever acceptable to go to war?

Key Words			
Forgiveness	Pardoning someone for wrongdoing	Peace-making	Working toward bringing about an end to war and a state of peace
Greed	Going to war to gain land or natural resources such as oil	Protest	A public expression of disapproval, often in a big group, can be peaceful or violent
Holy War	A war that is fought for religious reasons, usually backed by a religious leader	Quakers	A Christians denomination who worship in silence and are well known pacifists
Just War	A Christian theory that asks whether a war is fought justly	Reconciliation	Restoring friendly relationships after a war or conflict
Justice	Bringing about what is right and fair, according to the law or God's will	Retaliation	Deliberately harming someone as a response to them harming you
Nuclear Weapon	A weapon using a nuclear reaction to cause massive damage	Self-Defence	Protecting yourself or others from harm
Pacifism	A belief that all forms of violence are wrong, commonly held by Quakers	Terrorism	Using violence in order to further a political or religious message
Peace	A state of happiness and harmony, an absence of war	WMD	Weapons of mass destruction: chemical, nuclear or biological weapons

Key Ideas			
 <p><b>Protests and Terrorism</b></p>  	<p><b>Protests</b></p> <p>The right to gather together and protest is a fundamental democratic <b>freedom</b>. UK law allows for peaceful public protest but sometimes protests can turn violent and become a <b>riot</b>. Christians often <b>protest unjust laws</b> or for other forms of justice but would rarely advocate the use of violence in protest.</p>	<p><b>Terrorism</b></p> <p>Examples of terrorism include suicide bombing, mass shootings or using vehicles to injure pedestrians. The aim of terrorism is to make society aware of a cause or issue and to make people frightened to go about their business. Christians don't promote political violence + believe terrorism is wrong as it targets innocent people</p>	
<p><b>Reasons for War</b></p> 	<p><b>Greed</b></p> <p>To gain more <b>land</b> or to control important <b>resources</b> such as oil or gas. e.g. The UK and US invading <b>Iraq</b> in order to control oil resources</p>	<p><b>Self-Defence</b></p> <p>To <b>defend</b> one's country against invasion or attack or to protect allies who are under attack e.g. UK threatened by Nazi invasion in <b>WWII</b></p>	<p><b>Retaliation</b></p> <p>To fight against a country that has done something very wrong or to fight against a country that has attacked you e.g. US invading <b>Afghanistan</b> in retaliation for 9/11</p>

<p><b>Nuclear War and WMD</b></p> 	<p>Nuclear weapons work by a nuclear reaction and devastate huge areas and kill large numbers of people. They are a type of WMD (<b>weapons of mass destruction</b>) which also includes <b>chemical</b> and <b>biological</b> weapons. All these weapons are not allowed under the Christian Just War Theory and would therefore be rejected by most Christians.</p> <p>Nuclear weapons were used at the end of WWII in <b>Japan</b> to force the Japanese to surrender. Some people say their use was justified as it prevented more suffering even though 140,000 people died.</p> <p>Although some Christians justify war with ‘an eye for an eye’, this cannot be used to justify the use of weapons of mass destruction as they are not a <b>proportionate</b> response.</p>	
<p><b>Holy War</b></p> 	<p>A <b>Holy War</b> is a war which is fought for religious reasons, often with the backing of religious leaders. An example of this was the <b>Crusades</b> fought from the 11<sup>th</sup>-14<sup>th</sup> Century by Christians, backed by the Pope.</p> <p>Religion can still be a cause for war today such as in <b>Northern Ireland</b> where Protestant and Catholic Christians fought a civil war between 1968-98.</p>	
<p><b>Just War Theory</b></p> 	<p>Just War Theory is a Christian moral theory for working out if a war meets internationally accepted criteria for fairness. These are some of the conditions that must be met in order for a war to be just:</p> <ul style="list-style-type: none"> <li>Just Cause – fought in self-defence or to protect others</li> <li>Just Intention – fought to promote good and defeat wrongdoing</li> <li>Last Resort – only going to war if all other methods have been tried first</li> <li>Proportional – excessive force should not be used and innocent civilians must not be killed</li> </ul>	
<p><b>Pacifism and Christian Responses to War</b></p> 	<p><b>Pacifism</b> is the idea that <b>all forms of violence are wrong</b>. Pacifists such as Quakers refuse to take part in war and often choose to be a <b>conscientious objector</b> (someone who doesn’t go to war for moral reasons) or to assist in medical tasks like ambulance driving.</p> <p>Christians try to follow Jesus’ teaching that “blessed are the peacemakers”</p>	<p>Christians try to show <b>mercy</b> and <b>agape</b> to victims of war and provide them with assistance.</p> <p>This can be through charity or through welcoming them into their churches. It can be victims in their own country or <b>refugees</b> such as people fleeing from Syria or Yemen.</p> <p>This is an example of ‘love your neighbour’ in action.</p>

