St Wilfrid's RC College
Year 11 Module 1
Knowledge Organisers

Instructions for using your Knowledge Organiser

Self-testing You can use your KOs and book in a number of different ways but you should not just copy from the Knowledge Organiser into your book. Below are some possible tasks you could do in your workbooks

What can you use them for?:

- ❑ Self quizzing – retrieval
- ❑ Getting someone to quiz / test you
- ❑ Look, cover, write, check
- ❑ Creating revision tools: flash cards, mind maps, revision clocks
- ❑ Creating summary notes: Cornell notes
- ❑ Spelling tests
- ❑ Definition tests
- ❑ Knowing what knowledge you have looked at so far and what knowledge is going to be studied – connecting your learning
- ❑ Connect your previous module/topics learning with your current learning.
- ❑ Carry out additional research
- ❑ If you are absent, you need to get work from your teacher and use your Knowledge Organiser to identify the knowledge that you need to study.

Expectations

- ❑ Bring them to every lesson
- ❑ Presentation – keep them neat and tidy.
- ❑ You can annotate them but do not graffiti them with notes/images that are not learning annotations
- ❑ Use them in lessons when directed to
- ❑ Use them as part of your homework

Name:

Form Group:

Form Tutor:

Knowledge Organisers
What are they?

What are they?
Some examples:

Diagrams

Timelines

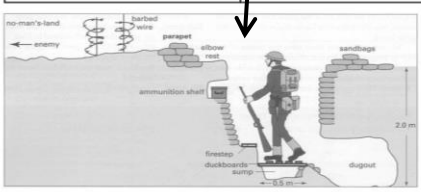
Key words and definitions

Triple Alliance	Triple Entente
• Germany • Austria-Hungary • Italy (until 1915)	• Britain • France • Russia (until 1917) • USA (1917+)

First World War Timeline

Date	Event
28.6.1914	Assassination of Franz Ferdinand
4.8.1914	Britain declares war on Germany
15.8.1914	Kitchener's Army recruitment
19.10.1914	First Battle of Ypres
22.4.1915	Second Battle of Ypres
27.1.1916	Military Service Act
1.7.1916 – 18. 11. 1916	Battle of the Somme and first use of the tank
8.3.17	Russian Revolution – Tsar abdicates
9.4.1917	Battle of Arras
24-25.10.1918	Communist Russian Revolution
20.11.1917	Battle of Cambrai
1.1.1918	Rationing introduced
9.11.1918	Kaiser Wilhelm II abdicates
11.11.1918	Armistice signed

Weapons	Injuries
Lee Enfield Rifle .15 rounds a minute. Accurate to 600m	**Shell shock.** Shaking, mental breakdown
Vickers machine gun. 10 bullets per second. Caused 40% wounds	**Trench fever.** Caused by lice: fever, rash, aches.
Tanks. 8mph. First used at the Battle of the Somme. 400 used at Battle of Cambrai,	**Trench foot.** Gangrene of feet, caused by damp
Artillery. Used to bombard the enemy for hours before an attack. Could fire 13 miles.	**Shrapnel wounds.** 58% wounds - 41,000 amputated limbs.



Key features of the trench system	
Sandbag	Protective. Absorbs bullets, absorbs water – maintains trench walls.
Fire step	Stand on to fire over the top of the trench. Trenches were 2.5 m in height
Parapet	Low protective wall
Duckboards	Wooden boards to stop men standing in water. To prevent trench foot.
Dugout	Area dug into the side of the trench where men could take protective cover.
No Man's Land	Area between the two enemy trenches

Enquiry Question: How did the pillars of C19th civilisation crumple into the flames of war? (Hobsbawm)

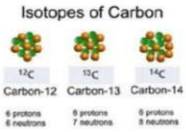
Home Front	
DORA 1914	Personal restrictions: censorship, daylight savings time
Censorship	Government powers to censor/hide information. Only letters by GHQ/ government could be published. Letters censored.
Propaganda	Boost morale. Communicate messages e.g. rationing. To recruit soldiers and female workers.
Rationing 1.1.1918	German unrestricted submarine warfare – Britain 6 weeks from starving out. Sugar rationed, then tea, jam and butter. Ration cards
Increased female employment	Munitionettes – munitions workers, nickname canary girls. Land Girls – 13,000 Transport workers. Engineers and mechanics. 1.2 million joined - start of war.
Contract workers (additional labour)	Empire -100,000 Egyptians, tens thousands Indians. Other workers: Chinese workers 100,000, refugees - Birtley Belgians
Total war	Zeppelin raids – 57 in 1915. Whitby, Hartlepool. Gotha bombers 1917. Defensive measures: barrage balloons, underground shelters

Basic overviews

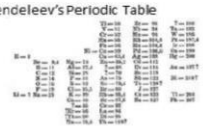
Chemistry Knowledge Organiser
The periodic table

The History of the Periodic Table
- Throughout history scientists have tried to classify substances and many scientists attempted to construct a Periodic Table.
- Before the knowledge of protons, neutrons and electrons, scientists arranged the Periodic table by **atomic weight**. This meant the groups were not always correct.
- In 1869 Dimitri **Mendeleev**, a Russian Scientist, published his Periodic Table. It was slightly different to those that had been before. He still arranged elements by atomic weight but he also left gaps for where he predicted elements would be.
- He very accurately predicted the properties of elements that were not discovered until many years later; for example, Gallium.
- Mendeleev's Periodic Table is still different from the modern one as some of his masses were wrong due to the existence of **isotopes**
- Isotopes are elements with same number of protons and electrons but a different number of neutrons and therefore different atomic weights.

Isotopes of Carbon



Mendeleev's Periodic Table



Key Terms	Definitions
Dimitri Mendeleev	A Russian Chemist, who in 1869 published a Periodic Table containing gaps.
Periodic Table	The table which organises the 118 elements based on atomic structure
Isotope	Two atoms with the same number of protons and electrons but a different number of neutrons
Metal	An element which loses electrons to form a positive charge
Non Metal	An element which gains electrons to form a negative charge
Ion	An element with a positive or negative charge

Metals and Non-Metals
- Metals are found on the left hand side of the Periodic Table, the majority of elements are metals.
- When metals react, they lose an electrons to form positive ions.
- Non metals gain electrons to form a negative charge.

Key groups

Groups in the Periodic Table

	Physical properties	Chemical Properties	Equation	Trends/Explanation
Group 1 (Alkali metals)	Soft, low density	React vigorously with water releasing hydrogen	Sodium + Water → Sodium Hydroxide + Hydrogen	More reactive as you go down, outermost electron further from the nucleus so it's easier to lose
Group 7 (Halogens)	Low melting point, exist as pair (Cl_2)	React with group 1 metals to form compounds. Can carry out displacement reactions	Sodium + Chlorine → Sodium Chloride Sodium Bromide + Chlorine → Sodium Chloride + Bromine	Higher melting point as you go down the group (higher molecular mass). Less reactive as you go down the group.
Group 0 (Noble Gases)	Low melting point/boiling point Eight electrons in outer shell (except helium)	Unreactive, as they have a full outer shell	N/A	Higher melting point and boiling point as you go down the group (due to increase in density)

Knowledge Organisers
Contents Page

AQA English Language Paper 1 – Fiction
Section A – 15 mins reading time

Question 1

1. ***Marks***: 4
2. ***Time***: 4 minutes
3. ***Focus***: Identifying explicit information in the text.
4. ***Tips***: Use quotations or paraphrase

Question 2

1. ***Marks***: 8
2. ***Time***: 8 minutes
3. ***Focus***: Analysis of language use and effects.
4. ***Tips***: Layers of meaning / KWA / alternative viewpoints / answer the Q

Question 3

1. ***Marks***: 8
2. ***Time***: 8 minutes
3. ***Focus***: Analysis of the overall structure of text and how it engages the reader.
4. ***Tips***: How does the focus change from the start to the end of the extract and why has the writer done this?

Question 4

1. ***Marks***: 20
2. ***Time***: 20 minutes
3. ***Focus***: Evaluation of effectiveness of text.
4. ***Tips***: Make sure you only explore the focus of the question – re-read it!

Question 5

1. ***Marks***: 40 (24 content / 16 technical accuracy)
2. ***Time***: 45 minutes
3. ***Focus***: Descriptive and / or narrative writing task.
4. ***Tips***: The task could be either writing style so practise both / PLAN first

Language devices and their effects (Q2 and Q4) - Also can be used in Q5 response

1. **Simile** – A simile gives the person/thing being described the characteristics of something else. It therefore helps us to see these people/things in a new light - in a way we may have never seen them or thought about them before allowing the writer to exaggerate or create vivid imagery.
2. **Hyperbole** – Exaggerated statement or claims not to be taken literally, used specifically for effect in writing: 'I've told you a thousand times!'.
3. **Alliteration** –can create a harder or softer mood depending on which sound is being repeated.
Plosive /b/ /p/ /t/ /d/ sounds create an abrupt, sharp, sometimes shocking effect.
Sibilant /s/ sounds (<s> <ss> or <c> as in 'ice'. <sh> <dg> <x> <ks> or <ch>) can create a soft, devious or sinister atmosphere. It can also present a hissing sound.
4. **Metaphor** – Making a direct comparison to something than a simile does: 'Its eyes fired daggers into my very soul'.
5. **Personification** – Giving an object human qualities to make it sound more powerful or in control: 'The paintings stared at me menacingly as I crept along the hallway'.
6. **Onomatopoeia** – can be used to create atmosphere of being surrounded by the action by engaging the sense of sound. It can bring to life a scene and create vivid imagery.
7. **Oxymoron** – A figure of speech in which opposite words appear next to each other: 'Living dead', 'Working holiday'. – can make a character seem confused or lost.
8. **Pathetic Fallacy** – Using the weather to reflect to mood of the characters or scene – this creates tone and develops emotion in the writing.
9. **Rhetorical Question**– Can be used to emphasise: Humor—to emphasise how ridiculous an idea is / Obviousness—to emphasise how obvious an idea is (leading the audience to identify with the writers views) / Reflectiveness—to allow the reader to reflect on their own response to the question.
10. **Repetition** – A way that a writer can emphasise the importance of words or ideas or to highlight the repetitive nature of a certain message.

Evaluative vocabulary (Q4)		Emotional vocabulary (Q2, Q3, Q4)	
1. Subtle	5. Skilful	1. Outrage	5. Empathy
2. Challenging	6. Striking	2. Sympathy	6. Approval
3. Crucial	7. Significant	3. Pity	7. Satisfaction
4. Pivotal	8. Provocative	4. Remorse	8. Compassion

Structural choices and their effects (Q3) - Also can be used in Q5 response

1. **Juxtapositions –** a deliberate Contrast between ideas to create tension / imagery
2. **Dialogue –** speech to reveal information about characters
3. **Foreshadowing** – a hint of what is to happen later to build dramatic tension
4. **Narrative perspectives** – the viewpoint of the narrator and how this develops and changes
5. **Shifts or changes in time, topics, Places, tone and focus** – changes to signpost new events or ideas to the reader – takes the reader on a journey

Extending analysis (Q2, Q3, Q4)

1. DEEPER ANALYSIS: Upon first glance, it would appear_____; however, on closer inspection…
2. TRACING IDEAS THROUGHOUT THE TEXT: The symbol/idea/concept of _____ is further developed at a later point when….
3. ANALYSING AN ALTERNATIVE INTERPRETATION: The image could also be interpreted as…
4. THE COMBINED EFFECT OF TECHNIQUES: The writer uses ____coupled with _____ to highlight…
5. READER POSITIONING: The reader is encouraged/ positioned in favour of/against _____because….

Phrases to ensure a sophisticated analysis (Q2 and Q4)

1. This suggests/ implies/ indicates/ demonstrates/ portrays/ presents/ highlights/ emphasises/ develops…
2. The line/adjectives/noun/verb/phrase/image…
3. It could be argued that/the reader may infer…
4. You get the impression/the reader is positioned to feel/ the writer causes the reader to consider..

AQA English Language Paper 1 – Section B Knowledge Organiser

Descriptive writing	Focused creating an image in the reader's mind and describing a scene in detail	**Narrative writing**	Focused on character, setting and plot development with descriptive elements as well as dialogue and action.

STRUCTURING A DESCRIPTION

Overview	Describe the bigger picture (wide/panoramic)
Zoom in	Focus on an object and describe it in detail (close up)
The senses	Sights, sounds, smells, tastes, touch.
A person	Describe a person (or two) in an imaginative way, create personality through the way they move, speak and react.
Overview	Zoom back out, returning to the bigger picture (wide/panoramic)
Linking theme	Repeated reference to an object, person or idea throughout.

STRUCTURING A NARRATIVE

Exposition	A narrative device often used at the beginning of a work that provides necessary background information about the characters.
Inciting Incident	An event that begins the action/plot.
Rising Action	Events leading up to the climax
Climax	Most exciting moment of the story; turning point
Falling Action	Events after the climax, leading to the resolution
Resolution	Ends the conflict and leaves reader content
Cliffhanger	A dramatic moment leaving suspense over what is to come
Flashback	A method of narration in which present action is temporarily interrupted so that the reader can witness past events
The one sentence opener	Start with a one-sentence paragraph or rhetorical question. Your next paragraph should then jump back in time. Recount the events leading up to this first line.
Twist in the tale	Tell the story in a way that suggests one thing about a character only to surprise the reader at the end.
Flipped narrative	Start with the end - the most dramatic moment (present tense) and then flashback to the events leading up to it.
A tale of two halves	Tell the incident from one character's perspective and then tell the whole thing again from a completely different point of view.

