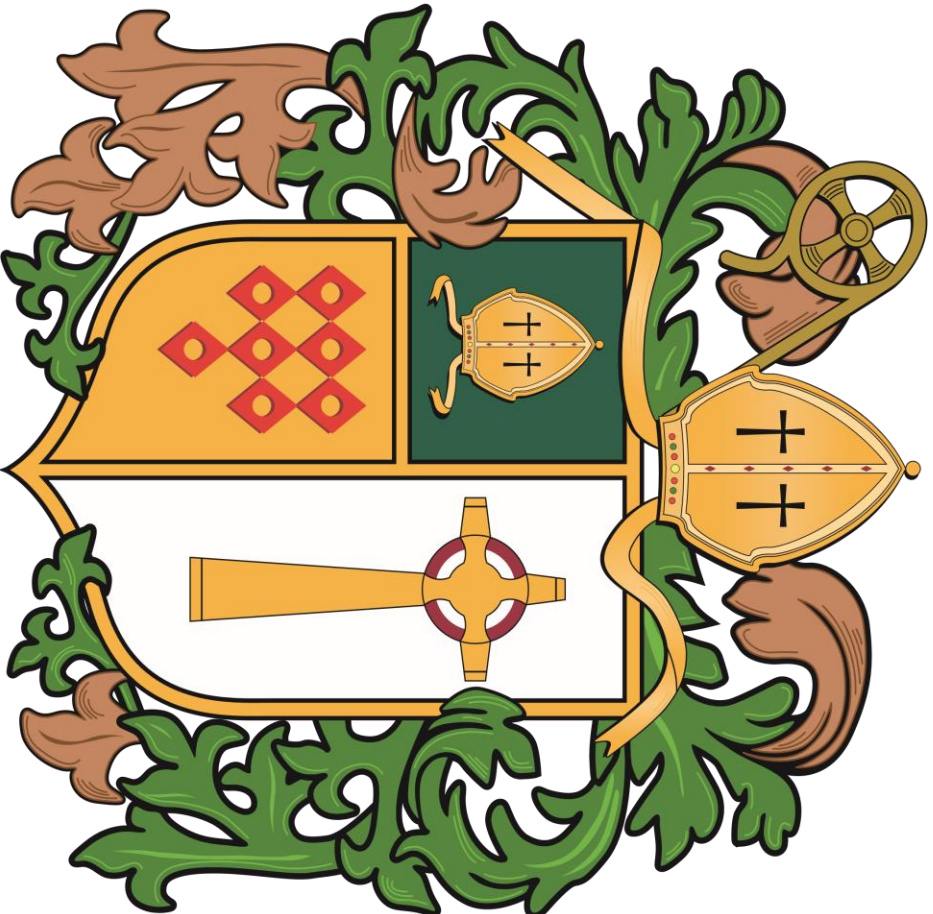


Cycle 1: Year 11



St Wilfrid's R.C. College

Name: _____

Form: _____

Tutor: _____

Page 2	Contents
3	Cycle 1 Homework overview
4-7	St Wilfrid's standard + Core learning Habits
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How to use your 100% booklet:

1. Look at page 3 for what content you need to be learning for your CORE subjects and then use this contents page to take you to the right place

2. Make sure you're ready to be assessed during morning meeting time on the day stated

3. Option subjects will not be assessed during morning meeting time. Subject teachers will set you tasks and assess you in class.

4. At the back of your booklet, you will find a range of strategies (with blank sheets of these strategies) to help you learn your core knowledge

5. You will be given 5 questions to assess your knowledge during morning meeting time which will then be self assessed and corrected in green pen

Year 11 HW Cycle 1	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Monday: Maths	P40 Q1-8	P41 Q1-8	P42 Q1-8	P43 Q1-8	P44 Q1-8	P45 Q1-8
Tuesday: English	P.8-12 Lit Qs 10, 13, 15, Lang Qs1-5	P.8-12 Lit Qs 11, 13, 20-25 Lang Qs 6-10	P.8-12 Lit Qs 1, 3, 10, 15, Lang Qs11-15	P.8-12 Lit Qs 6, 8, 12, Lang Qs16-20	P.8-12 Lit Qs 7, 9, 16, 17, Lang Qs1-5	P.8-12 Lit Qs 16-19 Lang Qs 6-10
Wednesday: Science	P62 Qs1-5	P64 Qs1-5	P67 Qs1-4	P62 Qs6-10	P64 Qs6-10	P67 Qs5-8
Thursday: RE	P.47-49 Qs from O+M Ai: 1-5	P.47-49 Qs from O+M Ai: 6-10	P.47-49 Qs from O+M Ai: 11-15	P.50-51 Qs from O+M Aii: 1-5	P.50-51 Qs from O+M Aii: 6-10	P.50-51 Qs from O+M Aii: 11-15
Friday: History / Geography	History P.21-23 Geog p.13-14	History P.21-26 Geog P.13-14	History P.24-26 Geog P.13-14	History P.27-29 Geog P.16-18	History P.27-32 Geog P.16-18	History P.30-32 Geog P.16-18
Year 11 HW Cycle 1	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Monday: Maths	P46 Q1-15	P40 Q9-15	P41 Q9-15	P42 Q9-15	P43 Q9-15	P44 Q9-15
Tuesday: English	P.8-12 Lit Qs 1-5 Lang Qs11-15	P.8-12 Lit Qs 6-10, Lang Qs16-20	P.8-12 Lit Qs 11-15, Lang Qs1-5	P.8-12 Lit Qs 16-20, Lang Qs 6-10	P.8-12 Lit Qs 1-10, Lang Qs11-15	P.8-12 Lit Qs 11-20, Lang Qs16-20
Wednesday: Science	P65 Qs1-5	P67 Qs9-12	P65 Qs6-10	P69 Qs1-5	P68 Qs6-10	P62 Qs1-10
Thursday: RE	P.52-54 Qs from G+E Bi: 1-5	P.52-54 Qs from G+E Bi: 6-10	P.52-54 Qs from G+E Bi: 11-15	P.55-56 Qs from G+E Bii: 1-5	P.55-56 Qs from G+E Bii: 6-10	P.55-56 Qs from G+E Bii: 11-15
Friday: History / Geography	History P.33-34 Geog p.13-14	History P. 35-36 Geog p.13-14	History P.37-38 Geog p.13-14	History P.39-40 Geog P.16-18	History P.35-40 Geog P.16-18	History P.35-40 Geog P.16-18

ST WILFRID'S STANDARD



We are **prepared** and **equipped** to learn.

In our school bag, we have...

Pupil planner



Reusable water bottle



Reading book



In our pencil case, we have...

Black pen



Pencil



Ruler



Green and purple pen



Rubber



Scientific calculator

This is how we present our books:

We write the date and title and underline using a ruler.

We always start sentences with capital letters.

We use subheadings to structure our work, if appropriate.

We correct any spelling, grammar or punctuation mistakes.

	<u>Monday 1st January</u> <u>Romeo and Juliet: Act 2 Scene 2</u> <u>Retrieve</u> - Romeo doesn't really enter at the beginning of this scene, he's been there all along, on the other side of Capulet's garden wall. ✓ - Bathos- an anti-climax which is abrupt; usually humour that comes from an odd and sudden change. ✓ - In the patriarchal system of Elizabethan England, women's status and security depended on the status of their fathers or husbands. ✓ - Violence and conflict ✓ - Role of women ✓ - Loyalty and honour ✓ - Transformative power of love - Tragic fate <u>Example- We Do</u> Explore the ways in which Shakespeare presents the power of love between Romeo and Juliet in act 2 scene 2. Shakespeare presents love as more powerful than hatred and prejudice in the play. Both Romeo and Juliet defy danger and oppose stronger forces to pursue love. Shakespeare's tragedy illustrates the lengths the doomed lovers are willing to go to in order to oppose the prejudice and hatred between their families. Their marriage, and subsequent tragic deaths, symbolise the sacrifice they make in the name of love and peace. AO1 [SP] Significant Significant In this extract, the power of the love Romeo feels for Juliet means he willingly puts himself in danger; he disregards the significant [SP] risk of trespassing on Capulet property. It is important to note that Romeo is hiding in the dark garden, and overhears Juliet.
--	--

We always write in black pen.

We always respond to feedback in green pen.

We use a pencil and ruler for diagrams.



We always write in our best handwriting.

Date is underlined

Questions
answered in
full sentences

We start
sentences with
capital letters

10/9/26	RE: 100% booklet
☐ Q1)	The word stewardship means to have a duty to care for the environment.
Q2)	Laudato Si is an encyclical written by Pope Francis.
Q3)	Tikkum Olam is a Jewish concept of repairing the world.
Q4)	Just war theory was written by Thomas Aquinas
Q5)	Thomas Aquinas said that your conscience must be your last part of a decision making process.
☐ Q6)	The word retribution means that a punishment is fit for the crime.
Q3)	Laudato Si is an encyclical teaching Catholics about stewardship.
	Spellings
	Maths
☐	

We write the
subject, the title &
UNDERLINE

No gaps left
between
questions

We use
BLACK pen

Corrections
made
underneath

At St Wilfrid's RC College, our vision is clear:

We strive for every pupil to realise their God-given potential, become the very best version of themselves, and leave us equipped with the knowledge, character and skills needed to thrive in society.