SENTENCE UPGRADES

-Ing	Grabbing her bag, the woman stormed out of the shop.
Similes	Like a predator stalking its prey, the thief approached the boy.
Preposition	Under the dark clouds, the lamppost gleamed brightly.
Adverb	Cautiously, the girl reached out to touch the creature.
Connective	Despite the weather, the girl plunged into the sea.
-Ed	Petrified, the dog stood rooted to the spot.
Pair of adjectives	Pale and bright, the sun cast its light across the forest below.
Verb adverb	Perched precariously on a thin tree branch, a small robin sang.
Triple noun :	Owls, crickets, mice: the woods were alive with noise.
Triple adjective :	Thin, bare, skeletal: the trees towered over me like fing

LANGUAGE FEATURES

Pun	A joke exploiting the different possible meanings of a word or the fact that there are words which sound alike but have different meanings
Symbol	An object or action in a literary work that means more than itself, that stands for something beyond itself.
Onomatopoeia	A word that imitates the sound it represents.
Euphemism	An indirect, less offensive way of saying something that is considered unpleasant
Personification	A figure of speech in which an object or animal is given human feelings, thoughts, or attitudes
Alliteration	Repetition of consonant sounds
Metaphor	A comparison of two things without using the word like or as.
Simile	A comparison of two things using like or as
Hyperbole	A figure of speech that uses exaggeration to express strong emotion, make a point, or evoke humor
Irony	A contrast or discrepancy between what is stated and what is really meant, or between what is expected to happen and what actually does happen.
Connotation	The experience (associations) we bring to a word
Oxymoron	A figure of speech in which apparently contradictory terms appear in conjunction
Extended Metaphor	When a writer exploits a single metaphor or analogy at length throughout a poem or story.
Imperative	A command
Declarative	A statement
Pathetic fallacy	A type of personification where emotions are given to a setting, an object or the weather.
Emotive language	Language intended to create an emotional response.
Rhetorical Question	A question asked merely for rhetorical effect and not requiring an answer

'An Inspector Calls' by J.B. Priestley: A Knowledge Organiser

Characters

Inspector Goole	Priestley's mouthpiece; advocates social justice; serves as the Birlings' conscience	Socialist, moralistic, righteous, powerful, intimidating, unconventional, mysterious, imposing, sardonic, omnipotent
Mr. Arthur Birling	Businessman; capitalist; against social equality; a self-made man (new-money)	Capitalist, arrogant, foolish, Panglossian, emasculate, prejudice, ignorant, selfish, stubborn, vainglorious
Mrs. Sybil Birling	Husband's social superior; believes in personal responsibility	Arrogant, cold-hearted, insincere, prejudice, naïve, conformist, bitter, controlling, remorseless
Sheila Birling	Young girl; comes to change views and pities Eva; feels regret	Transformative, remorseful, socialist, pseudo-inspector, sensitive, astute, strong-minded, empowered
Eric Birling	Young man, drinks too much; forces himself on Eva Smith; regrets actions	Rebellious, reckless, immature, insubordinate, compulsive, desperate, disgraced, dualistic, irresponsible
Gerald Croft	Businessman; engaged to Sheila; politically closest to Birling	Aristocratic, evasive, secretive, dishonest, disingenuous, oleaginous, chivalric, privileged, pragmatic
Eva Smith	Unseen in play; comes to stand for victims of social injustice (changes her name to Daisy Renton	Suffragist, victim, emblematic, allegorical, vulnerable, desperate, socialist, moralistic, principled

Theatrical Stagecraft: Dramatic Devices

Dramatic irony	Birling's speeches, Mrs. Birling's witless implication of Eric
Stage directions	Instructions for the actors; often revealing – such as the lighting change when the Inspector arrives: "Pink and intimate then brighter and harder"
Setting	Constant throughout but subtle changes e.g. lighting; characters on/off stage
Tension	Builds up throughout the play ; interrogation of characters, personal relationships, secrecy
Cliff-hanger	Eric's reappearance in Act 3; the ending allows the audience to make up their minds
Foreshadowing	Symbolism (The Titanic), Mr. Birling's "knighthood", war
Time-lapse	Set in 1912, written in 1945; audience in a privileged position.
The 4th Wall	The Inspector's final speech addressed directly to audience.

Social, Historical and Literary Allusions

"the Titanic"	The Titanic sailed from Southampton and sank in the early hours of 15th April 1912. Priestley clearly wants his audience to see his drama play out against a background of real historical events and he has also chosen a moment in time when Birling's comments appear particularly ironic.
"Nobody wants war"	In reality, economic rivalry between the British Empire and the new German Empire was one of the many causes of the First World War.
"Russia"	The irony here suggests that Russia will have progressed further than other European countries by the 1940s.
"Bernard Shaws and H. G. Wellses"	Both the noted Irish playwright George Bernard Shaw (1856-1950) and the father of science-fiction H. G. Wells (1866-1946) were well-known and outspoken socialists.

Plot

Act 1	Set in April 1912, Brumley, Midlands, UK. The Birling family and Gerald Croft are celebrating Sheila Birling's engagement to Gerald with a dinner. Mr Birling lectures his son, Eric Birling, and Gerald about the importance of every man looking out for himself if he wants to get on in life. Edna (the maid) announces that an inspector has arrived. Inspector Goole says that he is investigating the death of a young woman who committed suicide, Eva Smith. Mr Birling is shown a photograph of Eva, after initially denying recognising the woman in the photo, he remembers firing her in 1910 for organising a strike over workers pay. Sheila recalls also having Eva sacked about her manner when served by her in an upmarket department store. The Inspector reveals that Eva Smith changed her name to Daisy Renton. Gerald reveals to Sheila he had an affair with Daisy Renton.
Act 2	Gerald explains to The Inspector that he had an affair with Eva, but hasn't seen her since he ended their relationship back in Autumn 1911. Sheila gives her engagement ring back to Gerald. The Inspector turns his attention to Mrs Sybil Birling, she confesses that she also had contact with Eva, but Eva gave herself a different name to Mrs Birling. Eva approached a charity chaired by Mrs Birling to ask for help. Eva was desperate and pregnant but help was refused by Mrs Birling because she was offended by the girl calling herself 'Mrs Birling'. She tells Eva that the baby's father should be made entirely responsible. She also tells Inspector Goole that the father should be held entirely responsible and should be made an example of.
Act 3	Eric is revealed as the father. He stole money from Mr Birling's office to provide money to Eva. The Inspector delivers his final speech. After he leaves, the family begin to suspect that he was not a genuine police inspector. A phone call to the Chief Constable confirms this. Next, they phone the infirmary to be informed that no suicide case has been brought in. Mr Birling, Mrs Birling and Gerald congratulate themselves that it was all a hoax and they continue can continue as before. This attitude upsets Sheila and Eric. The phone rings. Mr Birling announces to the family that a girl has just died on her way to the infirmary, a police inspector is coming to question them

Key concepts and context: *Think about…*

1912	Set just before WWI and the sinking of the Titanic. A moment of rising international tensions and industrial expansion. End of Victorian era saw the demise of the rigid class system. Labour Party, founded in 1900, gaining momentum. The Russian Revolution began in 1917.
1945	People were recovering from six years of warfare, danger and uncertainty. Class distinctions greatly reduced as a result of two world wars. Women had a more valued place in society. Desire for social change. Following WW2, Labour Party won a landslide victory over Winston Churchill and the Conservatives.
Wealth, Power and Influence	The Birlings and the Crofts are representative of the wealthy upper-class. They all misuse their social influence to benefit themselves. Their actions adversely affect the vulnerable people in society.
Blame and Responsibility	Who is to blame for Eva's death? Each of the Birlings contribute to a chain of events leading to the destruction of Eva Smith. What responsibilities do the characters have to each other? To society?
Public v Private	How do the public lives, the facades, of the Birlings juxtapose their private personas? What are their motivations for this? What are the repercussions, and for who?
Morality and Legality	What are the moral and legal laws of the society depicted in the play? How do they interweave? What actions do the characters undertake that are wrong, morally or legally?
Class Politics	How do the ideologies of capitalism and socialism collide in the play? Which characters are representative of which political allegiance? Is there a correlation between a character's political beliefs and their behaviours?
Prejudice	What are the prejudices held by the Birlings? What are their inherent views regarding class and status? How do they act on these prejudices, and what are the consequences?
Young v Old	What differences are evident between the younger and older generation? They react and behave differently throughout the play – why? What are their attitudes towards each other? What do they learn? Which characters change, and how?

AN INSPECTOR CALLS Quotes - J.B. PRIESTLEY

ACT	Order of the Inspector's Questioning
Act 1	*Sheila and Gerald's engagement is celebrated.*
Act 1	*Birling says there will be no war; references Titanic*
Act 1	*Inspector arrives; a young girl has committed suicide.*
Act 1	*Birling threw her out after strike; Sheila had her fired for laughing.*
Act 2	*Gerald had an affair with Daisy Renton*
Act 2	*Mrs. Birling refused to give charity to Eva; blames father.*
Act 3	*Eric's involvement revealed; possible rape hinted at.*
Act 3	*Inspector leaves. Gerald returns; met policeman, no Inspector G*
Act 3	*Telephone rings; an inspector is coming.*

Key Notes

Priestley asks his audience to examine their **individual** and **collective responsibility** to society. He wants a **welfare state.**

The **hypocrisy** of **middle-class Edwardian** society is uncovered: **appearance** & **reputation** matter more than **reality** & **morality**.

Priestley criticises the selfishness of **capitalism** and wants a fairer, **socialist** future after the horrors of two world wars..

Priestley shows the **older generation** to be set in their ways, while the young are **open to change**.

Eva Smith is the **embodiment** of young, **working-class women** who were **oppressed** by the **middle/upper classes**.

The play demonstrates that when workers do not have **full employment rights** they cannot fight back

Thematic Quotes

Social responsibility	"We are responsible for each other" *Inspector* "Public men, Mr Birling, have responsibilities" *Inspector* "It's what happened to the girl and what we all did to her that mattered." *Eric*
Capitalism	"These silly capital vs labour agitations." *Birling* "A man has to make his own way" *Birling*
Class	"A girl of that class" *Mrs Birling* "Well, we've several hundred young women there, y'know, and they keep changing." *Birling*
Age	"the famous younger generation" *Birling* "What's the matter with that child?" *Birling* "Just keep quiet, Eric" *Birling*
Gender & attitudes to women	"I hate those *hard-eyed dough-faced women" - Gerald* "And you think young women ought to be protected against unpleasant and disturbing things?" *Inspector* "She had far too much to say, far too much" *Birling*

Character Quotes

Birling's Confidence	''We're in for a time of steadily increasing prosperity'
Birling on society	''The way some of these cranks talk and write now, you'd think everybody has to look after everybody else'
Shelia's recognition	'but these girls aren't cheap labour – they're *people''*
Sheila's regret	'it's the only time I've ever done anything like that, and I'll never, never do it again to anybody'
Sheila on the inspector	'we all started like that – so confident, so pleased with ourselves until he began asking us questions'
Sheila on Eric	''he's been steadily drinking too much for the last two years'
Inspector on guilt	'I think you did something terribly wrong – and that you're going to spend the rest of your life regretting it'
Mrs Birling defends herself	'she was claiming elaborate fine feelings and scruples that were simply absurd in a girl in her position'
Eric explains	'I'm not very clear about it, but afterwards she told me she didn't want me to go in but that – well, I was in that state when a chap easily turns nasty – and I threatened to make a row'
The inspector says	'but each of you helped to kill her. Remember that'
Inspector's message	'there are millions and millions and millions of Eva Smiths and John Smiths still left with us, with their lives, their hopes and fears, their suffering, and chance of happiness, all intertwined with our lives, with what we think and say and do. We don't live alone.'

Roman Catholic Christianity Forms of Expression & Ways of Life Knowledge Organiser

Catholic church Architecture

Catholic churches are places of prayer & worship.

Design of the church:

1. **Circular:** A reminder that God is eternal & has no beginning & no end. **SOWA: God hovered above… (Genesis)**
2. **Cross Shaped:** A reminder that Jesus died on the Cross to save us from sin. **SOWA: "Crucified under Pontius Pilate (Nicene Creed)**
3. **Facing east:** Sun rises in the east, a reminder that Jesus rose from the dead, **SOWA: "On the 3rd day he rose again" (Nicene Creed)**

How churches are used.

1. Churches are used for worship- Mass & the 7 Sacraments.
2. Private prayer.
3. Popular Piety- Stations of the Cross, Rosary, Eucharistic Adoration.

Sacred Vessels

These are used to help Catholics focus during Mass.

1. **Ciborium:** Used to hold the Body of Christ.
2. **Paten:** Used to hold the Body of Christ- used by the Priest.
3. **Chalice:** Used to hold the Blood of Christ.

Sacred Objects

1. **Sarcophagi:** Some very old churches have sarcophagi containing the bones of significant people, they are sometimes decorated with biblical scenes.
2. **Hunger Cloths:** The cloths are now more common in developing countries to show pictures of how God is involved in the lives of ordinary people.

Artwork in Catholicism

Artwork is used to help Catholics learn about their faith and stories from the Bible.

1. **Icon:** A religious image painted on wood.
2. **Fresco:** A religious painting on plaster.
3. **Painting:** A religious piece of artwork.

SOWA: "Sacred art is true and beautiful" (CCC)

1. **Sistine Chapel:** Creation of Adam, God creating Man. **SOWA: "6th day, God make Man. (Genesis 1)**
2. **Last Supper:** Shows the Last Supper, Crucifixion & Resurrection of Jesus. **SOWA: Paschal Mystery.**
3. **St John of the Cross:** Depicts Christ looking over the world on the crucifix, links to Trinity- God & Incarnation.

Drama

Drama is used to express religious belief.

1. **Passion Play:** Tells the story of the Passion of Jesus- trial, crucifixion & death of Jesus. **SOWA: "Crucified under Pontius Pilote (Nicene Creed)**
2. **Mystery Play:** Plays bout Bible stories, originally used to allow those who could not read or write to explore their faith.

SOWA: "Drama… engages the heart" (CCC)

Catholic church Features

The things that we would find in a church.

1. **Lectern:** Where the Bible is read from, links to the Liturgy of the Word during Mass.
2. **Altar:** Table that is a focal point of the church, reminds us of the Last Supper.
3. **Crucifix:** Has Jesus on, reminder of his death for our sin.
4. **Tabernacle:** Where the Body of Christ is kept. Jesus physically in the church.

Symbols

Christians use symbols to express belief & faith.

1. **Cross:** Shows the resurrection of Christ. Reminds us that he rose again..
2. **Crucifix:** Shows the sacrifice that Jesus made for our sin. Reminds us that God so loved the world, he gave his only Son.
3. **Fish:** Early symbol of Christianity. Reminds us that Jesus called us to follow him.
4. **Dove:** A symbol of peace & love. Reminds us to follow teachings of Jesus.

Sculptures & Statues

These are a way of remembering religious individuals.

1. **Pieta:** Mary holding Jesus after the crucifixion. Example of her faith & discipleship.
2. **Christ the Redeemer:** Christ with his arms open. Showing his welcoming arms or his crucifixion.
3. **Sacred Heart:** Statue of Jesus that shows his heart in thorns- reminder of his Passion.

Music

Music is used in Mass & other forms of worship.

1. **Hymns:** Used for prayer, worship & adoration.
2. **Plainchant:** singing without set music, Taize is a common form.
3. **Psalms:** Found in the OT, used in Liturgy of the Word part of Mass.
4. **Worship Songs:** Modern form of worship, Gospel choir songs, linked to youth movements as less traditional.

SOWA: "Make melody to the Lord with all your heart" (CCC)

Roman Catholic Christianity Sources of Wisdom & Authority Knowledge Organiser

The Bible

The Bible is one book, that has many authors. There are many types of writing in the Bible.

Old Testament:

1. **Law:** Decalogue (10 Commandments) given to Moses..
2. **History:** Stories of Jewish history- Abraham, Moses etc.
3. **Prophets:** Jonah & the whale, Daniel & Lions Den teach us about God.

New Testament:

1. **Gospels:** Contain stories & teachings of Jesus.
2. **Letters:** St Paul wrote these teaching Christians how to live as God wanted.
3. **Revelation:** A book describing the end of the world.

Interpretation of the Bible

1. **Inspired Word of God:** Catholic view- God inspires humans, they wrote the Bible.
2. **Literal Word of God:** Creationist view, believe the Bible word for word.
3. **Liberal View:** Other Christians view, allows a closeness to God and contains spiritual not literal truths.

The Magisterium

The Magisterium are the leaders of the RC Church.

1. **Pope** is the Head of the Church.
2. **Cardinal** is a bishop chosen by the Pope.
3. **Archbishop:** Head of an arch diocese.
4. **Bishop:** Head of a diocese.
5. **Priest:** is in charge of a Parish.

The Magisterium is a living, teaching office of the Church today.

This means that they interpret the Bible to cover issues that didn't exist in the time of Jesus- e.g.- contraception, same sex marriage.

SOWA: "Interpreting the Word of God… trusted to the Magisterium." (CCC)

Second Vatican Council

This was a large gathering held at the Vatican to discuss teaching & belief in the modern world.

Some changes made during the meeting:

1. Jews no longer blamed for the death of Jesus.
2. Mass is said in the local language.
3. Lay people can take part in Mass.

4 Documents produced.

1. **Lumen Gentium:** Catholic & Protestant relationships.
2. **Sacrosanctum Concilium:** Changed the Mass.
3. **Dei Verbum:** Teachings from the Bible.
4. **Gaudium Et Spes**: Human relationships in society.

Church as the Body of Christ

This links to the teaching that we all have a role to play within the Christian community.

1. **Laity:** The people that attend Mass, follow the Sacraments etc.
2. **Clergy:** The people that lead the worship- Magisterium Priest etc.
3. **Religious:** Monks & Nuns who pray for the needs of the world.

SOWA: "The body is one & has many members" (Corinthians)

Mary as a Model of the Church

Mary is important to Catholics as she followed God & Jesus throughout her life.

1. **Joined with Jesus:** Mary is the immaculate Conception & Mother of God. **SOWA; Mary's role…inseperable from Christ." (CCC)**
2. **Discipleship:** She does as she is asked without question. Follows God & Jesus. **SOWA: Behold I am the handmaid of the Lord. (Luke)**
3. **Faith & Charity:** Mary accepted carrying Jesus and obeys God. She is with her son Jesus at the foot of the cross & never doubts her faith. **SOWA: "Mary is the model of faith & charity. (CCC)**

Four Marks of the Church

These are a declaration of the Catholic faith.

1. **One:** There is only one Church, one Body in Christ. Prevents division with other Christians.
2. **Holy:** The Church itself is holy as it links to Jesus. Allows participation in 7 Sacraments.
3. **Catholic:** Meaning it is spread throughout the world. Everyone who shares in it shares the same beliefs.
4. **Apostolic:** Follows the teachings of the disciples. Allows for the Magisterium to interpret scripture.

Personal & Ethical Decision Making

Jesus is a role model for Christians & they follow his teachings.

1. **Love Others:** Take care of those in need. **SOWA: " your neighbour as yourself." (Matthew)**
2. **Forgiveness:** This is how we gain salvation, we must forgive others in order to be forgiven. **SOWA: "Jesus forgives those who crucified him." (Luke)**
3. **Servanthood:** Jesus was the Servant King- sent to help others. **SOWA: "Last Supper told us to love one another." (John)**
4. **Social Justice:** We need to help those in need. **SOWA: Parable of the Sheep & Goats. (Matthew)**

Philosophy & Ethics: Arguments for the Existence of God

Revelation

God reveals himself to people of in the world.

Types of Revelation

1. **Natural:** God in nature- northern lights.
2. **Specific:** Mary to Bernadette.
3. **Culmination**: Jesus as Incarnation. **SOWA: "Word becomes Flesh" (John 1)**

Religious Experiences

Feeling the presence of God.

Conversion: Life is changed by God, Famous example of **Saul to Paul.**
Numinous: Feeling of a presence greater than you. A state of awe & wonder.
Miracle: Something that breaks the law of nature- See miracles box.
Prayer: A way of communicating with God. A prayer being answered might lead to belief in God.

Atheist (non-religious view)
1. Don't believe in God so religious experiences cannot come from God.
2. Explain miracles as existing only in peoples minds.

Visions

A visual appearance usually of Jesus or Mary.

Biblical Visions:
1. **Moses & Burning Bush:** God appearing to Moses & telling him to set Israelites free.
2. **Abraham:** God offers Abraham protection & reward for following him. **SOWA: "Fear not Abram…your reward will be great" (Genesis)**
3. **Transfiguration of Jesus:** Moses, Elijah appear to Jesus. **SOWA: "This is my beloved Son" (Matthew)**

Non-Biblical Visions:
1. Joan of Arc- instructed to force the English from her homeland, she was killed and burnt at the stake as a heretic.

Lead to belief in God: (Religious view)
1. Powerful personal experiences giving strength & faith.
2. Allows for visions to be interpreted.

Against belief in God: Atheist (non-religious view)
1. There is often no proof of visions.
2. They could be hallucinations or made up.

Miracles

A miracle is something that breaks the law of nature.

Biblical Miracles:
1. Jesus turning water into wine **(John)**
2. Moses parting the red sea **(Exodus)**
3. Jesus heals a blind man, **(Mark)**

Non-Biblical Visions:
1. Virgin Mary appearing to Bernadette in Lourdes.
2. Virgin Mary appearing to Juan Diego in Mexican City.

Lead to belief in God: (Religious view)
1. No scientific explanation therefore has to be God.
2. Those who experience it feel they have had a connection with God.

Against belief in God: Atheist (non-religious view)
1. Coincidence
2. Science could explain it in the future.

Design Argument

The suggestion that there appears to be design to the world, this must be God.

- Uses the famous watch idea- if a watch is so complex & needs to be designed, the universe is even more complex so must also have a designer- this has to be God.
- **SOWA: "His eternal power…that have been made" (Romans)**

Strengths:
- Based on our experience of design.
- Complements Christian understanding of God.

Problem of Evil & Suffering

Evil can't exist if God is…

1. OmniPotent: All Powerful.
2. Omniscient: All Knowing.
3. OmnibenEVOLent: All Loving.

If evil exists, God cannot be all of these things.

Natural Evil: Evil caused be nature.

1. Hurricane
2. Tsunami
3. Earthquake

Moral Evil: Evil caused by humans.
1. Murder
2. Assault
3. War

Solutions to the Problem of Evil & Suffering

Bible:
1. Job- God allows Job to be tested- gives faith to those who suffer.
2. Psalms- Christians can learn from their suffering.
3. NT- God suffered through Jesus & Christ saved us.

Theoretical:
1. Augustine: Have to have evil to know good.
2. Irenaeus: It is how we learn & how we grow.

Practical:
1. Charity- Helping others. **SOWA: Parable of the Sheep &Goats.**
2. Prayer: Praying for those in need.

Cosmological Argument

The suggestion that there is a cause & effect for every scenario.

- There has to be a cause of the universe- this is God, the effect of God is the universe.
- Uses a row of dominos as an explanation.
- **SOWA: "His eternal power…that have been made" (Romans)**

Strengths:
- It is based on experience.
- It is compatible with science.

Biology

Key Questions

Key Questions		Key Answers
1.	Define the term hormone.	Hormones are chemical messengers which travel in the blood to activate cells in target organs.
2.	Where are hormones produced and secreted from?	Endocrine glands, which make up the endocrine system.
3.	Which part of the blood are hormones carried in?	Blood plasma.
4.	For the following glands, what hormone do they produce and what is this hormones function in the human body? - Pituitary gland - Thyroid gland - Pancreas - Adrenal glands - Ovaries - Testes	Pituitary gland- produces many hormones that regulate body conditions. It is sometimes called the 'master gland as these hormones act on other glands, directing them to release hormones that bring about change. E.g FSH, LH, ADH Thyroid gland- Produces thyroxine, regulates rate of metabolism, heart rate and temperature. Pancreas- Produces insulin which is used to regulate blood glucose levels. Adrenal glands- Produce adrenaline which is used to prepare the body for the 'fight or flight' response. Ovaries- Produces oestrogen, which is involved in the menstrual cycle. Testes- Produces testosterone, which controls puberty and sperm production in males.
5.	How does the action of nerves and hormones differ?	Nerves: Fast action; Act for a short time; Acts on a very precise area Hormones: Slower action; Act for a long time; Acts in a more general way
6.	**HIGHER TIER ONLY- What changes does the release of adrenaline cause as the body prepares for 'fight or flight'?**	Increased heart rate, increased blood pressure, increased blood flow to the muscles and raised blood sugar levels by stimulating the liver to change glycogen into glucose.
7.	**Why does adrenaline cause these changes?**	So more oxygen and glucose can get to the cells and increase the rate of respiration- so we can fight or flight!
8.	**How are thyroxine levels regulated?**	Negative feedback
9.	**Explain how negative feedback functions.**	When the levels of a certain substance in the body go above or below a normal level, the body triggers responses to help bring these levels back to a normal range- like a thermostat!
10.	**What happens when thyroxine levels are too low?**	The hypothalamus is stimulated to produce thyrotropin releasing hormone (TRH) when levels of thyroxine are low, and that TRH causes the pituitary gland to release thyroid stimulating hormone (TSH) which stimulates the production of thyroxine in the thyroid.
11.	**What happens when thyroxine levels are too high?**	The release of TRH and the production of TSH are inhibited when the levels of thyroxine in the blood are higher than normal.
12.	What is the menstrual cycle?	It is the monthly sequence of events in which a female releases an egg and prepares the uterus in case the egg is fertilised.
13.	What are the main stages of the menstrual cycles?	Stage 1- Menstruation starts. The uterus lining is broken down and released. Stage 2- The uterus lining is repaired, ready for a fertilised egg to implant there. Stage 3- An egg is released from the ovary on day 14, this is called ovulation

<table>
<tr><td></td><td>Stage 4- The lining is maintained for around 14 days. If n fertilised egg lands on the uterus wall, the lining begins to break down again. The whole cycle starts again!</td></tr>
<tr><td>14. What are the roles of oestrogen and progesterone in the menstrual cycle?</td><td>Oestrogen stimulates the growth of the uterus lining and progesterone maintains it.</td></tr>
<tr><td>15. HIGHER TIER ONLY- What are the roles of FSH and LH in the menstrual cycles?</td><td>FSH causes a follicle and its egg to mature in the ovaries and that LH stimulates the release of an egg (ovulation)</td></tr>
<tr><td>16. Describe the interaction between oestrogen, progesterone, FSH and LH in the menstrual cycle.</td><td>1. FSH produced in the pituitary gland. It causes a follicle to mature. It also stimulates the ovaries to produce oestrogen.
2. Oestrogen is produced in the ovaries and causes the lining to thicken and grow. A high level of oestrogen stimulates an LH surge.
3. LH is produced by the pituitary gland. The LH surge causes the follicle to rupture and the egg to be released (ovulation). LH also stimulates the remains of the follicle to develop into a structure called the corpus luteum.
4. Progesterone is released by the corpus luteum over ovulation. It maintained the lining and inhibits the release of FSH and LH.
5. When the level of progesterone falls and there is a low oestrogen level, the uterus lining breaks down. This allows FSH to increase and allows the cycle to begin again.</td></tr>
<tr><td>17. How do we remember the order of the menstrual cycle hormones?</td><td>Fat – Old – Ladies- Pump!
FSH – Oestrogen – LH - Progesterone</td></tr>
<tr><td>18. What happens to progesterone levels if a woman becomes pregnant?</td><td>If a fertilised egg implants into the uterus, progesterone levels will stay high to maintain the lining of the uterus throughout pregnancy.</td></tr>
<tr><td>19. Define contraceptive.</td><td>Something which prevents pregnancy</td></tr>
<tr><td>20. State hormonal and barrier methods of contraception.</td><td><table><tr><td>Hormonal</td><td>Barrier</td></tr><tr><td>Combined/ mini pill</td><td>Condom</td></tr><tr><td>Contraceptive injection</td><td>Diaphragm</td></tr><tr><td>Contraceptive patch/ implant</td><td></td></tr></table></td></tr>
<tr><td>21. How do barrier methods prevent pregnancy?</td><td>They but a barrier between the sperm and egg so they do not meet. Therefore, the egg cannot be fertilised.</td></tr>
<tr><td>22. How do oestrogen and progesterone prevent pregnancy?</td><td>Oestrogen- Prevents egg from being released. If it is taken every day to keep levels high, it inhibits FSH production and egg maturation and therefore egg release is stopped.