Respectful

Perfect
uniform

No
answering
back

Responsible

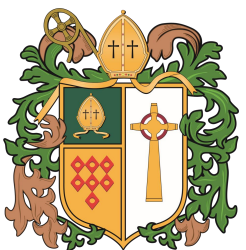
Be fully
equipped

Attendance
and
punctuality

Resilient

On task

Homework



Perfect uniform

Full uniform worn correctly every day
Shirt tucked in, tie and blazer worn
Grey tailored trousers or pleated grey skirt worn
Correct school shoes
No extreme hairstyle
Skirts unrolled
No makeup
No mobile phones

Attendance and punctuality

Attendance and punctuality to school each and every day
Every pupil will be on the school yard, equipped, at 08:35
Pupils will arrive on time to every lesson

No answering back

Listen without interrupting
Communicate in a respectful tone to all members of the school community
Follow instructions
Use appropriate language

On task

Focus for 100% of the lesson
Sit upright and track the teacher
Ask and answer questions
Be 'on task' when completing an independent task

Be fully equipped

Clear pencil case
Black pen
Green pen
Pencil
Ruler
Rubber
Scientific calculator

Homework

Homework will be completed on time
Write your homework in your planner
Use your knowledge organiser in lessons and at home

Respectful

Responsible

Resilient



AQA English Language Paper 1 – Fiction Section A – 15 mins reading time		Language devices and their effects (Q2 and Q4) - Also can be used in Q5 response		Structural choices and their effects (Q3) - Also can be used in Q5 response																					
Question 1		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.		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																					
Question 2		1. Marks: 8 2. Time: 8 minutes 3. Focus: Analysis of language use and effects. 4. Tips: Layers of meaning / alternative viewpoints / answer the Q		Extending analysis (Q2, Q3, Q4)																					
Question 3		1. Marks: 8 2. Time: 8 minutes 3. Focus: Analysis of the overall structure of text 4. Tips: How does the focus change from the start to the end of the extract and why has the writer done this?		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....																					
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!		Phrases to ensure a sophisticated analysis (Q2 and Q4)																					
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		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..																					
		<table><tr><th colspan="2">Evaluative vocabulary (Q4)</th><th colspan="2">Emotional vocabulary (Q2, Q3, Q4)</th></tr><tr><td>1. Subtle</td><td>5. Skilful</td><td>1. Outrage</td><td>5. Empathy</td></tr><tr><td>2. Challenging</td><td>6. Striking</td><td>2. Sympathy</td><td>6. Approval</td></tr><tr><td>3. Crucial</td><td>7. Significant</td><td>3. Pity</td><td>7. Satisfaction</td></tr><tr><td>4. Pivotal</td><td>8. Provocative</td><td>4. Remorse</td><td>8. Compassion</td></tr></table>		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		
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3. Crucial	7. Significant	3. Pity	7. Satisfaction																						
4. Pivotal	8. Provocative	4. Remorse	8. Compassion																						

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		LANGUAGE FEATURES	
Overview	Describe the bigger picture (wide/panoramic)	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
Zoom in	Focus on an object and describe it in detail (close up)		
The senses	Sights, sounds, smells, tastes, touch.	Symbol	An object or action in a literary work that means more than itself, that stands for something beyond itself.
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)	Onomatopoeia	A word that imitates the sound it represents.
Linking theme	Repeated reference to an object, person or idea throughout.	Euphemism	An indirect, less offensive way of saying something that is considered unpleasant
STRUCTURING A NARRATIVE		Personification	A figure of speech in which an object or animal is given human feelings, thoughts, or attitudes
Exposition	A narrative device often used at the beginning of a work that provides necessary background information about the characters.	Alliteration	Repetition of consonant sounds
Inciting Incident	An event that begins the action/plot.		
Rising Action	Events leading up to the climax	Metaphor	A comparison of two things without using the word like or as.
Climax	Most exciting moment of the story; turning point	Simile	A comparison of two things using like or as
Falling Action	Events after the climax, leading to the resolution		
Resolution	Ends the conflict and leaves reader content	Hyperbole	A figure of speech that uses exaggeration to express strong emotion, make a point, or evoke humor
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	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.
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.	Connotation	The experience (associations) we bring to a word
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.	Oxymoron	A figure of speech in which apparently contradictory terms appear in conjunction
SENTENCE UPGRADES		Extended Metaphor	When a writer exploits a single metaphor or analogy at length throughout a poem or story.
-Ing	Grabbing her bag, the woman stormed out of the shop.	Imperative	A command
Similes	Like a predator stalking its prey, the thief approached the boy.	Declarative	A statement
Preposition	Under the dark clouds, the lamppost gleamed brightly.		
Adverb	Cautiously, the girl reached out to touch the creature.	Pathetic fallacy	A type of personification where emotions are given to a setting, an object or the weather.
Connective	Despite the weather, the girl plunged into the sea.		
-Ed	Petrified, the dog stood rooted to the spot.	Emotive language	Language intended to create an emotional response.
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.	Rhetorical Question	A question asked merely for rhetorical effect and not requiring an answer
Triple noun :	Owls, crickets, mice: the woods were alive with noise.		
Triple adjective :	Thin, bare, skeletal: the trees towered over me like fingers.		

English Language

- 1.What is a simile?
- 2.What is hyperbole?
- 3.What is juxtaposition?
- 4.What is foreshadowing?
- 5.What is personification?
- 6.What is pathetic fallacy?
- 7.What is repetition?
- 8.What do you do for question 2, and how many marks is it worth?
- 9.What do you do for question 3, and how many marks is it worth?
- 10.What do you do for question 4, and how many marks is it worth?
- 11.What is flipped narrative?
- 12.What does connotation mean?
- 13.What is an extended metaphor?
- 14.What is the difference between descriptive and narrative writing?
- 15.What is exposition?
- 16.What is a cliffhanger?
- 17.What is irony?
- 18.What is an oxymoron?
- 19.What is a declarative sentence?
- 20.What is exposition?

English Literature

- 1.What are the main themes in Remains?
- 2.What are the main themes in Exposure?
- 3.What are the main themes in Poppies?
- 4.What are the main themes in Charge of the Light Brigade?
- 5.What are the main themes in Bayonet Charge?
- 6.What are the main themes in War Photographer?
- 7.What are the main themes in Kamikaze?
- 8.What are the main themes in The Emigree?
- 9.What are the main themes in Checking Out Me History
- 10.What are the main themes in Ozymandias?
- 11.What are the main themes in My Last Duchess?
- 12.What are the main themes in Tissue?
- 13.What are the main themes in Extract from The Prelude?
- 14.What are the main themes in Storm on the Island?
- 15.What are the main themes in London?
- 16.What poems could you discuss for The Power of Nature?
- 17.What poems could you discuss for Identity?
- 18.What poems could you discuss for Reality of Conflict?
- 19.What poems could you discuss for Pride and Power of Man?
- 20.What are plosives?
- 21.What is imagery?
- 22.What is caesura?
- 23.What is enjambment?
- 24.What do you call a group of lines in a poem?
- 25.What is the difference between a simile and a metaphor?