Progesterone- It stimulates the production of thick cervical mucus which prevents sperm getting through the cervix and reaching an egg. Some progesterone-only contraceptives can also prevent egg maturation.</td></tr>
<tr><td>23. State two ways of treating infertility and explain how they aid pregnancy.</td><td>Clomifene therapy- If women are infertile because they don’t ovulate at all (or regularly). They can take a drug called clomifene, which causes more FSH and LH to be released, stimulating egg maturation and ovulation.

IVF- This involves collecting eggs from women’s ovaries and fertilising them in a lab using a male’s sperm. The fertilised eggs are then grown into embryos. Once the embryos are large enough, they are transferred into a female’s uterus. This is an example of Assisted Reproducive Technology (ART).</td></tr>
<tr><td>24. Evaluate methods of contraception.</td><td>The most effective form of contraception depends on an individual and their lifestyle.
Hormonal methods when used correctly are more effective.
Hormonal methods can have unpleasant side effects such as headaches, acne and mood changes.
Hormonal methods do not protect against sexually transmitted diseases.</td></tr>
<tr><td>25. What is homeostasis?</td><td>It is the regulation of the conditions inside your body (and cells) to maintain a constant internal environment, in response to changes in both internal and external conditions.</td></tr>
<tr><td>26. Why is homeostasis important in the human body?</td><td>Conditions in the body have to kept steady in order for body cells to function properly.</td></tr>
<tr><td>27. What are some examples of homeostasis in the human body?</td><td>Osmoregulation (regulating water content)- balance between the water you gain (in food, drink and respiration) and water you urinate, sweat and breathe out.</td></tr>
</table>

	Thermoregulation (regulating body temperature)- you need to increase your body temperature when it's too cold and decease it when you are too hot. Blood Glucose regulation- more on that below!
28. What is glucose and why might your blood glucose levels vary?	Glucose is a type of sugar. It may vary as eating foods that contain carbohydrates puts glucose into the blood. The normal metabolism of cells removes glucose from the blood. Vigorous exercise removes much more glucose from the blood.
29. How is excess glucose stored in the body?	As glycogen in the muscles and the liver.
30. Which part of the body monitors blood glucose?	Pancreas.
31. Explain what happens when blood glucose is too high.	1. A person's blood glucose rises (perhaps due to eating a meal containing carbohydrate). This rise is detected by the pancreas. 2. The pancreas responds by producing insulin (a hormone), which is secreted into the blood. 3. Insulin causes body cells to take up more glucose from the blood. Cells in the liver and muscles can take up glucose and convert it into the storage molecule *glycogen.* 4. This causes blood glucose level to fall.
32. **HIGHER TIER ONLY- Explain how blood glucose concentration is regulated by glucagon.**	1. If a person's blood glucose decreases, the fall is detected by the pancreas. 2. The pancreas responds by producing the hormone glucagon, which is secreted into the blood. 3. Glucagon causes the glycogen stored in the liver and muscles to be converted into glucose, which enters the blood. 4. This causes blood glucose levels to rise.
33. Using what form of feedback cycle is blood glucose regulated?	Negative feedback. Glucagon works with insulin to control blood glucose levels.
34. How is type 1 diabetes caused?	The pancreas of sufferers produces little to no insulin. This means that blood glucose can rise to a level which can kill them.
35. How can type 1 diabetes be controlled?	Insulin therapy which usually involves injecting insulin into the blood. They can also limit their intake of simple carbohydrates and exercising regularly.
36. What is the cause of type 2 diabetes?	The pancreas does not produce enough insulin or a person may become resistant of their own insulin. This means that blood glucose can rise to a level which can kill them.
37. How can type 2 diabetes be controlled?	It can be controlled by eating a healthy diet, getting regular exercise and losing weight if needed. Some people may require insulin therapy.
38. What is the relationship between type 2 diabetes and obesity?	There is a positive correlation between the two factors. It means that obese people have an increased risk of developing type 2 diabetes.
39. What is the calculation for BMI? *B5 link*	BMI= $\frac{\text{weight (kg)}}{(\text{height (m)})^2}$
40. What is the calculation for waist-to-hip-ratio? *B5 link*	Waist-to-hip ration= $\frac{\text{waist circumference (cm)}}{\text{hip circumference (cm)}}$

Chemistry

Key Questions
Groups in the Periodic Table

Key Questions		Key Answers
1.	Describe the relationship between group number and position in the Periodic Table using group 1,7 and 0 as examples.	Group number tells us how many outer shell electrons the element has. Group 1 have 1 electron in their outer shell. Group 7 have 7 electrons in their outer shell. Group 0 have a full outer shell.
2.	Describe the physical properties (appearance, density etc…) of the group 1 alkali metals.	Group 1 metals are soft, low density, shiny when cut and have high melting and boiling points. They conduct heat and electricity.
3.	Describe the observations seen when lithium, sodium and potassium react with water.	Lithium -floats, fizzes, dissolves. Sodium – floats, more vigorous fizzing, may see an orange flame, dissolves. Potassium – pops/crackles/explodes, more violent reaction, purple flame seen.
4.	Write the word equations for lithium, sodium and potassium reacting with water.	Lithium + water → lithium hydroxide + hydrogen Sodium + water → sodium hydroxide + hydrogen Potassium + water → potassium hydroxide + hydrogen
5.	Write the symbol equations for lithium, sodium and potassium reacting with water.	$2Li + 2H_2O \rightarrow 2LiOH + H_2$ $2Na + 2H_2O \rightarrow 2NaOH + H_2$ $2K + 2H_2O \rightarrow 2KOH + H_2$
6.	Describe the reactivity of the lithium, sodium and potassium and suggest how rubidium will react with water.	Reactivity increases down group 1 so lithium is the least reactive and potassium most reactive. Rubidium will be even more reactive so like to explode on reaction with water.
7.	Explain the pattern of reactivity of the alkali metals by referring to their electronic configurations.	Reactivity increases going down group 1 because the electron in the outer shell becomes further away from the nucleus so is less attracted and is lost more easily.
8.	Give the colours and states of chlorine, bromine and iodine at room temperature.	Chlorine – pale green gas, bromine- orange/brown liquid, iodine – grey solid
9.	Describe the pattern in the physical properties of the halogens and then predict the appearance of astatine.	Going down the group, halogens turn from gas→solid, colours become darker and melting/boiling points and density all increase. Astatine will therefore be a black solid.
10.	Describe the test for chlorine	Place some damp blue litmus paper into a test tube of chlorine gas. It will turn red, then bleach white.
11.	Give the general word equation for a halogen reacting with a metal.	Metal + Halogen → Metal Halide
12.	Write the word and symbol equation for sodium reacting with chlorine.	Sodium + Chlorine → Sodium Chloride $2Na + Cl_2 \rightarrow 2NaCl$
13.	Write the word and symbol equation for potassium reacting with bromine.	Potassium + Bromine → Potassium Bromide $2K + Br_2 \rightarrow 2KBr$
14.	Give the general word equation for a halogen reacting with hydrogen.	Hydrogen + Halogen → Hydrogen Halide
15.	Write the word and symbol equation for hydrogen reacting with chlorine.	Hydrogen + Chlorine → Hydrogen Chloride $H_2 + Cl_2 \rightarrow 2HCl$
16.	Name the type of solution formed when a hydrogen halide dissolves in water.	An acidic solution is formed
17.	Give the ionic equation for HCl dissolving in water.	$HCl \rightarrow H^+ + Cl^-$
18.	Describe the reactivity of chlorine, bromine and iodine using ideas about displacement reactions with halide solutions.	Chlorine more reactive than bromine and iodine. Bromine more reactive than iodine. Cl>Br>I. Chlorine will displace bromide and iodide from solution. Bromine will displace iodide from solution.
19.	Write the word and symbol equations for the reaction of chlorine with sodium bromide.	Chlorine + Sodium Bromide → Sodium Chloride + Bromine $Cl_2 + 2NaBr \rightarrow 2NaCl + Br_2$
20.	Write the word and symbol equations for the reaction of bromine with potassium iodide.	Bromine + Potassium Iodide → Potassium Bromide + Iodine $Br_2 + 2KI \rightarrow 2KBr + I_2$
21.	**Use the following ionic equation to explain why displacement reactions are redox reactions. State which species is oxidised and which one is reduced.** **$Cl_2 + 2Br^- \rightarrow Br_2 + 2Cl^-$**	Chlorine atoms gain electrons to become chloride ions. This is Reduction. Bromide ions lose electrons to become bromine atoms. This is Oxidation. These reactions happen at the same time hence this is a REDOX reaction.
22.	Using ideas about electronic configuration, explain the reactivity of the halogens.	Halogens have 7 outer shell electrons and so want to gain 1 to become stable. Reactivity decreases going down the group because it becomes harder to attract an electron due to shielding and less attraction to the nucleus.
23.	Explain why the Noble Gases are unreactive using ideas about their electronic structure.	Noble gases are unreactive because they have a full outer shell of electrons so are stable and don't take part in reactions.
24.	Explain why argon is used in lightbulbs.	Argon is unreactive and non-flammable so will not react with the metal filament.
25.	Explain why helium is used in balloons and airships.	Helium has a very low density and so is less dense than air so balloons and airships can float.
26.	Describe the pattern in physical properties of helium, neon and argon and predict the properties of xenon.	They are all colourless gases at room temperature with low densities, low melting and low boiling points. Xenon will also be a colourless gas at room temperature.

Key Questions
Metals

Key Questions	Key Answers
Describe how the observations made during the reaction of potassium with water, would be different to lithium reacting with water. Explain why these differences occur.	Similar to lithium, potassium will float on the surface of the water and will fizz. Potassium will, however, react more vigorously and there will be a purple flame The differences occur because potassium is more reactive than lithium
Explain how a displacement reaction is a redox reaction, in terms of the loss and gain of electrons	During a displacement reaction, the less reactive metal will gain electrons and the more reactive metal will lose electrons. This means that the more reactive metal is oxidised and the less reactive metal is reduced. e.g. $K + Li^+ \rightarrow K^+ + Li$
Describe what the reactivity series tells us	The relative reactivity of metals
State where most metals are found	In the Earth's crust
Describe how the reactivity series relates to how metals are found in the Earth's crust	Unreactive metals are found in their native state, reactive metals are found as compounds
Define *oxidation and reduction* in terms of oxygen	Oxidation is the reaction of something with oxygen, reduction is the removal of oxygen from a compound
State whether metals are removed from their ores by reduction or oxidation	Reduction
Explain how the method used to extract metals from their ores is dependent upon its position in the reactivity series	If a metal is below carbon in the reactivity series, then heating with carbon can be used to reduce the metal. If it is above carbon, then electrolysis must be used.
Describe two alternative biological methods of metal extraction	Bioleaching and phytomining are two alternative methods. They are classed as biological because bioleaching uses bacteria and phytomining uses plants. During the bioleaching process, bacteria is used to break down the minerals in the ore into metal containing compounds. These are found in a solution produced by the bacteria which is called the leachate. Phytomining is the growing of plants on soils that are low grade ores. The plants absorb mineral ions through their roots and concentrate them in their cells. These plants can be harvested and burnt. This leaves an ash containing metal compounds which can be further processed. The metal compounds are reduced using iron or another more reactive metal in a displacement reaction. This leaves the desired pure metal.
Explain why copper is more resistant to oxidation than iron	Iron is higher in the reactivity series and therefore will react with oxygen more readily
Describe the economic, social and environmental advantages of recycling metals	Recycling creates jobs and can benefit the economy. Recycling reduces the need for mining which means fewer quarries will be used which cause noise, dust, traffic and the destruction of animal habitats. Recycling also ensures that the natural reserves of metal do not run out.
State the four main steps in a life cycle assessment	Extraction and processing of the raw materials Manufacture and packaging of the product Use of the product Disposal of the product
Construct a life cycle assessment for plastic vs paper straws	Raw materials: Plastic is made from oil which is finite, paper can be made from recycled materials. Both require a lot of energy to produce. Manufacture of the product: plastic will be quicker and cheaper to produce straws as the paper straws need to be glued

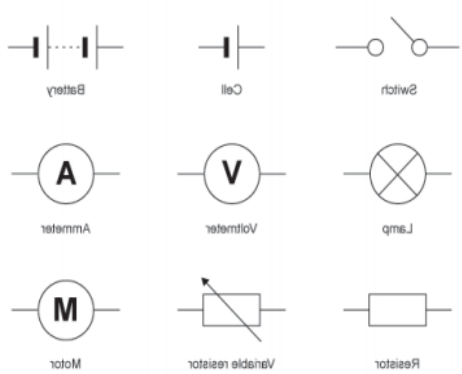
	Use of the product: plastic straws could be reused many times but paper straws are only used once Disposal of the product: both could be recycled. Paper straws are biodegradable which means they cause much less damage due to littering and landfill
Describe what a *reversible reaction* is	A reaction in which the forward and backwards reactions happen at the same time. This is because the products can react together to form the original reactants.
Give the symbol for a reversible reaction	
Explain what is meant by *dynamic equilibrium*	When the rate of the forward and backwards reactions are equal, and the concentrations of all reactants stays constant.
Show the formation of ammonia using word and symbol equations	Nitrogen + hydrogen → ammonia $N_2 + 3H_2 \rightarrow 2NH_3$
State the conditions used for the Haber process	200 atmospheres of pressure 450C temperature Iron catalyst
In the Haber process, the reverse reaction is endothermic. Given this, predict how the position of equilibrium will be affected by an increase of temperature	There will be a lower yield of ammonia/equilibrium will favour the reverse reaction
Predict how the position of dynamic equilibrium is affected by an increase in pressure for the Haber process	There will be a greater yield of ammonia/equilibrium will favour the forward reaction
Predict how the position of a dynamic equilibrium is affected by increasing the concentration of reactants.	Equilibrium will shift AWAY from whatever you are increasing the concentration of. E.g. in the Haber process, increasing the conc. Of ammonia will

Physics

Year 11 Module 1 – Key Questions
Part 1: Material Properties

Key questions	Answers
1. Describe what happens to mass in a physical change.	In physical changes (melting, freezing, evaporating, boiling, condensing and sublimation) mass is conserved.
2. Define specific heat capacity.	Specific heat capacity is the energy required to raise the temperature of 1kg of a material by 1°C.
3. Define specific latent heat.	Specific latent heat is the energy needed to change the state of 1kg of a substance (go from a solid to a liquid or a liquid to a gas).
4. Describe what we did in the specific heat capacity practical.	In the specific heat capacity practical, we put an electric heater into an insulated beaker of water and measured the temperature change. We then use the specific heat capacity formula ($E=mc\Delta\Theta$) to find the specific heat capacity.
5. How can we reduce heat loss?	We can reduce unwanted heat transfer by thermal insulation.
6. Explain what causes pressure in a gas,	Pressure in caused by collisions between the particles in a gas and the container.
7. Explain what happens to pressure if we increase temperature of a fixed mass of gas at a constant volume.	If we increase the temperature of a gas, we increase the kinetic energy and therefore velocity of the particles. This means that they collide with container walls with more force, which increases the pressure.
8. What is absolute zero?	At absolute zero (-273°C), particles do not vibrate.
9. How do we convert between kelvin and degrees Celsius?	To convert from Kelvin to degrees Celsius, we minus 273.
10. What does elastic mean?	If the distortion is elastic, the object will return to the original length.
11. Recall the equation for force on a spring.	Force (N) = spring constant (N/m) x extension (m)
12. What does linear mean?	If a relationship is linear, the line of best fit will be a straight line as they are proportional.
13. Describe what we did in the Hooke's law springs practical.	In the springs core practical, we added masses to a spring to increase the force and measured the extension. We found that force is directly proportional to extension (increase by the same ratio).

Year 11 Module 1 – Key Questions
Part 2: Electricity

1. State the symbols for batteries, switches, voltmeters, ammeters, resistors, variable resistors, lamps, motors, diodes, thermistors, LDRs and LEDs.	
2. Describe what a series circuit is.	In a series circuit, the current flows round the circuit and there are no junctions (where the current splits).

3. Describe what we use a voltmeter for.	A voltmeter measures the potential difference (voltage) in a circuit and is connected in parallel.
4. Recall the potential difference equation.	Energy transferred (J) = charge (C) x potential difference (V).
5. Describe what we use a ammeter for.	An ammeter measures the current in a circuit and is connected in series.
6. Describe what current is.	Current is the rate of flow of charge in a circuit. In a wire, it is the rate of flow of electrons.
7. Recall the current equation.	Charge (C) = current (A) x time (s).
8. Explain what happens to current when resistance increases.	If we increase the resistance of a circuit, we reduce the current.
9. Recall the resistance equation.	Potential difference (V) = current (A) x resistance (Ω).
10. Explain how resistance changes in series and parallel circuits.	If 2 resistors are in series, the total resistance increases. If the 2 resistors are in parallel, the resistance decreases.
11. Describe the Ohm's Law experiment.	In the Ohm's law experiment, we used a variable resistor to change the current in the circuit and measured the potential difference.
12. Describe the shape of the 3 IV graphs	The resistor graph is linear, the bulb is a curved 'S' shape and the diode is flat on one side then increases linearly on the other.
13. Explain the shape of the bulb IV graph	As temperature increases, ions in the wire vibrate faster. More collisions occur between the electrons and the ions so the resistance increases
14. Describe how the resistance of an LDR changes with brightness	As the brightness on an LDR increases, the resistance decreases (BIRD).
15. Describe how the resistance of a thermistor changes.	As temperature goes up, the resistance of a thermistor decreases (TURD).
16. Explain why wires get hot.	Electrical energy is dissipated as thermal energy in the surroundings when an electrical current does work against electrical resistance.
17. Describe how energy is wasted in a wire.	When a current moves through a wire, it gets hot due to collisions between the electrons and ions in the lattice.
18. Describe how we can reduce energy wastage in wires.	We can reduce energy wasted by using low resistance wires.
19. State the formula for power and potential difference.	Power (W) = current (A) x potential difference (V).
20. State the formula for power and resistance.	Power (W) = current^2 (A) x resistance (Ω).
21. Explain the difference between a.c. and d.c.	In direct current (d.c.) the electrons move in one direction only. In alternating current (a.c.) the electrons change direction.
22. Recall the frequency and voltage of mains electricity.	The frequency of the UK domestic ac supply is 50Hz and the voltage is 230V.
23. Explain why we use earth wires.	Earth wires are used in appliances with metal cases to prevent electric shocks if there is a fault by diverting current through the fuse.
24. Explain how fuses work.	Fuses melt when the current exceeds the rating of the fuse to prevent high current flow.
25. Describe the live wire.	The live wire is brown and is connected to the bottom right pin. It has a potential difference of 230V.
26. Describe the neutral wire.	The neutral wire is blue and is connected to the bottom left pin. It has a potential difference of 0V.

EDEXCEL GCSE HISTORY
EARLY ELIZABETHAN ENGLAND 1558-88

Key people	
Sir Francis Drake	Famous for circumnavigating the globe and defeating Spanish Armada.
Francis, Duke of Anjou/Alencon	Heir to the French throne, Elizabeth offered a marriage alliance in 1570 and gave him £70,000 in 1581 to support the Protestant rebels in the Netherlands.
Francis Walsingham	Elizabeth's top spymaster. Exposed the Babington Plot.
Mary Stuart (Queen of Scots)	Elizabeth's cousin, forced to abdicate Scottish throne, executed by Elizabeth due to involvement in plots.
Mary Tudor (Mary I)	Elizabeth's half sister, previous Queen of England, Catholic and famous for burning 300 protestants.
King Philip II of Spain	King of Spain, strong Catholic, previously married to Mary I (E's sister)
Robert Dudley (Earl of Leicester)	Member of Privy Council. Close friend of Elizabeth, marriage candidate.
Sir Walter Raleigh	Famous explorer and favourite of Queen Elizabeth
Thomas Howard, Duke of Norfolk	Powerful noble, involved in the Revolt of the Northern Earls and the Ridolfi Plot. Executed in 1572.
William Cecil, Lord Burghley	Queen Elizabeth's closest advisor. Secretary of State.
Chief Wingina	Local native American chief in Roanoke killed by English settler Ralph Lane.

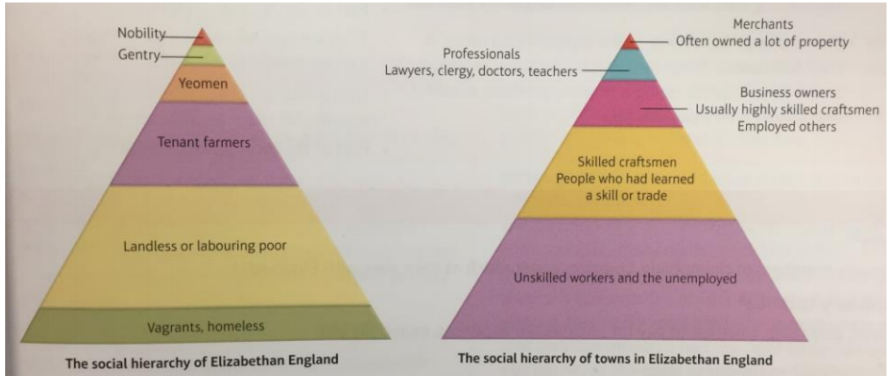


Figure 1.1 Elizabethan society was a hierarchy in which everyone had a clear place in the social order.

Timeline of key events	
1558	Elizabeth becomes Queen of England
1559	**Treaty of Cateau-Cambresis** signed ending war with France started by Mary I, but giving up Calais
	Elizabeth's **religious settlement** (Act of Supremacy, Act of Uniformity and Royal Injunctions)
1560	**Treaty of Edinburgh** – a protestant uprising in Scotland, supported by Elizabeth, ended. Mary Queen of Scots returned to Scotland.
1563	**Statute of Artificers** – imprisonment for refusal to pay poor relief
1566	**Vestment Controversy -** Archbishop Matthew Parker publishes 'Book of Advertisements' showing clergy what vestments to wear
1567	England's first permanent theatre is opened – The Red Lion in London
	Duke of Alba & 10,000 men sent to defeat **Dutch Revolt**. Council of Troubles (Blood) set up to enforce Spanish rule of Netherlands.
	Mary QoS abdicated for her son James VI and fled to England.
1569	**Revolt of the Northern Earls** – Dukes of Northumberland & Westmoreland led uprising against Elizabeth. Revolt defeated, 450 executed.
1570	Pope issues **Papal Bull** – Elizabeth is excommunicated
1571	**Ridolfi Plot** – plan to launch Spanish invasion & put Mary on the throne. Norfolk executed 1572.
	Treason Act passed – it was treason to claim that the Queen was a heretic or have a copy of the Papal Bull
1572	**Drake** hired as privateer by Elizabeth. Captured £40,000 Spanish silver.
	Vagabonds Act – Established national poor rate among other changes.
1576	**Spanish Fury** – Spain's forces mutiny after no pay, 17 Dutch provinces sign the **Pacification of Ghent** demanding independence. Elizabeth sends £100,000.
	Poor Relief Act – Houses of Correction set up for unemployed.
1580	**Jesuits** arrive in England from Europe
	Drake circumnavigates the globe, returned with £400,000 Spanish treasure.
1581	Recusancy fines increased to £20
1583	**Throckmorton Plot** – French Duke of Guise to invade with Papal support.
1585	**Treaty of Nonsuch** Elizabeth signed with Dutch rebels putting England at war with Spain in the Netherlands.
	Raleigh's failed attempt to colonise Virginia
1586	**Babington Plot** is discovered by Walsingham, proved Mary's involvement.
1587	Trial and execution of **Mary Queen of Scots**
	Drake singes the King of Spain's beard – attacked Cadiz
1588	Spanish Armada is defeated

Key words	
Algonquian	The language spoken by the native Americans in Virginia
Astrolabe	Used stars to calculate the ships position in navigation
Circumnavigate	Travel around (the globe)
Clergy	People ordained by the Church e.g. priests, bishops etc.
Colony	A country or area that is controlled by another e.g. Roanoke
Enclosure	A process where open fields were enclosed by hedges or fences
English Reformation	Henry VIII, Elizabeth's father, created the protestant Church of England, breaking away from the Catholic Church
Excommunicated	Excluded from the Catholic Church by the Pope
Galleons	New ships which were larger, more stable and more cannons
Gentry	A class of people below the nobility, often landowners
Justices of the Peace (JPs)	Kept law and order in local areas
Lords Lieutenant	Each county had one, in charge of raising and training militia (army)
Mercator map	New map designed by Gerardus Mercator using lines of latitude and longitude made navigation easier.
Nobility	Powerful landowners, members of the aristocracy - usually a Duke, Earl, Lord etc.
Papal Bull	A official order issued by the Pope
Parliament	Passed laws and raised extraordinary taxation.
Petty schools	Run in a teacher's home for young boys. Dame schools for girls.
Privy Council	Responsible for the day-to-day running of the country. Most powerful people.
Poor relief	Financial help for the poor paid for by the poor rate (tax)
Privateer	A pirate commissioned by the Queen to raid rival ships
Puritan	An extreme protestant
Recusant	Someone who refused to attend Anglican services.
Royal Court	People who lived in and around the monarch
Royal prerogative	Areas of law that only the monarch could decide on
Secretary of State	Most important Privy Councillor – William Cecil
Supremacy	Elizabeth was the Supreme Governor of the Church of England
Vagabond/Vagrant	A homeless, unemployed person
Vestments	Special clothing that Catholic clergy wear.
Visitations	Inspections of churches and clergy by bishops
Yeomen	Small farmers, the class below gentry

Some key questions

How did education change?
- Literacy rates increased 10%
- By 1577 all towns had a grammar school.
- Skilled craftsmen and yeomen trained through apprenticeships
- 1571 Elizabeth founded Jesus College, Cambridge

Why did poverty increase?
- Population growth of 35%
- Rising prices, wages falling behind
- Sheep farming led to enclosure
- Enclosure – took common land

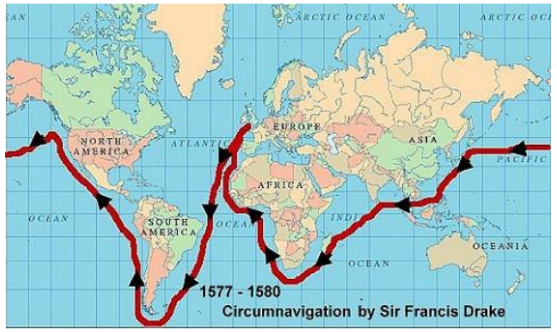
Why was Drake's circumnavigation of the globe significant?
- Proved England was a great sea-faring nation.
- Encouraged other exploration and colonisation e.g. Humphrey Gilbert.
- Drake claimed 'Nova Albion' – near San Francisco for the Queen
- Damaged Anglo-Spanish relations

Why did colonising Virginia fail?
- **Voyage** – left too late to plant crops, The Tiger got a breach in the hull.
- **Expectations vs reality** – not willing to work hard, poor co-operation, ill disciplined soldiers, not enough farmers.
- **Native Americans** – Local Chief unpredictable, tired of demands, believed English were cursing them through new diseases. English killed the Chief.