Power and Conflict Poetry – Knowledge Organiser

Remains by Simon Armitage		Exposure by Wilfred Owen		Poppies by Jane Weir	
Themes: Conflict, Suffering, Reality of War		Themes: Conflict, Suffering, Nature, Reality of War, Patriotism		Themes: Bravery, Reality of War, Suffering, Childhood	
Tones: Tragic, Haunting, Anecdotal		Tones: Tragic, Haunting, Dreamy		Tones: Tender, Tragic, Dreamy, Bitter	
Content, Meaning and Purpose -Written to coincide with a TV documentary about those returning from war with PTSD. Based on Guardsman Tromans, who fought in Iraq in 2003. -Speaker describes shooting a looter dead in Iraq and how it has affected him. -To show the reader that mental suffering can persist long after physical conflict is over.		Content, Meaning and Purpose -Speaker describes war as a battle against the weather and conditions. -Imagery of cold and warm reflect the delusional mind of a man dying from hypothermia. -Owen wanted to draw attention to the suffering, monotony and futility of war.		Content, Meaning and Purpose -A modern poem that offers an alternative interpretation of bravery in conflict: it does not focus on a soldier in battle but on the mother who is left behind and must cope with his death. -The narration covers her visit to a war memorial, interspersed with images of the soldier's childhood and his departure for war.	
Language -“Remains” – the images and suffering remain. -“Legs it up the road” – colloquial language = authentic voice -“Then he’s carted off in the back of a lorry” – reduction of humanity to waste or cattle -“he’s here in my head when I close my eyes / dug in behind enemy lines” – metaphor for a war in his head; the PTSD is entrenched. -“his bloody life in my bloody hands” – alludes to Macbeth: Macbeth the warrior with PTSD and Lady Macbeth’s bloody hands and guilt.		Language -“Our brains ache” physical (cold) suffering and mental (PTSD or shell shock) suffering. -Semantic field of weather: weather is the enemy. -“the merciless iced east winds that knive us...” – personification (cruel and murderous wind); sibilance (cutting/slicing sound of wind); ellipsis (never-ending). -Repetition of pronouns “we” and “our” – conveys togetherness and collective suffering of soldiers. -“mad gusts tugging on the wire” – personification		Language -Contrasting semantic fields of home/childhood (“cat hairs”, “play at being Eskimos”, “bedroom”) with war/injury (“blockade”, “bandaged”, “reinforcements”) -Aural [sound] imagery: “All my words flattened, rolled, turned into felt” shows pain and inability to speak, and “I listened, hoping to hear your playground voice catching on the wind” shows longing for dead son. -“I was brave, as I walked with you, to the front door”: different perspective of bravery in conflict.	
Form and Structure -Monologue, told in the present tense to convey a flashback (a symptom of PTSD). -First four stanzas are set in Iraq; last three are at home, showing the aftermath. -Enjambment between lines and stanzas conveys his conversational tone and gives it a fast pace, especially when conveying the horror of the killing -Repetition of “Probably armed, Possibly not” conveys guilt and bitterness.		Form and Structure -Contrast of Cold>Warm>Cold imagery covers Suffering>Delusions>Death of the hypothermic soldier. -Repetition of “but nothing happens” creates circular structure implying never ending suffering -Rhyme scheme ABBA and hexameter gives the poem structure and emphasises the monotony. -Pararhymes (half rhymes) (“nervous / knife us”) only barely hold the poem together, like the men.		Form and Structure -This is an Elegy, a poem of mourning. -Strong sense of form despite the free verse, stream of consciousness addressing her son directly – poignant -No rhyme scheme makes it melancholic -Enjambment gives it an anecdotal tone. -Nearly half the lines have caesura – she is trying to hold it together, but can’t speak fluently as she is breaking inside. -Rich texture of time shifts, and visual, aural and touch imagery.	
Charge of the Light Brigade by Alfred, Lord Tennyson		Bayonet Charge by Ted Hughes		War Photographer	
Themes: Conflict, Suffering, Reality of War, Patriotism		Themes: Conflict, Power, Reality of War, Nature, Bravery, Patriotism		Themes: Conflict, Suffering, Reality of War	
Tones: Energetic, Tragic, Haunting		Tones: Bewildered, Desperate, Dreamy		Tones: Painful, Detached, Angry	
Content, Meaning and Purpose -Published six weeks after a disastrous battle against the Russians in the (un)popular Crimean War -Describes a cavalry charge against Russians who shoot at the lightly-armed British with cannon from three sides of a long valley. -Of the 600 hundred who started the charge, over half were killed, injured or taken prisoner. -It is a celebration of the men’s courage and devotion to their country, symbols of the might of the British Empire.		Content, Meaning and Purpose -Describes the terrifying experience of ‘going over the top’: fixing bayonets (long knives) to the end of rifles and leaving a trench to charge directly at the enemy. -Steps inside the body and mind of the speaker to show how this act transforms a soldier from a living thinking person into a dangerous weapon of war. -Hughes dramatises the struggle between a man’s thoughts and actions.		Content, Meaning and Purpose -Tells the story of a war photographer developing photos at home in England: as a photo develops he begins to remember the horrors of war – painting a contrast to the safety of his dark room. -He appears to be returning to a warzone at the end of the poem. -Duffy conveys both the brutality of war and the indifference of those who might view the photos in newspapers and magazines: those who live in comfort and are unaffected by war.	
Language -“Into the valley of Death”: this Biblical imagery portrays war as a supremely powerful, or even spiritual, experience. -“jaws of Death” and “mouth of Hell”: presents war as an animal that consumes its victims. -“Honour the Light Brigade/Noble six hundred”: language glorifies the soldiers, even in death. The ‘six hundred’ become a celebrated and prestigious group. -“shot and shell”: sibilance creates whooshing sounds of battle.		Language -“The patriotic tear that brimmed in his eye Sweating like molten iron”: his sense of duty (tear) has now turned into the hot sweat of fear and pain. -“cold clockwork of the stars and nations”: the soldiers are part of a cold and uncaring machine of war. -“his foot hung like statuary in midstride.”: he is frozen with fear/bewilderment. The caesura (full stop) jolts him back to reality. -“a yellow hare that rolled like a flame And crawled in a threshing circle”: impact of war on nature – the hare is distressed, just like the soldiers		Language -“All flesh is grass”: Biblical reference that means all human life is temporary – we all die eventually. -“He has a job to do”: like a soldier, the photographer has a sense of duty. -“running children in a nightmare heat”: emotive imagery with connotations of hell. -“blood stained into a foreign dust”: lasting impact of war – links to Remains and ‘blood shadow’. -“he earns a living and they do not care”: ‘they’ is ambiguous – it could refer to readers or the wider world.	
Form and Structure -This is a ballad, a form of poetry to remember historical events – we should remember their courage. -6 verses, each representing 100 men who took part. -First stanza tightly structured, mirroring the cavalry formation. Structure becomes awkward to reflect the chaos of battle and the fewer men returning alive. -Dactylic dimeter (HALF-a leaguer / DUM-de-de) mirrors the sound of horses galloping and increases the poem’s pace. -Repetition of ‘the six hundred’ at the end of each stanza (epistrophe) emphasises huge loss.		Form and Structure -The poem starts ‘in medias res’: in the middle of the action, to convey shock and pace. -Enjambment maintains the momentum of the charge. -Time stands still in the second stanza to convey the soldier’s bewilderment and reflective thoughts. -Contrasts the visual and aural imagery of battle with the internal thoughts of the soldier = adds to the confusion.		Form and Structure -Duffy conveys both the brutality of war and the indifference of those who might view the photos in newspapers and magazines: those who live in comfort and are unaffected by war.	
Kamikaze by Beatrice Garland		The Emigree by Carol Rumens		Checking Out Me History by John Agard	
Themes: Conflict, Power, Patriotism, Shame, Nature, Childhood		Themes: Conflict, Power, Identity, Protest, Bravery, Childhood		Themes: Power, Protest, Identity, Childhood	
Tones: Sorrowful, Pitiful		Tones: Mournful, Defiant, Nostalgic		Tones: Defiant, Angry, Rebellious, Cynical	
Content, Meaning and Purpose -In World War 2, Japanese Kamikaze pilots would fly manned missiles into targets such as ships. -This poem explores a kamikaze pilot’s journey towards battle, his decision to return, and how he is shunned when he returns home. -As he looks down at the sea, the beauty of nature and memories of childhood make him decide to turn back.		Content, Meaning and Purpose -‘Emigree’ – a female who is forced to leave their country for political or social reasons. -The speaker describes her memories of a home city that she was forced to flee. The city is now “sick with tyrants”. -Despite the cities problems, her positive memories of the place cannot be extinguished.		Content, Meaning and Purpose -Represents the voice of a man from the Caribbean colony of British Guiana, who was frustrated by the Eurocentric history curriculum that he was taught at school – which paid little attention to black history. -Black history is in italics to emphasise its separateness and to stress its importance.	
Language -The Japanese word ‘kamikaze’ means ‘divine wind’ or ‘heavenly wind’, and has its origin in a heaven-sent storm that scattered an invading fleet in 1250. -“dark shoals of fish flashing silver”: image links to a Samurai sword – conveys the conflict between his love for nature/life and his sense of duty. Also has sibilance. -“they treated him as though he no longer existed”: cruel irony – he chose to live but now must live as though he is dead. -“was no longer the father we loved”: the pilot was forever affected by his decision.		Language -“I left it as a child”: ambiguous meaning – either she left when she was a child or the city was a child (it was vulnerable and she feels a responsibility towards it). -“I am branded by an impression of sunlight”: imagery of light – it will stay with her forever. -Personification of the city: “I comb its hair and love its shining eyes” (she has a maternal love for the city) and “My city takes me dancing” (it is romantic and passionate lover) -“My city hides behind me”: it is vulnerable and – despite the fact that she had to flee – she is strong. -Semantic field of conflict: “Tyrant, tanks, frontiers”		Language -Imagery of fire and light used in all three stanzas regarding black historic figures: “Toussaint de beacon”, “Fire-woman”, “yellow sunrise”. -Uses non-standard phonetic spelling (“Dem tell me wha dem want”), to represent his own powerful accent and mixes Caribbean Creole dialect with standard English. -“I carving out me identity”: metaphor for the painful struggle to be heard, and to find his identity.	
Form and Structure -Narrative and speaker is third person, representing the distance between her and her father, and his rejection by society. -The first five stanzas are ordered (whilst he is flying on his set mission). -Only full stop is at the end of Stanza Five: he has made his decision to turn back. -The final two are in italics and have longer line to represent the fallout of his decision: his life has shifted and will no longer be the same. -Direct speech (“My mother never spoke again”) gives the poem a personal tone.		Form and Structure -First person. -The last line of each stanza is the same (epistrophe): “sunlight”: reinforces the overriding positivity of the city and of the poem. -The first two stanzas have lots of enjambment – conveys freedom. The final stanza has lots of full-stops – conveys that fact that she is now trapped.		Form -Dramatic monologue, with a dual structure. -Stanzas concerning Eurocentric history [normal font] are interspersed with stanzas on black history (in italics to represent separateness and rebellion). -Black history sections arranged as serious lessons to be learned; traditional history as nursery rhymes, mixed with fairytales (mocking of traditional history). -The lack of punctuation, the stanzas in free verse, the irregular rhyme scheme and the use of Creole could represent the narrator’s rejection of the rules. -Repetition of “Dem tell me”: frustration.	

Ozymandias by Percy Bysshe Shelley Themes: Power of Nature, Decay, Pride Content, Meaning and Purpose -The narrator meets a traveller who tells him about a decayed statue that he saw in a desert. -The statue was of a long forgotten ancient King: the arrogant Ozymandias, 'king of kings.' -The poem is ironic and one big metaphor: Human power is only temporary – the statue now lays crumbled in the sand, and even the most powerful human creations cannot resist the power of nature.	Tones: Ironic, rebellious Context -Shelley was a poet of the 'Romantic period' (late 1700s and early 1800s). Romantic poets were interested in emotion and the power of nature. -Shelley also disliked the concept of a monarchy and the oppression of ordinary people. -He had been inspired by the French revolution – when the French monarchy was overthrown.	My Last Duchess by Robert Browning Themes: Power, Pride, Control, Jealousy, Status Content, Meaning and Purpose -The Duke is showing a visitor around his large art collection and proudly points out a portrait of his last wife, who is now dead. He reveals that he was annoyed by her over-friendly and flirtatious behaviour. -He can finally control her by objectifying her and showing her portrait to visitors when he chooses. -He is now alone as a result of his need for control. -The visitor has come to arrange the Duke's next marriage, and the Duke's story is a subtle warning about how he expects his next wife to behave.	Tones: Sinister, Bitter, Angry Context -Browning was a British poet, and lived in Italy. The poem was published in 1842. -Browning may have been inspired by the story of an Italian Duke (Duke of Ferrara): his wife died in suspicious circumstances and it was rumoured that she had been poisoned.	Tissue by Imtiaz Dharker Themes: Power of Nature, Control, Identity Content, Meaning and Purpose -Two different meanings of 'Tissue' (homonyms) are explored: firstly, the various pieces of paper that control our lives (holy books, maps, grocery receipts); secondly, the tissue of a human body. -The poet explores the paradox that although paper is fragile, temporary and ultimately not important, we allow it to control our lives. -Also, although human life is much more precious, it is also fragile and temporary.	Tones: Gentle, Flowing, Ethereal Context -Imtiaz Dharker was born in Pakistan and grew up in Glasgow. 'Tissue' is taken from a 2006 collection of poems entitled 'The Terrorist at My Table': the collection questions how well we know people around us. -This particular poem also questions how well we understand ourselves and the fragility of humanity.
Language -'sneer of cold command': the king was arrogant, this has been recognised by the sculptor, the traveller and then the narrator. -'Look on my works, ye Mighty, and despair.': 'Look' = imperative, stressed syllable highlights commanding tone; - ironic – he is telling other 'mighty' kings to admire the size of his statue and 'despair', however they should really despair because power is only temporary. 'The lone and level sands stretch far away.': the desert is vast, lonely, and lasts far longer than a statue.	Form and Structure -A sonnet (14 lines) but with an unconventional structure... the structure is normal until a turning point (a volta) at Line 9 [...these words appear]. This reflects how human structures can be destroyed or decay. -The iambic pentameter rhyme scheme is also disrupted or decayed. -First eight lines (the octave) of the sonnet: the statue is described in parts to show its destruction. -Final two lines: the huge and immortal desert is described to emphasise the insignificance of human power and pride.	Language -'Looking as if she was alive': sets a sinister tone. -'Will't please you sit and look at her?' rhetorical question to his visitor shows obsession with power. -'she liked whate'er / She looked on, and her looks went everywhere': hints that his wife was a flirt. -'as if she ranked / My gift of a nine-hundred-years-old name / With anybody's gift': she was beneath him in status, and yet dared to rebel against his authority. -'I gave commands; Then all smiles stopped together': euphemism for his wife's murder. -'Notice Neptune, though / Taming a sea-horse': he points out another painting, also about control.	Form and Structure -Dramatic Monologue, in iambic pentameter. -It is a speech, pretending to be a conversation – he doesn't allow the other person to speak! -Enjambment: rambling tone, he's getting carried away with his anger. He is a little unstable. -Heavy use of caesura (commas and dashes): stuttering effect shows his frustration and anger: 'She thanked men, – good! but thanked / Somehow – I know not how' -Dramatic Irony: the reader can read between the lines and see that the Duke's comments have a much more sinister undertone.	Language -Semantic field of light: ('Paper that lets light shine through', 'The sun shines through their borderlines', 'let the daylight break through capitals and monoliths') emphasises that light is central to life, a positive and powerful force that can break through 'tissue' and even monoliths (stone statues). -'pages smoothed and stroked and turned': gentle verbs convey how important documents such as the Koran are treated with respect. -'Fine slips [...] might fly our lives like paper kites': this simile suggests that we allow ourselves to be controlled by paper.	Form and Structure -The short stanzas create many layers, which is a key theme of the poem (layers of paper and the creation of human life through layers) -The lack of rhythm or rhyme creates an effect of freedom and openness. -All stanzas have four lines, except the final stanza which has one line ('turned into your skin'): this line focuses on humans, and addresses the reader directly to remind us that we are all fragile and temporary. -Enjambment between lines and stanzas creates an effect of freedom and flowing movement.
Extract from The Prelude: Stealing the Boat by William Wordsworth Themes: Power of Nature, Fear, Childhood Content, Meaning and Purpose -The story of a boy's love of nature and a night-time adventure in a rowing boat that instils a deeper and fearful respect for the power of nature. -At first, the boy is calm and confident, but the sight of a huge mountain that comes into view scares the boy and he flees back to the shore. -He is now in awe of the mountain and now fearful of the power of nature which are described as 'huge and mighty forms, that do not live like living men.' -We should respect nature and not take it for granted. Language -'One summer evening (led by her)': 'her' might be nature personified – this shows his love for nature. -'an act of stealth / And troubled pleasure': confident, but the oxymoron suggests he knows it's wrong; forebodes the troubling events that follow. -'nothing but the stars and grey sky': emptiness of sky. -'the horizon's bound, a huge peak, black and huge': the image of the mountain is more shocking (contrast). -'Upreared its head' and 'measured motion like a living thing': the mountain is personified as a powerful beast, but calm – contrasts with his own inferior panic. -'There hung a darkness': lasting effects of mountain.	Tones: Confident > Dark / Fearful > Reflective Context -Published shortly after his death, The Prelude was a very long poem (14 books) that told the story of William Wordsworth's life. -This extract is the first part of a book entitled 'Introduction – Childhood and School-Time'. -Like Percy Shelley, Wordsworth was a romantic poet and so his poetry explores themes of nature, human emotion and how humans are shaped by their interaction with nature. Form and Structure -First person narrative – creates a sense that it is a personal poem. -The regular rhythm and enjambment add to the effect of natural speech and a personal voice. -The extract can be split into three sections, each with a different tone to reflect his shifting mood: Lines 1-20: (rowing) carefree and confident Lines 21-31: (the mountain appears) dark and fearful Lines 32-44: (following days) reflective and troubled -Contrasts in tone: 'lustily I dipped my oars into the silent lake' versus 'I struck and struck again' and 'with trembling oars I turned'	Storm on the Island by Seamus Heaney Themes: Power of Nature, Fear Content, Meaning and Purpose -The narrator describes how a rural island community prepared for a coming storm, and how they were confident in their preparations. -When the storm hits, they are shocked by its power: its violent sights and sounds are described, using the metaphor of war. -The final line of the poem reveals their fear of nature's power Language -'Nor are there trees which might prove company': the island is a lonely, barren place. -Violent verbs are used to describe the storm: 'pummeled', 'exploding', 'spits'. -Semantic field of war: 'Exploding comfortably' (also an oxymoron to contrast fear/safety); 'wind dives and strafes invisibly' (the wind is a fighter plane); 'We are bombarded by the empty air' (under ceaseless attack). -This also reinforces the metaphor of war / troubles. -'spits like a tame cat turned savage': simile compares the nature to an animal that has turned on its owner.	Tones: Dark, Violent, Anecdotal Context -Seamus Heaney was Northern Irish, he died in 2013. -This poem was published in 1966 at the start of 'The Troubles' in Northern Ireland: a period of deep unrest and violence between those who wanted to remain part of the UK and those who wanted to become part of Ireland. -The first eight letters of the title spell 'Stormont': this is the name of Northern Ireland's parliament. The poem might be a metaphor for the political storm that was building in the country at the time. Form and Structure -Written in blank verse and with lots of enjambment: this creates a conversational and anecdotal tone. -'We' (first person plural) creates a sense of community, and 'You' (direct address) makes the reader feel immersed in the experience. -The poem can split into three sections: Confidence: 'We are prepared' (ironic) The violence of the storm: 'It pummels your house' Fear: 'It is a huge nothing that we fear.' -There is a turning point (a volta) in Line 14: 'But no'. This monosyllabic phrase, and the caesura, reflects the final calm before the storm.	London by William Blake Themes: Power, Inequality, Loss, Anger Content, Meaning and Purpose -The narrator is describing a walk around London and how he is saddened by the sights and sounds of poverty. -The poem also addresses the loss of innocence and the determinism of inequality: how new-born infants are born into poverty. -The poem uses rhetoric (persuasive techniques) to convince the reader that the people in power (landowners, Church, Government) are to blame for this inequality. Language -Sensory language creates an immersive effect: visual imagery ('Marks of weakness, marks of woe') and aural imagery ('cry of every man') -'mind-forged manacles': they are trapped in poverty. -Rhetorical devices to persuade: repetition ('In every...'); emotive language ('infant's cry of fear'). -Critiques the powerful: 'each chartered street' – everything is owned by the rich; 'Every black'ning church appals' – the church is corrupt; 'the hapless soldier's sigh / Runs in blood down palace walls' – soldier's suffer and die due to the decisions of those in power, who themselves live in palaces.	Tones: Angry, Dark, Rebellious Context -The poem was published in 1794, and time of great poverty is many parts of London. -William Blake was an English poet and artist. Much of his work was influenced by his radical political views: he believed in social and racial equality. -This poem is part of the 'Songs of Experience' collection, which focuses on how innocence is lost and society is corrupt. -He also questioned the teachings of the Church and the decisions of Government. Form and Structure -A dramatic monologue, there is a first-person narrator ('I') who speaks passionately about what he sees. -Simple ABAB rhyme scheme: reflects the unrelenting misery of the city, and perhaps the rhythm of his feet as he trudges around the city. -First two stanzas focus on people; third stanza focuses on the institutions he holds responsible; fourth stanza returns to the people – they are the central focus.
Key themes and connections: poems that you might choose to compare		Language for comparison When poems have similarities Similarly, ... Both poems convey / address... Both poets explore / present... This idea is also explored in... In a similar way, ... Likewise, ... When poems have differences Although... Whereas... Whilst... In contrast, ... Conversely, ... On the other hand, ... On the contrary, ... Unlike...	Assessment Objectives Ensure that your answer covers all of these areas: AO1 • Write a response related to the key word in the question. • Use comparative language to explore both poems. • Use a range of evidence to support your response and to show the meaning of the poems. AO2 • Comment on the effect of the language in your evidence, including individual words. • Identify any use of poetic techniques and explain their effects. AO3 • What might the poet's intentions have been when they wrote the poem? • Comment on the historical context – when was the poem published and what impact might it have had then, and today?	Poetic Techniques LANGUAGE Metaphor – comparing one thing to another Simile – comparing two things with 'like' or 'as' Personification – giving human qualities to the non-human Imagery – language that makes us imagine a sight (visual), sound (aural), touch (tactile), smell or taste. Tone – the mood or feeling created in a poem. Pathetic Fallacy – giving emotion to weather in order to create a mood within a text. Irony – language that says one thing but implies the opposite eg. sarcasm. Colloquial Language – informal language, usually creates a conversational tone or authentic voice. Onomatopoeia – language that sounds like its meaning. Alliteration – words that are close together start with the same letter or sound. Assonance – the repetition of similar vowel sounds Consonance – repetition of consonant sounds. Plosives – short burst of sound: t, k, p, d, g, or b sound. STRUCTURE Stanza – a group of lines in a poem. Repetition – repeated words or phrases Enjambment – a sentence or phrase that runs onto the next line. Caesura – using punctuation to create pauses or stops. Contrast – opposite concepts/feelings in a poem. Juxtaposition – contrasting things placed side by side. Oxymoron – a phrase that contradicts itself. Anaphora – when the first word of a stanza is the same across different stanzas. Epistrophe – when the final word of a stanza is the same across different stanzas. Volta – a turning point in a poem. FORM Speaker – the narrator, or person in the poem. Free verse – poetry that doesn't rhyme. Blank verse – poem in iambic pentameter, but with no rhyme. Sonnet – poem of 14 lines with clear rhyme scheme. Rhyming couplet – a pair of rhyming lines next to each other. Meter – arrangement of stressed/unstressed syllables. Monologue – one person speaking for a long time.	

11.1a

Distinctive Landscapes and Geographical Skills

1.3.2 - River flooding

Factors influencing how rivers flood:



Steep Slopes - If the land surrounding a river is steep, rainfall will run quickly across the ground as surface runoff, increasing the river's discharge



Urbanisation - Roads and pavements are built using a tarmac, an impermeable material. Rainfall flows quickly over tarmaced surfaces as it cannot infiltrate into the ground, leading to rapidly increasing discharge



Geology - If a drainage basin has impermeable rock, water is unable to percolate into the rock. As a result, the rainfall flows into the river via throughflow and surface run off



Heavy or prolonged rainfall - A high volume of rainfall will cause a river's discharge to increase rapidly, increasing the chances of the river bursting its banks



Vegetation - Trees intercept rainfall as it falls from the sky. If there is a lack of vegetation, more rainfall reaches the ground and eventually the river, seeing a large increase in discharge

1.3.3 - Flood management

Hard Engineering - Hard engineering management involves using artificial structures, such as dams and embankments which try to control rivers. They tend to be expensive.

Soft Engineering - Soft engineering management is a more natural approach to manage flooding, it does not involve building artificial structures, but takes a more sustainable approach to managing the potential for river flooding.