How did Elizabethans spend their leisure time?
- Lower classes played football, violent.
- Bear baiting – dogs attacked bears
- Cock-fighting
- Literature – Latin and Greek classics
- Theatre – 2000 people queued
- Music and dancing – lutes, harpsichords, bagpipes and fiddles

Why was the Spanish Armada defeated?
- Superior ship design (galleons)
- Spanish supply issues
- Poor Spanish planning and communication
- English tactics e.g. fire ships before the Battle of Gravelines
- Bad weather

Why did England go to war with Spain?
- Religious differences
- English support of the Dutch rebels in the Spanish Netherlands from 1585
- Spanish support of plots against Elizabeth e.g. Ridolfi
- Elizabeth's privateers raiding Spanish ships and settlements, e.g. Drake



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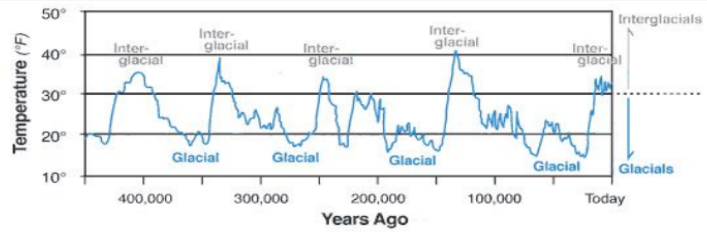
T5

Weather, climate and ecosystems

Geography Knowledge Organiser

5.1.1 - Climate change evidence

Climate Change during the Quaternary Period



Over a long period of time (the last 400,000 years) there have been natural cycles of cooling and warming. The periods of time the average global temperature was below 15°C are known as **glacials**, and periods of warmth are known as **interglacials**.

Evidence for climate change

Ice cores from the Antarctic show the amount of CO_2 and methane in the atmosphere have changed over the last 420,000 years

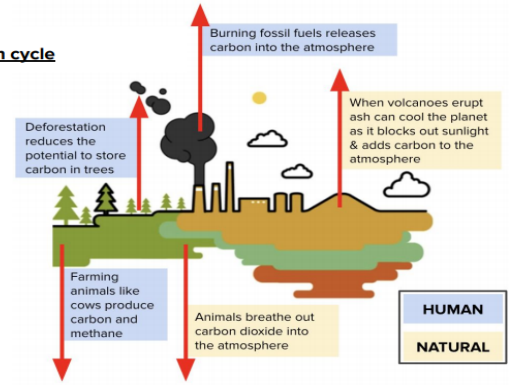
Historical records, such as diary extracts

CO_2 levels in the atmosphere

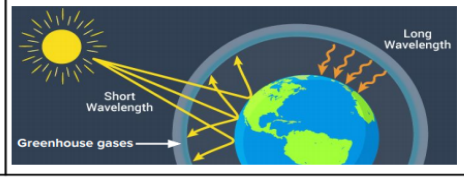
Measurements by the met office show temperature has increased by 0.6°C over the past 100 years.

5.1.2 - Climate change causes

Carbon cycle



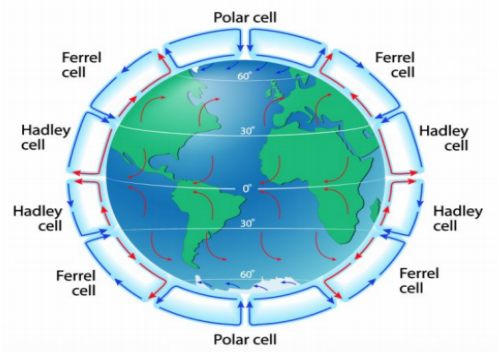
Greenhouse effect



The greenhouse effect is natural but humans have worsened the impacts. Carbon Dioxide and Methane are greenhouse gases which trap heat in the atmosphere. As more gases build up more heat is stored, warming the planet.

5.2.1 - Weather hazards

Global circulation

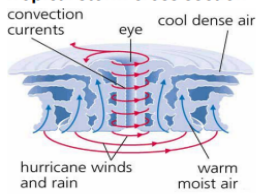


1. At the equator insolation heats the Earth which heats the air above
2. Hot air rises creating low pressure – as it rises it travels north and south
3. This air eventually cools and sinks at about 30° north/south of the equator – this creates high pressure
4. This air then returns to the equator (known as the intertropical convergence zone ITCZ)

Low pressure & tropical storms

Warm air rises because it is less dense. When it reaches the edge of the atmosphere it cannot rise any further and moves north and south. The edge of the atmosphere is cold and so the air cools too. Low pressure can create a hazard called a tropical storm, which is also known as a hurricane, cyclone or typhoon

Tropical storm cross section

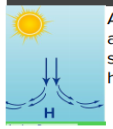


Tropical storm causes (CYCLONE PAM 2015)
Occurred near the island chain of Vanuatu in the South Pacific
Tropical storms can only form over large/deep oceans
Ocean temperatures of at least 27°c
Water depth of at least 50 meters
Gentle winds in the atmosphere to draw air up from water surface

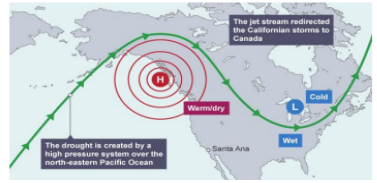
Tropical storm effects (CYCLONE PAM 2015)
11 people died
90000 homeless
Hospitals and schools destroyed
Widespread destruction of fruits, vegetables, root crops and livestock
Stormsurge flooded coastal areas and contaminated freshwater supplies

Tropical storm responses (CYCLONE PAM 2015)
Emergency aid sent by Australia, Fiji, New Zealand and UK
153 temporary school built
Repairs to infrastructure to provide safe drinking water
Blankets & tents given to those made homeless
28 schools used as evacuation centres

High pressure & droughts



As the air cools in the outer atmosphere it becomes heavier and starts to sink. This air moves back to the ground. This is called HIGH PRESSURE. As the air reaches the surface it starts to warm again and the cycle continues. High pressure can produce a hazard called a drought - a long period of no available water due to intense heat.



Drought causes (CALIFORNIA 2012)
The jet stream was further north that normal, pushing low pressure systems north and allowing high pressure systems to sit over the state creating a heat wave.

Drought effects (CALIFORNIA 2012)
A hosepipe ban was introduced
Homes were destroyed by wildfires
Hydroelectric power dams stopped producing electricity
Crops could not be grown and 17,000 agriculture jobs were lost
Fish died as high temps caused an oxygen decrease

Drought responses (California 2012)
12,500 water metres installed in homes
400,000 water saving toilets installed
3.2 million square feet of turf removed.
50% of Orange County's water supply is now imported from other areas.

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5.2.2 - UK weather variations

Weather - the conditions of the atmosphere over a short period of time, often a day
Climate - the weather of a place averaged over a period of time, often 30 years

Factors affecting Climate in the UK

Latitude –the north of the UK has cooler temperatures than the south
Altitude – mountain areas have cooler temperatures. Temperatures decrease by 1°C for every 200m of elevation.
Ocean currents – the North Atlantic drift brings warmer water to the UK, keeping the climate milder in winter and cooler in summer.
Different winds directions also bring different **air masses**:

- **Pm** North westerly brings polar maritime air (cool and showery)
- **Tm** South westerly brings tropical maritime (mild and wet)
- **Pc** Easterly brings polar continental (cold and dry)
- **Tc** South easterly brings tropical continental (warm and dry)
- **Am** Northerly brings arctic air (cold and snow in winter)

Low Pressure (depressions)
Begin in the Atlantic and move east

Brings rain, cloud and wind

Air rises, cools and condenses forming clouds

High Pressure (anticyclone)
Low wind speed, stable conditions with no clouds

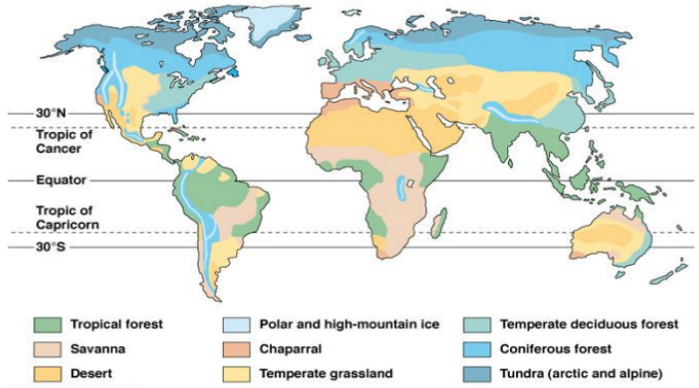
In summer they bring hot weather, which may lead to drought

In winter they bring cold (frosty) nights

Microclimate

Physical features - hills, trees can block the wind and sun. Water cools the air
Shelter - Buildings, trees and hills can shelter from the wind
Surface (albedo) - dark surfaces heat up quicker than light surfaces
Buildings - Buildings store up heat and redirect wind direction
Aspect - locations facing south have sun all day, the north doesn't receive sunlight

5.3.1 - Ecosystems



Large scale **ecosystems** are known as **biomes**.

Climate – the most important factor in determining their distribution
Rainfall – the amount and patterns determine the distribution of biomes
Temperature – when rainfall is reliable and distributed evenly temperature becomes the most important factor

Other factors can also have an influence e.g.
Tropical rainforests are located either side of the equator where hot and wet conditions allow continuous growth of plants

5.3.2 - Ecosystem processes

Tropical rainforest characteristics

Shrub layer. It is dark and gloomy with very little vegetation.
Under canopy. It is the second level up. There is limited sunlight. Saplings wait here for larger plants and trees to die
Canopy. This is where the upper parts of most of the trees are found. The canopy is typically about 65 to 130 feet (20 to 40 metres) tall.
Emergents. These are the tops of the tallest trees in the rainforest. These are much higher, and so are able to get more light than the average trees in the forest canopy.

Nutrient cycle

The rainforest nutrient cycling is rapid. The hot, damp conditions on the forest floor allow for the rapid decomposition of dead plant material. This provides plentiful nutrients that are easily absorbed by plant roots.

Water cycle

The roots of plants take up water from the ground and the rain is intercepted as it falls - much of it at the canopy level. As the rainforest heats up, the water evaporates into the atmosphere and forms clouds to make the next day's rain.

Carbon cycle

Rainforests contain about 40 to 50% of the carbon in the biomass, and very little in the soil due to the rapid nutrient cycling

Key services

Regulating climate and air quality
Preventing Soil Erosion
Carbon Storage
Provisioning Goods (food, fuel)
Flood prevention

Biodiversity

Biodiversity is the variety of plant and animal life in a particular habitat, a high level of which is considered to be important and desirable. The tropical rainforest has a higher level of biodiversity than savannah

5.3.2 - Ecosystem processes

Savanna characteristics

Grasses and trees - The savanna is a grassland with scattered trees and shrubs.
Rainy and dry seasons - Savannas have two distinct seasons in regards to precipitation. There is a rainy season in the summer with around 15 to 25 inches of rain and a dry season in the winter when only a couple of inches of rain may fall.
Large herds of animals - There are often large herds of grazing animals on the savanna that thrive on the abundance of grass and trees.
Warm - The savanna stays pretty warm all year.

Nutrient cycle

Nutrients are cycled quicky during the dry season in the tropical heat. Wildfires are common and nutrients are returned to the soil when vegetation burns.

Water cycle

All most all rain falls during the rainy season. Vegetation quickly absorbs and stores this water for the dry season. Little water is lost by transpiration due to waxy leaves and low surface area of the plants.

Carbon cycle

Majority of carbon is stored in vegetation with a lesser amount in soil. During dry seasons, wildfires can burn vegetation, releasing CO_2 into the atmosphere.

Key services

Preventing Soil Erosion
Carbon Storage
Provisioning Goods (food, fuel)

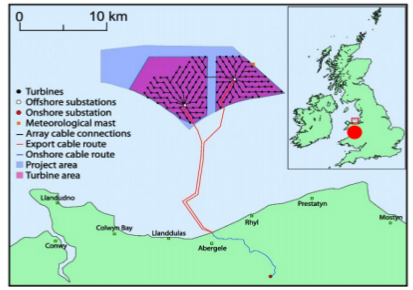
Small scale ecosystem: sand dunes

Sand Dunes are a build up of sand around vegetation. This requires loose sand and prevailing winds which blow on-shore. They are formed through a processes known as succession. As plants die and decompose it nourishes the soil making it better quality and now more fragile plants will start to grow.

5.4.1 - Human uses

Gwynt y Môr offshore wind farm
Offshore wind farms are located in the sea close to the shoreline as winds are stronger, unobstructed and do not impose on cities/population as much. Gwynt y Môr is located 15km off the north coast of Wales

The demand for renewable energy is increasing as non-renewables such as coal and gas are depleting



Advantages	Disadvantages
Produces power for 400,000 homes	RSPB says it affects bird migrations and their normal routines
Creates 100+ jobs	National Trust has concerns over affecting heritage and tourism
Helps with global climate change efforts	Locals are opposed as it spoils the natural beauty

5.4.2 - Human impacts

Tropical rainforest uses

Advantages:
Infrastructure, hospitals and education can be improved
Raw materials, eg tropical hardwoods such as ebony and mahogany, can be sold for a good price abroad.
Large-scale farming brings money into the country and provides food and jobs.
Small-scale farming provides food for rainforest communities.

Disadvantages:
Land clearance for farming, transportation and mining can lead to **deforestation.**
Loss of fertile soils that make farming possible are quickly washed away when the forest is cleared.
Loss of animal habitat occurs when trees are cut down. Hence, deforestation can result in endangering animals and plant life, or even causing them to become extinct.

Savanna uses

Advantages:
Small-scale farming provides food for rainforest communities.
Raw materials, eg fuel (firewood)

Disadvantages:
Large areas of grassland have been turned into **farmlands** for growing crops and for rearing cattle.
Animals have been **hunted** for their valuable body parts or for sport.
Loss of fertile soils that make farming possible are quickly washed away when the forest is cleared.

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5 . 4 . 3 - Ecosystem management

Tropical rainforest management

Selective logging – only cutting down older trees and not rare species. The International Forest Stewardship Council makes people aware of products made from sustainable timber.

Agro-forestry – growing new trees alongside crops

Wildlife corridors – connecting separated areas of forest with strips of vegetation so animals can move between areas

Eco-tourism – encouraging small groups of sustainable tourism. Money made is used to protect the ecosystem and uses local tour guides and companies.

Debt-swaps – HICs cancel debts which LICs have, if they protect their rainforests from over-exploitation

Savanna management

Crop rotation – growing different crops and giving the land time to rest between planting to allow soil to recover nutrients

Afforestation – planting more trees to protect the soil

Drought-resistant crops – Planting genetically modified crops which can withstand long periods of water shortage

Population control – Encouraging people to have fewer children so less crops and water are needed in the area

Home study questions

DEVELOPING

Describe the economic effects of a low pressure hazard **[3 marks]**
Give three ways that humans have influenced the carbon cycle **[3 marks]**

SECURING

Analyse the pattern of temperature change over the last 450 million years (5 . 1 . 1) **[6 marks]**

MASTERING

Discuss how sustainable the use of one ecosystem is **[8 marks]**

CHALLENGE

Decide how deforestation would affect the nutrient, water and carbon cycles in the tropical rainforest - present your decision as a paragraph or concept map

Spanish

¿Cómo es tu ciudad? ¿Cuál es tu ciudad favorita? ¿Qué hay para turistas en tu zona?

Mi ciudad se llama X (My city is called X) Mi ciudad favorita es X (My favourite city is X)	está (It is)	situada en un valle/al lado del río (situated in a valley / next to a river) rodeada de sierra (surrounded by mountains) en la costa (on the coast)
	el clima es (the climate is)	soleado (sunny), seco (dry), frío (cold), variable (variable)
	hay (There is/there are)	mucha marcha (lots going on) muchos bares y restaurantes (lots of bars and restaurants) monumentos y museos (monuments and museums) muchas tiendas (many shops) un mercado grande (a big market)
En mi ciudad, hay muchas cosas para turistas (In my city there are lots of things for tourists)	Aquí se puede (here you can)	subir a la torre (climb a tower) / esquiar (ski) disfrutar de las vistas (enjoy the views)
	Aquí se pueden (here you can)	probar platos típicos (try typical dishes) practicar deportes acuáticos (practice water sports)

¿Qué harás en tu ciudad este fin de semana?

"If" phrase	Verb	Connective + verb	Adjective
Si hace calor (If it's hot) Si hace frío (If it's cold) Si hace sol (If it's sunny) Si hace viento (If it's windy) Si hace buen tiempo (If it's good weather) Si hace mal tiempo (If it's bad weather) Si llueve (If it rains) Si está nublado (If it's cloudy)	Visitaré el catedral (I will visit the cathedral) Sacaré muchas fotos (I will take lots of photos) Iré al polideportivo (I will go to the sports centre) Subiré al teleférico (I will go up the cable car) Nadaré en el mar (I will swim in the sea) Descansaré en la playa (I will relax on the beach) Jugaré al badminton (I will play badminton) Haré una excursión en barco (I will go on a boat excursion) Veré delfines (I will see dolphins) Iré de compras (I will go shopping) Compraré regalos (I will buy presents)	Y será (and it will be)	Emocionante (exciting) Fenomenal (phenomenal) Divertido (fun) Guay (cool) Una nueva experiencia (a new experience) Un sueño hecho realidad (a dream come true)
Si pudiera (If I could) Si tuviera el tiempo (If I had the time) Si fuera rico/a (If I were rich)	Visitaría el catedral (I would visit the cathedral) Sacaría muchas fotos (I would take lots of photos) Iría al polideportivo (I would go to the sports centre) Subiría al teleférico (I would go up the cable car) Nadaría en el mar (I would swim in the sea) Descansaría en la playa (I would relax on the beach) Jugaría al badminton (I would play badminton) Haría una excursión en barco (I would go on a boat excursion) Vería delfines (I would see dolphins) Iría de compras (I would go shopping) Compraría regalos (I would buy presents)	Y sería (and it would be)	

¿Dónde te gusta comprar? ¿Adónde fuiste de compras la última vez que fuiste de compras?

Me gusta comprar (I like to shop) Odio comprar (I hate to shop)	en los grandes almacenes (in the department stores) en las tiendas de diseño (in designer stores) en las tiendas de segunda mano (In second hand shops) por Internet (on the internet)	porque (because)	tiene un montón de tiendas (It has loads of shops) se puede comprar de todo allí (you can buy everything there) es muy divertido pasar la tarde allí (It's really fun to spend the afternoon there) es mucho más cómodo (It's much more comfortable) es más barato (it's much cheaper) hay más variedad (there is more variety hay demasiada gente (there are too many people)
Normalmente voy (Normalley I go) Suelo ir (I usually go)	al centro comercial (to the shopping centre) al centro de la ciudad (to the city centre)		
La última vez que fui de compras , fui (The last time I went shopping I went)		y compré (and I bought)	una blusa (a blouse) unos vaqueros (some jeans) joyería (jewellery) un regalo para X (a present for X)

¿Cuál es lo mejor de tu ciudad?

Lo mejor de mi ciudad es que (The best thing about my city is that)	hay tantas diversiones (there are so many fun things) el transporte público es muy bueno (the public transport is very good) las tiendas están tan cerca (the shops are so close) hay muchas posibilidades de trabajo (there are lots of job opportunities) hay mucho que hacer (there is lots to do) es muy tranquilo (it's very calm)
Lo peor es que (The worst thing is that)	el centro es tan ruidoso (the centre is so noisy) hay pocos espacios verdes (there are few green spaces) hay tanto tráfico (there is so much traffic) hay tantas fábricas (there are so many factories) hay tantos atascos (there are so many traffic jams) hay bastante desempleo (there is a lot of unemployment) la red de transporte público no es fiable (the public transport network is not reliable)
En el pasado (In the past)	había mucha contaminación / mucha violencia (there was a lot of pollution / violence) era muy industrial (it was very industrial) estaba sucia / limpia (it was dirty/clean)
Todavía necesitamos (We still need)	más espacios verdes (more green spaces) una zona peatonal (a pedestrianised area)
Si fuera alcalde (If I were mayor)	mejoraría el sistema de transporte público (I would improve the public transport system)

¿Qué hiciste recientemente en tu zona? Describe una visita que hiciste a otra ciudad.

Hace cinco años (Five years ago) El año pasado (Last year) El verano pasado (Last summer)	fui a ... (I went to) visité el centro histórico (I visited the historic centre) vi lugares de interés (I saw places of interest) hice una visita guiada (I did a guided tour) alquilé una bici (I hired a bike) recorrí a pie el centro histórico (I walked around the historic centre) compré muchos recuerdos (I bought lots of souvenirs) comí los platos típicos (I ate the traditional food)	la comida estaba rica (the food was delcious) la gente era muy abierta (The people were very open) era muy acogedora (It was very welcoming)	me quedé impresionada (I was impressed) fue fenomenal (It was phenomenal) me gustó mucho (I liked it a lot) fue una experiencia única (It was a unique experience)

¿Qué comes? ¿Qué bebes?

Verb	Noun	Frequency phrase
Como (I eat) Mi madre come (My mam eats) Comemos (we eat) Cuando era más joven comía (When I was younger I used to eat) Mañana voy a comer (Tomorrow I am going to eat)	arroz (rice) carne (meat) ensalada (salad) fruta (fruit) pan (bread) pescado (fish) pollo (chicken) queso (cheese) chorizo (chorizo sausage) chocolates (chocolates) gambas (prawns) hamburguesas (burgers) huevos (eggs) manzanas (apples) naranjas (oranges) verduras (vegetables) patatas fritas (chips)	todos los días (every day) a menudo (often) a veces (sometimes) de vez en cuando (from time to time) nunca (never)
Bebo (I drink) Mi padre bebe (My dad drinks) Bebemos (we drink) Cuando era más joven bebía (When I was younger I used to drink) Mañana voy a beber (Tomorrow I am going to drink)	agua (water) café (coffee) té (tea) leche (milk) zumo/jugo de naranja (orange juice)	

¿Has probado la comida española?

Sí he probado la comida española (yes, I have tried Spanish food)				
No, no he probado la comida española (no, I haven't tried Spanish food)				
Time phrase	Verb	Noun	Connnective	Adjective
El año pasado (last year) El verano pasado (last summer)	comí (I ate)	la tortilla española la paella el gazpacho el jamón serrano el chorizo el queso manchego	y fue (and it was)	asqueroso/a (disgusting) delicioso/a (delicious)
		las patatas bravas los calamares los churros las tapas las gambas las aceitunas las croquetas	y fueron (and they were)	asquerosos/as (disgusting) deliciosos/as (delicious)
En el futuro (In the future)	me gustaría probar (I would like to try)			
	fue inventado en (it was invented in)	Colombia España		
	fue introducido por (it was introduced by)	la población indígena (the indigenous population)		

¿Cómo se celebran Día de los Muertos o Los Sanfermines?

Time phrase	Verb	Connective	Adjective
Para Día de los Muertos (For Day of the Dead) Para los Sanfermines (For the San Fermín festival)	celebran con familia (They celebrate with family) bailan en las calles (They dance in the streets) limpian y decoran las tumbas (They clean and decorate the graves) comen pan de muerto (They eat "pan de muertos") ven los desfiles en las calles (They watch parades in the streets) decoran las casa con flores y velas (They decorate the house with flowers and candles) preparan altares en honor de los muertos (They prepare altars for the deceased) Vvsitan los cementerios (They visit the cementaries) llevan ropa blanca con un pañuelo rojo (They wear white clothes with a red handkerchief) corren delante de los toros (They run in front of the bulls)	y es (and it is)	animado (lively) emocionante (exciting) divertido (fun) especial (special) una tradición importante (an important tradition) peligroso (dangerous) cruel y violento (cruel and violent) delicioso (delicious) valiente (brave)

Háblame de lo que hiciste en un día especial reciente

Time phrase	Verb	Connective	Adjective
Para navidad el año pasado (For Christmas last year) Para celebrar Eid-al-Fitr el año pasado (To celebrate Eid last year)	me desperté muy temprano (I woke up really early) recé (I pray) me vestí con mi mejor ropa (I wore my best clothes) fui a la iglesia/a la mezquita/a misa (I went to church/the mosque/Mass) abrí mis regalos (I opened my presents) comimos una cena especial (We ate a special dinner) cantamos villancicos (We sung carols)	y fue (and it was)	animado (lively) emocionante (exciting) divertido (fun) especial (special) una tradición importante (an important tradition)
Para celebrar nochevieja (To celebrate New Year's Eve)	llevé ropa interior roja (I wore red underwear) comí doce uvas (I ate 12 grapes) me acosté muy tarde (I went to bed very late)		

Háblame de la última vez qe fuiste a un restaurante

Time marker	Verb	Connective	Verb/opinion
Hace dos semanas (Two weeks ago) Para mi cumpleaños (For my birthday) El fin de semana pasado (Last weekend)	fui a un restaurante italiano (I went to an Italian restaurant)	por un lado (on the one hand)	el ambiente era animado y acogedor (the atmosphere was lively and welcoming) todo estaba muy limpio (everything was very clean) el camarero era amable (the waiter was friendly) el pollo estaba buenísmo (the chicken was extremely good) había mucha variedad (there was a lot of variety) tenía una terraza espectacular (it had a spectacular terrace)
		por otro lado (On the other hand)	tuvimos que esperar mucho tiempo (we had to wait a long time) pedí pollo pero el camarero me trajó pescado (I asked for chicken but the waiter brought me fish) el pescado estaba frío (the fish was cold) era carísima (it was extremely expensive) el plato estaba sucio (the plate was dirty) había una mosca en la sopa (there was a fly in the soup)

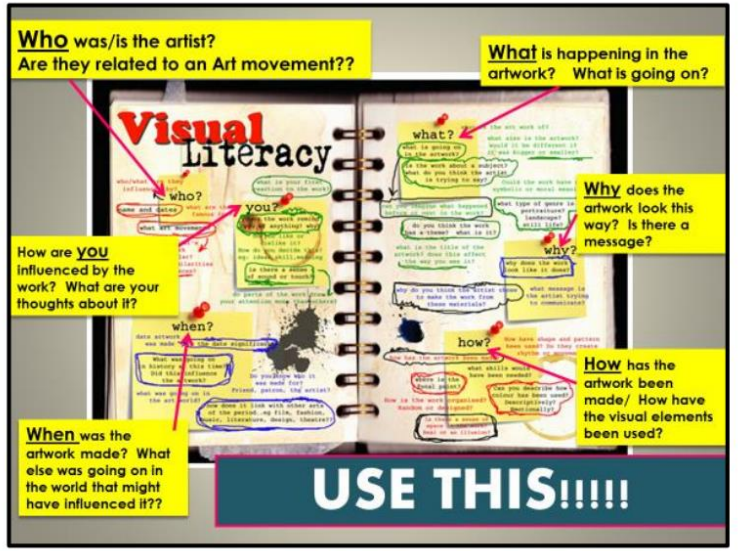
¿Has asistido a un festival de música?