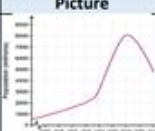
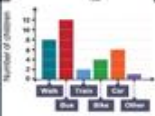
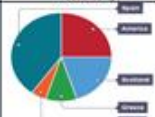
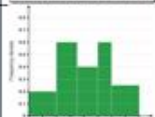
River defences

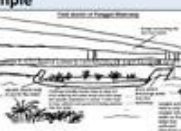
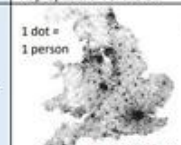
Hard Engineering

Channel straightening	Removing meanders, increases velocity to remove flood water.
Artificial Levees	Man-made banks heighten river so flood water is contained.
Channel widening	Makes river wider to increase capacity for a flood.

Soft Engineering

Afforestation	Planted trees soak up rainwater, reduces flood risk.
Managed Flooding	Naturally let some areas flood to protect settlements.

Graphical skills				
Name	Picture	Description	Example use	Evaluation
Line graph		Shows how variables change over time. Time is plotted on the x axis.	For continuous data e.g. the number of vehicles (buses, cars and motorbikes) that travel to an area over the day.	+ Can show multiple variables on one graph. + Able to estimate (interpolate) data using the trend of the line. + Easy to spot anomalies. - Data points can cluster making it difficult to draw the line. - Must be accurately plotted to ensure it is useful.
Bar graph		Each bar is the same width but of varying heights, depending on the figure being plotted. Bars are drawn equal distance apart (normally with a gap between each bar).	For data which fits into discrete categories e.g. the number of different types of car, plants or pets.	+ Simple to draw and read. + Easy to make comparisons of quantities between categories. - Only shows one variable against another. - Difficult to find fractions or percentages without further analysis.
Pie chart		Shows the quantity of something by dividing a circle into different parts (slices).	For data which fits into discrete categories e.g. the number of people working in different employment sectors.	+ Visually effective at showing how a total quantity is divided up. + Easy to make comparisons between categories. - Hard to accurately interpret percentages unless written on the pie chart. - Small quantities are difficult to represent with narrow slices.
Pictogram		Shows the quantity of something by using appropriate symbols/pictures that are drawn to scale.	For data which fits into discrete categories e.g. the world population in different years shown with picture(s) of people to represent the quantity.	+ Visually effective at showing quantities. + Easy to read and identify overall trends. - Difficult to accurately interpret data from symbols/pictures.
Histogram		Shows the frequency of something by using bars of different heights. Bars are touching. X axis shows continuous scale.	For continuous data e.g. the amount of rainfall across a continuous timescale of 24 hours.	+ Visually effective at showing how frequency changes. + Easy to spot anomalies. - Inappropriate intervals on x axis can distort data representation.

Graphical skills			
Map type	Example	Description	Evaluation
Photos and sketch maps	 	Photos give real world data on a location, are easy to interpret and are cheap and easy to produce. Field Sketches allow the artist to pick important geographical data relevant to their enquiry.	+ Shows human and physical features of location (land use, vegetation etc). + Photos are easy to produce and keep. Very visual. - Sketch maps may not be of good quality and miss vital information. - Photos only show a single moment in time.
Choropleth map	 	Uses colours or shades to show data. Used for population density, age or income.	+ Very easy to identify spatial patterns and trends. + Very visual use of data over large areas. - Unable to differentiate within a certain location. Assumes that all area has the same data. - Suggests abrupt changes in data between areas.
Isoline map	 	Isolines can be on a map, graph or image. They connect locations of the same value. Most commonly seen as contour lines. Air pressure on weather maps.	+ Useful for showing gradual changes. + Lines show locations of the same value. - Can be confusing where gradient change is extremely close together, or very far apart. - Requires a lot of data to be effective.
Dot maps	 	Dot maps are dots of a fixed size that are used to represent a data set. For example, one dot could be equal to one individual or one million for population size and distribution.	+ Easy to identify spatial patterns. + Great visual tool for large amounts of data. - Clustering of dots makes it impossible to read data. - Areas may appear blank due to value being used per dot - false sense of emptiness.

11.1a

Distinctive Landscapes and Geographical Skills

1. Measures of central tendency		
Key term	Definition	Example: 9 3 5 4 7 3 8
Mean	Total of items ÷ number of items.	$(9+3+5+4+7+3+8) \div 7 = 5.57$
Median	Middle value (when they are in order). Or position can be calculated using $(n+1) \div 2$	3 3 4 5 7 8 9 = 5 $(7+1) \div 2 = 4^{\text{th}}$ position
Mode	Most common.	3 (appears twice) There can be several modes.
Modal class	Most common class.	-
Range	Difference between the highest and lowest value.	Highest 9 – lowest 3 = 6
Upper quartile	Value $\frac{1}{4}$ of the way through ordered data (smallest to largest). Position = $\frac{3(n+1)}{4}$	3 3 4 5 7 8 9 = 8 Position = $\frac{3(7+1)}{4} = 6$
Lower quartile	Value $\frac{1}{4}$ of the way through ordered data (smallest to largest). Position = $\frac{(n+1)}{4}$	3 3 4 5 7 8 9 = 3 Position = $\frac{(7+1)}{4} = 2$
Interquartile range	The difference between the upper and lower quartile.	Upper quartile 8 – lower quartile 3 = IQR 5

2. Percentages		
Strategy	Description	Example
Percentage	To give the amount (X) as a percentage of a sample (Y): $X \div Y \times 100$	45 out of 50 people travel by car... $45 \div 50 \times 100 = 90\%$
Percentage increase	To calculate the percentage something has increased by. 1. Work out the difference between the two numbers (the increase). 2. Divide the increase by the original number. 3. Multiply the answer by 100%.	Population in 2020 = 65mill. Population in 2000 = 52 mill. 1. $65\text{m} - 52\text{m} = 13\text{m}$ 2. $13\text{m} \div 52\text{m} = 0.25$ 3. $0.25 \times 100 = 25\% \text{ increase}$
Percentage decrease	To calculate the percentage something has decreased by. 1. Work out the difference between the two numbers (the decrease). 2. Divide the decrease by the original number. 3. Multiply the answer by 100%.	Cars in 2020 = 40 Cars in 2000 = 70 1. $70 - 40 = 30$ 2. $30 \div 70 = 0.43$ 3. $0.43 \times 100 = 43\% \text{ decrease}$
Use of percentiles	Percentiles are used to indicate the value below which a given percentage of observations fall. For example, the 80 th percentile is the value below which 80% of the observations occur and above which 20% of the observations occur.	

3. Relationships in bivariate data	
Strategy	Description
Bivariate data	Data for two variables that may be related. e.g. GNI per capita + life expectancy.
Graphed on...	Scattergraphs.
Lines of best fit	Either a completely straight line or a smooth curve, which shows the trend between the two variables. Try to ensure an equal number of points each side of the line.
Correlation	 Positive Negative None The closer the crosses to the line of best fit the stronger the correlation.
Interpolate	Estimating an unknown value from within the data set. 
Extrapolate	Estimate an unknown value that is outside the data set. Makes the data more uncertain. 

11.1a

Distinctive Landscapes and Geographical Skills

Test yourself

1.3.2 River Flooding

1. Give one-way steep slopes increases the risk of river flooding.
2. Give one-way urbanisation increases the risk of river flooding
3. Give one-way geology increases the risk of river flooding
4. Give one-way heavy rainfall increases the risk of river flooding
5. Give one way lack of vegetation increases the risk of river flooding.

1.3.3 River Management

1. Define hard engineering
2. Define soft engineering
3. Explain how artificial levees reduce the risk of flooding
4. Explain how afforestation reduces the risk of flooding

1.4.1 Geographical skills

1. Give one example of when a line graph should be used.
2. Give one positive and one negative of using bar charts
3. What is the purpose of a pie chart?
4. Give one positive and one negative of using histograms
5. What is the purpose of a choropleth map?
6. Give one positive and one negative of a isoline map

11.1a

Distinctive Landscapes and Geographical Skills

Test Yourself

1.4.1 Statistics

1. Give the definition of mean
2. Give the definition of mode
3. How do you work out the range?
4. What is the interquartile range?
5. How do you work out the interquartile range?
6. What does a line of best fit show?
7. How do you work out a percentage?
8. How do you work out percentage increase?
9. How do you work out percentage decrease?

T5

Weather, climate and ecosystems



Geography Knowledge Organiser

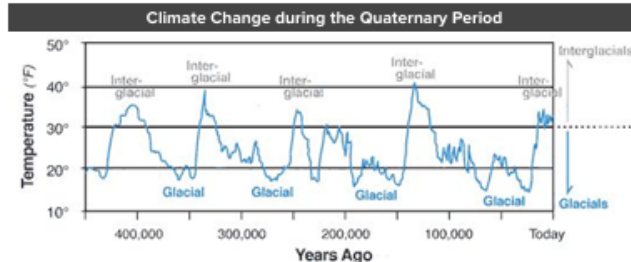
Find a playlist of explainer clips by scanning or clicking the QR code

CLICK ME



SCAN ME

5.1.1 - Climate change evidence



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 CO₂ and methane in the atmosphere have changed over the last 420,000 years



Historical records, such as diary extracts

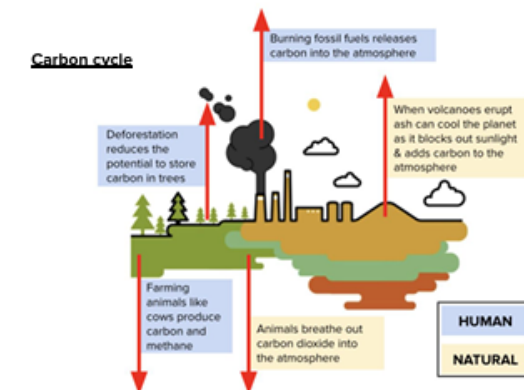


CO₂ levels in the atmosphere



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

5.1.2 - Climate change causes

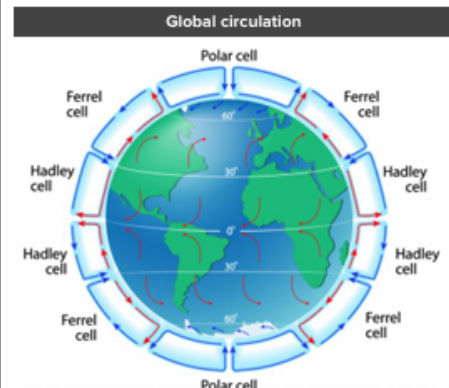


Greenhouse effect



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



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 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

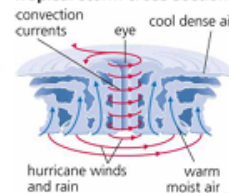
Tropical storm effects (CYCLONE PAM 2015)

11 people died
90,000 homeless
Hospitals and schools destroyed
Widespread destruction of fruits, vegetables, root crops and livestock
Storm surge 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

Tropical storm cross section



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 than 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.