Time marker	Verb	Connective	Verb/opinion
Acado de pasar cuatro días en el festival de Benicassim (I have just spend 4 days at Benicassim festival) El año pasado, fui al festival de Leeds (Last year I went to Leeds festival) Decidí ir al festival de Lolapalooza hace dos años (I decided to go to Lolapalooza two years ago)	Vi muchas de mis bandas favoritas (I saw lots of my favourite bands) Decidí acampar (I decided to camp) Montamos la tienda (we put up the tent) Canté mucho (I sang a lot) Bailé mucho (I danced a lot) Comí muchos perritos calientes (I ate lots of hot dogs)	por un lado (on the one hand)	Fue una experiencia inolvidable (It was an unforgettable experience) Era más barato (It was cheaper) El ambiente era increíble (The atmosphere was incredible)
		por otro lado (on the other hand)	Era muy incómodo (It was very uncomfortable) Había mucho ruido (There was a lot of noise) Hizo mucho calor (It was very hot) Tuve un accidente (I had an accident)

St. Wilfrid's RC College - Knowledge Organiser
GCSE - Fine Art - AQA

AO1- In a nutshell

- Researching and analysing the work of a range of artists, craftspeople and designers
- Showing links to work of other artists in your own work- styles/themes/techniques.
- Writing about artists and how they have informed and influenced your work.

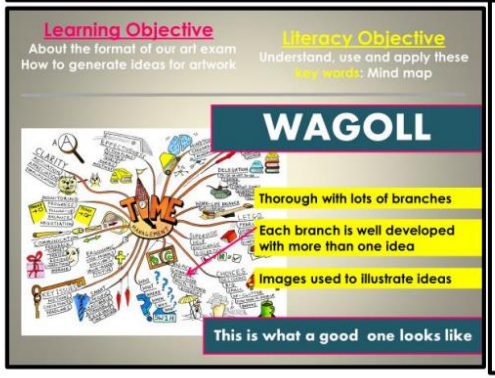


When choosing Artists linked to your topic you should consider…

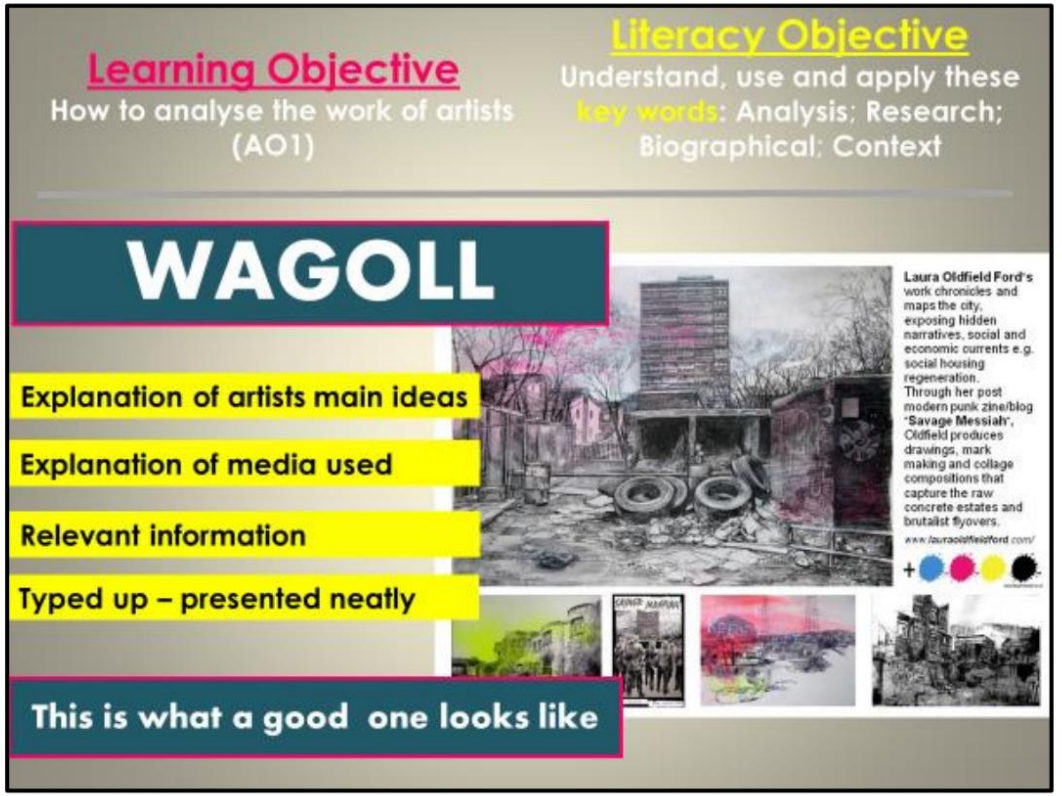
- Do they strongly link to your project theme?
- You can use an artist that has covered the same theme or uses a medium or technique you would like to experiment with.
- Is the topic going to be accessible for you?- easy to access. i.e. Are you going to be able to find enough research (information and images).
- This is another chance to make sure the topic you have chosen is fully suitable. Are the artists you have found linked to your strengths and interests?

Artist Sheets- What you should include

- Mind-map of artists that have also explored your theme and any ideas you initially have.
- At least 2 artists you have chosen to research in more depth.
- Images of the artists work.
- Written analysis of the work of your chosen artists- using questions as a guide.
- Your own drawing/ artwork in the style of or inspired by your chosen artists.
- Statement of intent- a brief plan of your initial ideas.



Statement of Intent
A general introduction to your specific project. It should open with the work's basic ideas in an overview of two or three sentences or a short paragraph. It should then go into detail about how these issues or ideas will be presented in the work.



Y11 Music Module 1 Knowledge Organiser

Area of Study	Purcell
Vocal Music Music	"Music for a While"

What do we need to know in order to answer the exam questions?

- ✓ The background to Purcell and the Baroque style
- ✓ What the structure and main musical features of the piece are
- ✓ How ground bass (basso ostinato)and vocal music was composed during this time

CONTEXT/ COMPOSER	• Purcell (1659- 1695) was a well know diverse English composer during the Baroque period. • Lots of Purcell's music was commissioned by patrons. • This period saw a development in small scale public concerts. The lack of large scale performances meant that Purcell could not show off his ability as an opera composer. • *Music for a While* was composed in 1692 and is the 2nd of 4 movements • Many ground bass pieces were Laments – like this piece they emphasised falling phrases in a minor key with a slow tempo.
STYLE	• A ground Bass is usually in a minor key, slow tempo, ends on perfect cadence, and uses chromatic notes to create interest. • This ground bass is unusual because it is only 3 bars long.
STRUCTURE	• The piece is in rounded Binary form • The B section is only 8 bars long and includes a 1 bar harpsichord link to separate section A and B Intro: Bars 1-3 Section A: Bars 4-21 Section B: Bars 22-28 Section A1: Bars 29-38
MELODY	• Purcell uses dissonance to create tension • The melody uses ornamentation • Word painting is used to emphasis the meaning of the text. • Most of the first few bars are syllabic. • The melody has a different amount of bars to the ground bass so the phrases do not align. • There are interjections (swapped phrases between the voice and harpsichord at bar 21?) • There is ornamentation in the repeat of the melody in A1.
HARMONY/ TONALITY	• The recording sounds lower than written (Am). Baroque instruments were tuned differently. • The opening chord is A minor which is the most likely opening key. • Ground bass is heard at the beginning in the left hand of the harpsichord and uses rising (why?) quavers • The ground bass features some chromatic notes to provide an unsettling feeling. • The ground bass ends with a perfect cadence using the chords IV, IVb, Ic, V. • A dissonant interval on word *pains* at bar 12 beat 3 where the voice sings E above Dm. • Modulation to dominant (Em) at bar 13 followed by a perfect cadence in Em in bar 15. • Bar 16 moves to G major (relative major of Em) where the ground bass starts on F# • Bar 21 modulates C major for the start of the B section (bar 22) but back to Am at bar 23. • Brief modulation to Em at bar28 with a perfect cadence back to Am to follow. • The final chord is an arpeggiated chord in the harpsichord.
INSTRUMENTS / VOCALS	• Basso continuo features a Harpsichord, Lute and Viol. • Solo voice (enters at bar 4) • The set work has a notated right hand part for the harpsichord but originally it would have been read from figured bass (each performance would be different)
RHYTHM/ METRE/ TEMPO	• There is no tempo marking but it is a fairly slow pace. • Dotted rhythms in the right hand of the harpsichord are characteristic of *stile italiano*
DYNAMICS	• Dynamics were not traditionally written on the music so much of this is left to interpretation. • The piece starts quietly.

Y11 Music Module 1 Knowledge Organiser

Area of Study 2 Vocal Music Music	Queen "Killer Queen"

What do we need to know in order to answer the exam questions?

- ✓ The background to **Queen** and the song
- ✓ How music **technology** and **effects** are used
- ✓ Key musical elements within the piece.

CONTEXT/ STYLE	• ***Killer Queen*** was released in **1974** and was one of Queen's first mainstream songs. • Inspired by comic musical theatre style from the 1880's ***Vaudeville*** which heightens the sense of theatre in their songs.
STRUCTURE	• Based on **verse/chorus structure** but unlike most rock songs it has an **adventurous** structure. • Although it seems to have a fairly straightforard structrure there are **unbalanced phrases** of 4, 5 and 3 bar phrases in Verse 1 and 2. • Clear **contrasts** between sections
MELODY	• Queen are famous for their **anthemic** melodies (we will rock you) • **Bar 6** is the first time we have heard one of the **main themes** *Just like Marie Antoinette* which is developed in the next phrase *A built in a remedy*. It is **syncopated** but with a different emphasis.
HARMONY/ TONALITY	• The harmony makes it more like a song from a musical (rock songs are built on 12 bar blues) • Opens in **E flat major** (unusual key for a rock song as it is a hard key for the guitar) • **Frequent modulations** which use harmonic sequences. **Perfect cadences** (V-I) are used frequently to aid this. • The piece **opens with a C Major** chord which provides **tonal ambiguity.** • **Chord inversions** provide **scalic movement** in the bass line and there are **extended chords**.
INSTRUMENTS / VOCALS	• **Vocals, Piano, 'jangle' piano** (a honky-tonk piano which sounds a little out of tune), **electric guitar, bass guitar** (a warm sound produced by fender precision), **drum kit** and **percussion**. • The **vocals** recorded did not use **auto tune** so required a high level of **intonation**. • The **backing vocals** move in **parallel**. As parts cross over a **swooping** effect is created. • The **backing vocals** provide **harmonic** support almost like a synth. • **Gospel** inspired **parallel harmonies** in the **backing vocals**. • The **jangle** and **piano** create a **hybrid timbre** when played together. • **Vocals** are mostly **syllabic** and often **staccato**, contrasting **backing vocals** are mostly **legato.** • **Guitar techniques** include **string-bends, slides, vibrato** and **pull offs**. There is no **strumming**.
RHYTHM/ METRE/ TEMPO	• **Time signature = 12/8** (although it could be seen as 4/4 with swung quavers) • The main **rhythmic motif** is **syncopated** and can be found at bar **47-50**. Here it alternates between groups of instruments which gives an **antiphonal** effect. • **Tempo** is crotchet = **112**
TECHNOLOGY	• No **synthesizers** are used. Effects were created the 'old fashioned way' using instruments. • Complex **multi-tracked guitar** and **vocal** parts which create a very distinctive sound. • **Panning** is used to create an **antiphonal** effect. • **Distortion** is used throughout giving it a **sustained** sound. • There is **reverb** throughout on most tracks which creates a **sense of space**. • **Microphones** were positioned when **recording** the **guitars** to create different **timbres**.
TEXTURE	• **Overdubbing** is used to layer up the vocal and guitar parts. This gives a thicker texture as parts are layered on each other. • The **chorus** features Mercury singing four parts separately to create a **4-part choir**. • The drum kit is used more like it is in jazz rather than rock adding to the **texture** with **fills** etc. • Opening is **homophonic** and **builds gradually**. • During the second phrase of the second verse we start to hear **polyphonic** texture.

KS4

Health Related Fitness (HRF)

Component of Fitness	Fitness Test	Training Method
Muscular Endurance	• **One Minute Sit Up Test** • Number of sit ups an individual can complete in one minute. • **One Minute Press Up Test** • Number of sit ups an individual can complete in one minute.	**Circuit Training** • A range of different exercises are used to train different muscles. Exercises are also selected which are relevant to specific sports. • Each exercise is performed a certain number of times or for a specific length of time before moving to the next exercise.
Speed	• **35m Sprint Test** • From a standing start, pupils sprint as quickly as they can for 35m with their time recorded in seconds.	**Interval Training** • A short, high intensity work period followed by a rest period. **Hollow Sprints** • Sprints followed by a period of walking/jogging and so on. **Acceleration Sprints** • The pace is gradually increased from a standing start to jogging, then to striding, and then to a maximum sprint.
Power	• **Vertical Jump Test** • Stand against a wall, with their feet on the floor, reach up and make a mark with their finger tips. Again with feet on the floor from a standing position, jump and make a second mark, measuring the distance between the two marks in cm.	**Plyometrics** • Plyometric exercises require maximal force and these types of exercises include lunging, bounding, incline press ups, barrier hopping and jumping. • Exercises should be selected which are relevant to specific sports.
Aerobic Endurance	• **Multi Stage Fitness Test** • Continuously running 20m shuttle runs for as long as possible, ensuring that the individual running reaches the end of their 20m shuttle run before a bleep. If an individual misses three bleeps that is the end of the test.	**Interval Training** • An individual performs a work period followed by a recovery period. Typical work time can vary from 30 seconds to five minutes; recovery periods can be complete rest, walking or light jogging. **Fartlek Training** • The training is continuous with no rest period and the intensity of training is varied by running at different speeds or over different terrain (surface).

Principles of Training (*FITT*)
Frequency (*F*)
Intensity (*I*)
Time (*T*)
Type (*T*)

Additional Principles of Training
Progressive Overload
Adaptation
Individual Differences
Reversibility
Specificity
Rest and Recovery
Variation

Starter for 5

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