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

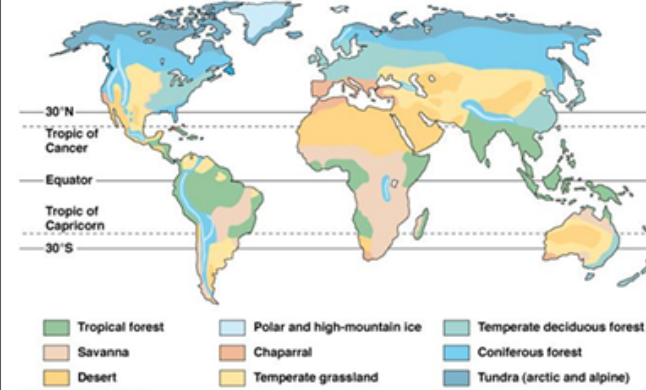
Shelter - Buildings, trees and hills can shelter from the wind

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 quickly 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 CO₂ 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

Gwynn 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. Gwynn 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

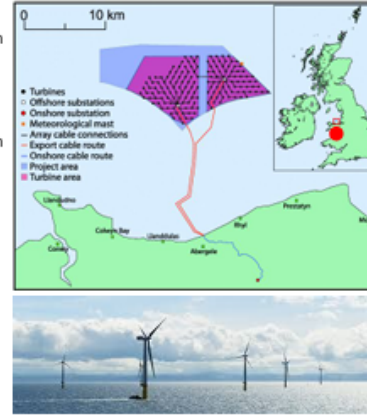


Advantages

Produces power for 400,000 homes

Creates 100+ jobs

Helps with global climate change efforts



Disadvantages

RSPB says it affects bird migrations and their normal routines

National Trust has concerns over affecting heritage and tourism

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.



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

11.1b

Weather, climate and ecosystems

Test yourself

5.1.1 Climate change evidence

1. Give three pieces of evidence for past climate

5.1.2 Climate change causes

1. Give one human cause of carbon output
2. Give one natural cause of carbon output
3. How does the greenhouse effect cause global warming

5.2.1 Weather hazards

1. How does global circulation work?
2. What is the ITCZ?
3. How does a tropical storm form?
4. Give one impact of a tropical storm
5. Give one response to a tropical storm
6. How does a drought form?
7. Give one impact of a drought
8. Give one response to a drought

5.2.2 UK weather variations

- 1. What is the definition of weather?
- 2. How does latitude affect UK climate?
- 3. How does ocean currents affect UK climate?
- 4. Give one air mass and describe the weather conditions it brings to the UK
- 5. What is a microclimate?
- 6. Give one feature of a micro-climate

5.3.1 Ecosystems

- 1. Give the definition of biome
- 2. Give the location of Tropical forests
- 3. Give the location of Savanna

5.3.2 Ecosystem processes

- 1. Give one feature of tropical rainforest characteristics
- 2. What is the nutrient cycle?
- 3. What is the water cycle?
- 4. What is the carbon cycle?

5.3.2 Ecosystem processes

- 1. Give one feature of Savanna characteristics
- 2. What is the nutrient cycle?
- 3. What is the water cycle?
- 4. What key services?

5.4.1 Human uses

- 1. Give one advantage of off-shore wind farms
- 2. Give one disadvantage of off-shore wind farms

5.4.2 Human impacts

- 1. Give one advantage of humans using tropical rainforests
- 2. Give one disadvantage of humans using tropical rainforests
- 3. Give one advantage of humans using savanna's
- 4. Give one disadvantage of humans using savanna's

5.4.3 Ecosystem management

- 1. What is selective logging?
- 2. What is agroforestry?
- 3. What are wildlife corridors?
- 4. What is crop rotation?
- 5. What is drought-resistant crops?

Topic 1: What challenges did the Weimar Republic face from 1918-23?

Impact of WWI

Political

- In Oct 1918 naval crews mutinied in **Kiel & Hamburg**
- Workers went on strike **Hanover** and **Stuttgart** and set up soldiers and workers councils.
- Kaiser Wilhelm II abdicated** on the 9th Nov which caused a revolution; Germany became a democratic republic called the Weimar Republic
- Dolcshtoss** – the Germans felt stabbed in back by the politicians who signed the armistice ending the war on the 11th November. Called them the November criminals.



Economic

- 750,000** Germans died of food shortages
- Debts tripled from **50 billion** marks to **150 billion** marks 1914-18
- 2 million** troops died, 55% casualties.



Treaty of Versailles June 1919

This was the punishment for WWI.

Land

- Lost 13% of their land
- Lost all 11 colonies
- Alsace-Lorraine was given to France
- France could mine coal in the Saar 15 years
- Danzig became an international port
- Eupen and Malmedy were given to Belgium
- Germany were banned from uniting with Austria



Arms

- The army was reduced to 100,000 men
- Germany were allowed no air force or submarines
- Only allowed 6 battleships, 12 destroyers
- The Rhineland was de-militarised

Money – they had to pay £6.6 billion in reparations

Blame

- Article 231** (war guilt clause) – Germany had to take blame for starting the war.
- Were not allowed to join League of Nations

The Weimar Constitution

Proportional Representation was the method of voting in the Weimar Republic. The percentage of votes for a party = the percentage of seats they get in the Reichstag (parliament)

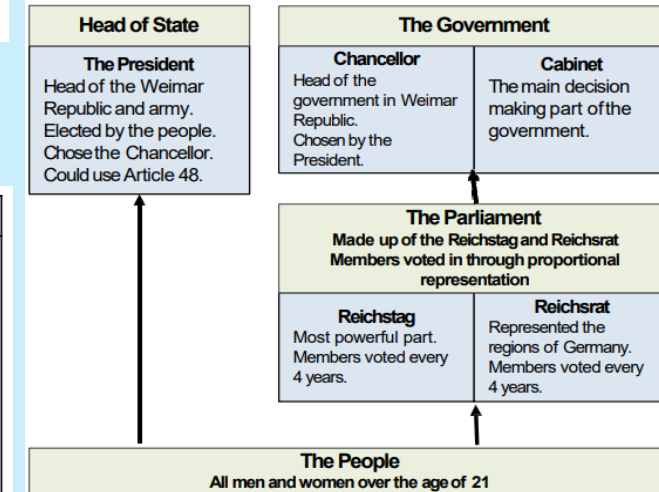


Article 48 said that the President could overrule the Reichstag to rule by decree. This made people think the constitution was weak.

<u>Strengths of the Weimar Constitution</u>	<u>Weaknesses of the Weimar Constitution</u>
- Proportional representation made sure small parties had a fair share of seats in the government. - The system meant that not one group or person could have too much power. It hoped to end dictatorships. - In 1919, Germany was the most democratic in Europe, by giving equal rights and votes to women, more so than Britain. - There were elections for both the Reichstag and the President. - There was free speech and freedom of religious beliefs.	- Proportional representation often led to coalition governments (made up of a few parties) who found it difficult to get along and agree, so they often collapsed. - In the 1920s, there were 29 different parties, which meant less chance of one getting a majority. - The army, judges and civil servants wanted a return of the Kaiser and were opposed to the Weimar Republic. - Article 48 meant that the President could take control if he thought there was an 'emergency' – leading to dictatorship. - The Weimar Republic was hated by the people.



The Weimar Constitution was carefully created so that no one person or group could have too much power, through proportional representation and the roles of President, Chancellor and the Reichstag.



Economic challenges

French invasion of the Ruhr 1923

- Germany was bankrupt and in 1922 didn't pay reparation instalment to allies.
- French invaded with 60,000 troops** to take raw materials, set up machine gun posts in the streets.
- Germans used **passive resistance** (strike) as couldn't fight against 750,000 French troops.
- 100 workers killed**, led to printing money.



Hyperinflation

- Printing money caused hyperinflation – value of money decreased and prices dramatically increased. E.g. a loaf of bread costing 1 mark in 1919, cost 200,000 billion marks in 1923.
- Foreign countries refused to accept German currency, imports stopped, items hard to find.
 - Workers were paid twice a day
 - Many shop owners refused to accept money, preferring a barter economy.
 - People with savings struggled (middle classes) as they became worthless.
 - People in debt could pay them off quickly.



Political challenges

Political violence

- 376** political assassinations between 1919 and 1922.
- Famous people were murdered e.g. **Matthias Erzberger** August 1921 (who signed the armistice)
- Political parties made their own armies** e.g. KPD had Rotfrontkämpfer (Red Front Fighters).



Spartacist Uprising 1919 (Left wing uprising)

- Spartacists supported the KPD (Communist Party)
- Led by **Rosa Luxemburg and Karl Liebknecht**.
- 4th Jan popular police chief Emil Eichhorn sacked.
- 6th Jan **100,000 workers** took to streets, took newspaper and telegraph HQ.
- Chancellor Ebert** created the **freikorps** to put down uprising. killed Rosa and Karl.



Kapp Putsch 1920 (right wing uprising)

- 5000 freikorps** led by **Wolfgang Kapp** marched on Berlin fearing unemployment.
- General Seeckt of Reichswehr (army) refused to fire on rebels, so the **government fled to Weimar and Stuttgart**.
- Ebert encouraged workers to **strike**, essential services stopped so after **4 days** Kapp fled, caught and imprisoned.



Topic 1: How did the Weimar Republic recover from 1923-29?

Gustav Stresemann was Chancellor briefly in 1923, then foreign minister. He was the most important politician in Germany between 1923 and 1929. Under his guidance, he introduced many reforms which helped Germany to recover from its economic and political challenges.



Economic reforms

Rentenmark 1923	Dawes Plan 1924	Young Plan 1929
- New bank Rentenbank (replaced with Reichsbank 1924) - Created a new currency called the Rentenmark - Burnt all old currency. - Inflation stopped, international reputation improved but couldn't regain money lost.	- US banker loaned Germany \$25 billion and reduced reparations to £50 million a year. - French left Ruhr, industrial output passed pre WWI levels, extremists angry depending on loans.	- Reduced reparations from £6.6bn to £2bn, & they were given an extra 59 years to pay. - It meant the government could lower taxes which boosted the economy - French left Rhineland, but reparation payments were now until 1988.



International agreements

Locarno Pact 1925	League of Nations 1926	Kellogg-Briand Pact 1928
- Treaty between Ger, GB, Fr & Belgium. - Germany accepted the new Treaty of Versailles border with France - France promised peace - Germany agreed that the Rhineland would be permanently de-militarised - There were talks about joining the League of Nations. - War less likely, Stresemann got the Nobel Prize - Extremists were angry about border agreement.	- This was an international peacekeeping organisation that Germany had previously not been allowed to join as part of the Treaty of Versailles. - Germany was allowed to join and given a place on the League of Nations Council - It increased confidence in Weimar Republic.	- Germany & 61 countries signed a pact agreeing not to go to war. - USA not in the League of Nations so they wanted their own pact. - It increased support for the Weimar Republic. - Germany was now seen as equal internationally.



Improvements to the standard of living

Unemployment:

- Unemployment reduced from **2 million in 1926** to **1.3 million in 1928**.
- Unemployment Insurance Act 1927** people gave 3% wages and gained unemployment and sickness benefit.

Work:

- working week reduced from **50** to **46** hours in 1927
- real wages rose by **25% 1925-28**.

Housing: 1925-9 **37,000** new homes were built by private companies, **64,000** new homes were built by building associations.

Other: 1920 Reich pension law – 750,000 war veterans, 400,000 war widows. Students in higher education rose from 70,000 to 110,000 1928.



Women in Weimar Germany

Politics:

- Gained the right to vote, 90% women voted
- Article 109 women equal rights to men, marriage equal.

Work:

- WWI 75% women in work. This reduced to 36% in 1925.
- Women were paid 33% less than men.
- Female doctors doubled between 1925-1932.



Leisure: 'new women' could wear make up, jewellery, short hair, smoke, drink, dance without men.

Birth rate fell, divorce rate increased.

Culture

New objectivism – showing life how it really is

Modernism - futuristic

Expressionism – art showed the feelings of the artist

Bauhaus movement was started by Walter Gropius who created the Bauhaus school of design.

Art: Otto Dix painted expressionist scenes

Architecture: Bauhaus, Mendelsohn designed Einstein tower.

Cinema: The Cabinet of Dr Caligari (one of 1st horror films), 1926 Fritz Lang's sci-fi Metropolis.



History GCSE Weimar and Nazi Germany Retrieval Questions

Topic 1: What challenges did the Weimar Republic face from 1918-23?

Question	Answer
1. What was the name of the King of Germany who abdicated (stepped down) at the end of WWI?	
2. By the end of WWI, what had happened to German debts?	
3. Name three land (territorial) terms of the Treaty of Versailles	
4. Name two arms (military) terms of the Treaty of Versailles	
5. Describe one weakness of the Weimar Constitution	
6. Why did the French invade the Ruhr in 1923?	

Question	Answer
7. What left wing uprising happened in 1920?	
8. Who was involved in the Kapp Putsch? When was it?	
9. What was the name of the new currency introduced by Stresemann?	
10. What was the Dawes Plan?	
11. Which international peacekeeping organisation was Germany allowed to join in 1926?	
12. Real wages increased by what percentage from 1924-28?	
12. In the Weimar Republic what nickname was given to women who wore make up, jewellery, had short hair, smoked, drank, danced without men.	
14. What was the name of the new school of design built in Weimar Germany?	
15. Name one new film released in the Weimar Republic	

Topic 2: How did the NSDAP (Nazi Party) develop from 1919-28?

The Birth of the NSDAP (Nazi Party) 1919-23

Hitler joined the German Workers Party (DAP) as its 55th member, Anton Drexler was the leader. German Workers Party (DAP)



25 point programme (1920)

This was a list of policies that the party supported. It included a mix of **nationalist & socialist** ideas including abolishing Treaty of Versailles.

Hitler's personal appeal

- excellent public speaker, had photos and paintings made of him speaking.
- 1919-1920 Hitler appeared **31 occasions as star speaker**.
- Membership of DAP grew to **1000 June 1920, 3000 end of 1920**.

SA (stormtroopers)

- Hitler's **private army**, created August 1921,
- Called the brownshirts.
- SA grew to **800 by 1922**
- They would parade streets to show force, beat up opposition, disrupt meetings of other parties.

Party reorganisation

- 1920 Hitler in charge of propaganda
- set up office in Munich and paid Schussler an administrator,
 - Suggested a **new name – National Socialist German Workers Party (NSDAP or Nazi)**,
 - He created logo - **swastika** and salute
 - Created newspaper **Volkischer Beobachter** cost 180,000 and circulation increased from 11,000 – 17,000 in a year.

Leadership

Hitler forced leadership contest in **July 1921** and **became leader**. Chose **Goering** – young WWI pilot and **Röhm** – ex-army officer popular amongst ex-soldiers in SA, to help run the party. Made powerful friends e.g. **General Ludendorff** – leader of army in WWI.

Munich Putsch 1923



Hitler's failed attack on German government.

Causes:

- Hyperinflation making life hard, and anger at government, Hitler wanted to exploit.
- Wanted to copy Mussolini's march on Rome.
- Hatred of Weimar Republic, and increased membership of NSDAP.

Events:

- **8th November**, Hitler and **600 SA** marched into Burgerbraukeller in Munich.
- Forced Bavarian leader **von Kahr**, Bavarian police leader **von Seisser**, and head of the army in Bavaria **von Lossow** - to give him control
- helped by German **General von Ludendorff**
- von Kahr, von Seisser and von Lossow had changed their minds and called the police.
- Hitler tried to take the city by force, but only had 2000 rifles.
- **14 SA killed, 4 police killed**. Hitler went into hiding – was later found and arrested

Consequences:

- Hitler was found guilty of treason and sentenced to **5 years** in Landsberg Castle jail, served **9 months**.
- The **NSDAP were banned** whilst he was imprisoned, but lifted in 1925.
- Hitler used his trial for publicity.
- **Mein Kampf** - Written in prison
- Strategy, Hitler decides to try and get elected.

The Lean Years 1924-29

The NSDAP (Nazi Party) made lots of changes after the failure of the Munich Putsch in 1923, but failed to get much support. **In 1928 Nazis won only 12 seats in the Reichstag**. This period is known as the 'lean years'.

Nazi Party Headquarters

- Philipp Bouhler party secretary
- Franz Schwarz was appointed party treasurer
- Different departments e.g. finance, foreign affairs, education etc.
- Created: The German Women's Order, National Socialist German Students' League, Hitler Youth, School Pupils' League

National Nazi Party

- Germany was divided into 35 regions (Gaue). Each Gaue had a Nazi leader (**Gauleiter**) e.g. Gregor Strasser & Joseph Goebbels.
- Hitler got money from wealthy industrialists e.g. **Thyssen, Krupp, Bosch**.

SA and SS (Schutzstaffel)

SA: Hitler expanded SA to 400,000 by 1930. But didn't fully trust them as he thought more loyal to their leader, Rohm. In 1925 Hitler replaced Rohm as leader of the SA.

SS: In 1925 Hitler set up new security group who acted as Hitler's personal bodyguard. Himmler in charge of the SS, expanded them to 3000 by 1930.

The Bamberg Conference 1926

- Divide between socialist members in north e.g. Strasser and Goebbels and the nationalist leaders in the South.
- At the Bamberg Conference Hitler sided with the Southerners (Nationalists), calling Strasser etc. communists.
- Hitler managed to get Goebbels on his side. Strasser called him a 'scheming dwarf'. Hitler's party became much less socialist and he got more power.

Nazi beliefs (set out in Mein Kampf)

1. **Nationalism** – making Germany self-sufficient (autarky) & creating living space (lebensraum)
2. **Socialism** – controlling big business
3. **Totalitarianism** – total loyalty to the Führer (leader)
4. **Racial purity**
5. **Traditional German values** e.g. men/women separate roles



Reasons for limited support 1923-29

1. **Stresemann's new currency** and the **Dawes** and **Young Plans** restored economic stability
2. The **Locarno Pact**, **League of Nations** and **Kellogg-Briand Pact** increased Germany's reputation
3. **President Hindenburg** was popular as a war hero
NSDAP only won 1% of the vote in Berlin and only 12 seats in 1928.

Topic 2: How did the NSDAP come to power in 1933?



Long term reasons for increased support for the NSDAP

Hitler and the SA

- Hitler was seen as a strong leader
- He was popular
- He used **aeroplanes** and expensive propaganda.
- The SA were organised, disciplined, disrupted opposition,
- They had **400,000 members**
- They intimidated candidates at elections.

Big business

- The Nazis offered protection to big businesses from communists
- **Benz** and **Krupp** donated to the Nazi Party which helped to fund election campaigns.



Working class

- The '**workers party**' part of the National Socialist German Workers Party (NSDAP) appealed to workers
- The Nazis **traditional values** appealed to them
- They used the slogan '**work and bread**'
- BUT workers preferred communists over the Nazis.



Middle-class support

- Had **lost savings and pensions** in the Great Depression – the Nazis promised them they would improve the economy
- **Fear of communist party** which were on the rise, led them to voting for the Nazis
- Fear of moral decline e.g. smoking/drinking – the Nazis had traditional values.

Farmers

- The Nazis changed their policy of confiscating land which was included in the 25 point programme from 1920.
- They would only confiscate land if it was owned by a Jewish person
- Voting for the Nazis protected farmers from KPD (communist party).
- In 1930 the NSDAP gained **60% votes** in rural areas.

Young people and women

- Colourful rallies, propaganda appealed to young people. The Hitler Youth had been created.
- Propaganda appealed to women's role as wives and mothers, said the Nazis were the best party for families.



The Great Depression 1930



Cause: Oct 1929 stock market crashed in USA. German banks were major investors in shares on US stock exchange so went bust e.g. German Civil Bank. Economy collapsed.



Effects of the Great Depression in Germany:

- **6 million unemployed** (40% factory workers, 50% 16-30y olds, 60% uni graduates).
- Savings lost
- Workers taxes increased
- Wages in 1932 were 70% of 1928 levels.
- Homelessness, led to violence, increase in 24% arrests for theft.
- **Chancellor Brüning** proposed higher taxes then fixed time limits on unemployment benefits.
- July 1930 policies were rejected 256 to 193.
- Brüning ruled by **Article 48**, relied on **44 decrees in 1931 and 66 in 1932**.
- This led to increased support from KPD (largest communist party in world) and NSDAP (Nazi Party).

How did Hitler become Chancellor in January 1933?



MARCH 1932: Presidential elections – Hindenburg 18 million, Hitler 11 million. No majority.

30th MAY 1932: Chancellor Brüning resigns due to losing support. **Hindenburg makes von Papen Chancellor** but he wasn't leader of biggest party so has to rule by decree (article 48).

NOVEMBER 1932: Reichstag elections, **Nazi support falls to 196** but still biggest party. **Von Papen** sacked, von Schleicher replaces him.

APRIL 1932: Presidential elections – Hindenburg 19 million, Hitler 13 million. Hindenburg wins.

JULY 1932: Reichstag elections, violence causes 100 deaths and 7000 injuries, Nazi Party had **230 seats** – biggest party but not majority.

JANUARY 1933: **Von Schleicher** has no support, asks to make Germany military dictatorship but Hindenburg refuses. **Hindenburg agrees to make Hitler Chancellor**, with von Papen as Vice Chancellor in the hope they can control him.



History GCSE Weimar and Nazi Germany Retrieval Questions

Topic 2 How did the NSDAP (Nazi Party) develop from 1919-28?

Question	Answer
1. Name three changes Hitler introduced to the German Worker’s Party between 1919 and 1922	
2. How long was Hitler sentenced to prison for after the Putsch? How long did he serve?	
3. In 1928, how many seats did the Nazis win in the Reichstag?	
4. Name three changes Hitler made to the Nazi Party after the Munich Putsch (1924-28)	

Question	Answer
5. Give two reasons why the Nazis had limited support from 1924-28	
6. What does totalitarianism mean?	
7. Who were the SS?	
8. How many SA were there by 1932?	
9. How many people were unemployed as a result of the Great Depression?	
10. What slogan did the Nazis use to gain support from working classes?	
11. Name one industrialist who funded the NSDAP	
12. Which political party was the second largest after the NSDAP?	
13. How many seats did the NSDAP have in the Reichstag in July 1932?	
14. What was the name of the President?	
15. Which previous Chancellor became Vice Chancellor under Hitler in 1933?	

Topic 3: How did Hitler consolidate his power from 1933-34?



The Reichstag Fire 27th February 1933

On **27th February 1933** the Reichstag building burnt down. A Dutch Communist called **Van der Lubbe** was caught, he confessed, was found guilty and executed. Hitler and Goering (new police chief) claimed it was part of a **communist** conspiracy.



Consequences of the Fire

- Hitler arrested **4000 communists** and persuaded **President Hindenburg** to call another election on 5th March.
- Hitler asked President Hindenburg for an **emergency decree (law)**. Hitler issued the **'Decree for the Protection of the People and the State'**. This gave him powers to imprison political opponents and ban communist newspapers.
- The SA beat up political opponents and the police did nothing to stop them as Hitler now controlled the police.
- The **Communist Party** were banned from the election.
- Hitler persuaded **Gustav Krupp** and other industrialists to donate **1 million marks** to their campaign in just one meeting.
- The election was bloody, **70 deaths**. Nazis increased their Reichstag members to 288, with the support of the nationalist parties, Hitler had a **2/3rd majority**.

Significance?

It led to the NSDAP increasing their support in the Reichstag, which allowed Hitler to pass the Enabling Act.

The Enabling Act 24th March 1933

As the Nazis had the majority, Hitler used the SA to intimidate the Reichstag into passing the Enabling Act (Law for the Removal of the Distress of the People and Reich) on **24th March 1933**. It was passed by 444 votes to 94.

The Enabling Act allowed Hitler's cabinet to pass any **laws** he wanted for 4 years without the agreement of the Reichstag.

Significance?

With the Enabling Act, Hitler got rid of as much opposition as possible.

1. He banned **trade unions** (so workers couldn't organise themselves against him) in **May 1933**.
2. He also banned all other **political parties** in **May 1933**. This meant that only the Nazi party existed.
3. In **January 1934** Hitler **abolished** the **18 Länder parliaments** and declared that governors, appointed by him, would run every region in Germany.

Hitler had removed any external political opposition,



Night of the Long Knives 30th June 1934

Hitler's **SS** arrested and killed **400 political threats** to Hitler's power, without trial, including **Ernst Röhm** (SA leader), 150 other senior SA members, **Von Schleicher** and **Gregor Strasser**.



Why?

- Hitler believed Röhm was a threat to Hitler – Röhm merged army veterans group called **Stahlhelm** with SA to increase their numbers to 3 million, 60% were unemployed, they were loyal to Rohm not Hitler.
- Rohm wanted more socialist, working class policies and criticised Hitler's links with industrialists and army generals.
- **German army** saw SA as a threat as they only had 100,000 soldiers and thought Rohm wanted to replace them.
- SS leaders e.g. **Himmler** and **Heydrich** wanted to increase their own power by reducing power of Röhm and the SA.
- 1934 leaders of SS and army warned Hitler that Röhm was planning to seize power.

Significance?

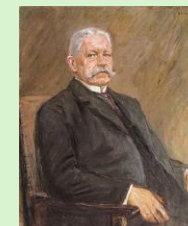
Hitler now had complete control of the NSDAP which prevented internal opposition to his policies.



Death of Hindenburg 2nd August 1934

President Hindenburg, aged 87, died. Hitler took over supreme power:

- He declared himself Germany's **Führer** and decreed that, as Führer, he would merge the powers of Chancellor and President.
- Hitler forced an **oath of loyalty** to him from every soldier in the **army**.
- A **plebiscite** (public vote) was held on 19th August to confirm Hitler as the Führer. **90%** voted in favour.



Significance?

With Hindenburg's death and the oath of loyalty to the army, Hitler now had no opposition within the country at all to his power. He had turned the country into a dictatorship.

Feb 1933
Reichstag fire

5th March 1933
Election – Nazis
2/3rds majority

24th March 1933
Enabling Act

May 1933
Trade Unions banned
Political parties banned

Jan 1934
Länder Parliaments
abolished

30th June 1934
Night of the Long
Knives

2nd August 1934
Hindenburg's death

19th August 1934
Hitler becomes
Führer

Topic 3: How did the Nazis control Germany?



The Police State *where the police control what people do and say*



The SS and SD:

The SS set up in 1925 as a personal body for Hitler.

- From **1929 run by Himmler**. Wore black uniforms.
- Became the Nazi's private police force.
- Totally loyal to Hitler and Himmler.
- During the 1930s SS expanded to **240,000** and in charge of all the other police/security services.



Gestapo:

Non-uniformed secret police.

- Set up in 1933 but put under SS control.
- 1936 Heydrich** became leader.
- They spied, tapped phones, used networks of informants to identify suspects.
- 1939, 160,000 arrested** for political offences.
- Gestapo used torture.
- Imprisoned people without trial & sent to concentration camps.

Concentration Camps:

- By 1939 150,000 'under protective arrest' in prisons, so the Nazis created concentration camps run by the SA & SS.
- First in Dachau 1933.
- Inmates were 'Undesireables' e.g. prostitutes or homosexuals, minority groups such as Jews, political prisoners – e.g. intellectuals, communists or political writers.



Legal System:

Judges: Hitler set up the **National Socialist League for the Maintenance of the Law**. All judges had to be members.

Law Courts:

- Abolished trial by jury. Instead all judges decided innocence, guilt and punishments.
- People's Court** for crimes against Nazis. Trials in secret, Hitler chose the judges.
- 1934-1939 534 people sentenced to death for political offences.

Propaganda and censorship

Joseph Goebbels: Minister of People's Enlightenment and Propaganda.

- September 1933 **Reich Chamber of Culture:** art, architecture, literature, music, theatre and film.
- All cultural activities were consistent with Nazi ideas – *Gleichschaltung*.



Press

- Journalists given briefings of what to write.
- 1600** newspapers shut down in 1935.



Radio

- Broadcast propaganda
- Cheap mass-produced radios installed in cafes, factories, loudspeakers in streets.
- 70% homes had a radio.**
- No access to foreign stations.



Rallies

- Mass rally at **Nuremberg** every year.
- 1934 rally giant eagle 100ft wing span
- 130 anti-aircraft searchlights
- 200,000 crowd



Sport

- Nazi salute at all sports events.
- 1936 Olympics** was in Berlin; new stadium 110,000 people, new technology, Germany won **33 medals**.



Art

- Reich Chamber for Visual Arts** – had to be members or banned, 42,000 artists accepted.
- 1936 12,000 paintings** & sculptures removed e.g. Picasso, van Gogh.
- Greater German Art Exhibition** 1936 900 exhibits.



Architecture

- Albert Speer** made Nuremberg parade ground 1934, new Chancellery 1938.
- Roman/Ancient Greek style with domes, arches.



Music

- Censored music e.g. jazz, Mendelssohn.
- Liked Wagner, Bach and Beethoven.



Literature

- New books approved by Chamber of Culture, existing books censored
- 2500 writers banned.
- May 1933 20,000 books burned.**



Cinema

- 250 mil went to cinema 1933.
- 45 newsreel** before
- All films were approved by Goebbels.
- 1300 Nazi films**, e.g. Hansi the canary.



✚ The Church

The Catholic Church

Hitler made a **Concordat** with the Pope.

- Hitler agreed to allow freedom of worship & not to interfere with Catholic schools.
- Pope agreed Catholic priests would not interfere in German politics, German bishops **swore an oath of loyalty** to the Nazis.

However, Hitler did not keep his promise. Catholic priests were arrested and sent to concentration camps. Catholic schools were closed. Catholic youth groups like the **Catholic Youth League** were banned.

Opposition from the Catholic Church



- 1937 Pope Pius XI criticised Hitler in article '**With Burning Anxiety**'.
- Some Catholic priests spoke out against Nazis.
- 400 Catholic priests** imprisoned in the Priests' Block at Dachau concentration camp.

The Protestant Church

Some supported Nazis & created **Reich Church** 1936. Led by **Ludwig Muller**, made Reich Bishop.

- Protestants who supported Hitler allowed to run church services & **swastika** in churches.
- Nazis said Jews not baptised into the Reich Church & banned Jewish teachings in bible.

Opposition from the Protestant Church

A few spoke out against Hitler. E.g. **Pastor Martin Niemoller** 1933 set up **Pastors Emergency League (PEL)** to campaign against Nazis.

- In 1934 the PEL set up **Confessing Church**. Opposed Nazi interference. 6000 pastors. Some spoke out against Nazis. 800 arrested & sent to concentration camps.

Few ordinary Christians opposed Nazis openly. 1937 Niemoller arrested & sent to concentration camp & PEL banned. Niemoller initially supported Hitler becoming Chancellor and even asked to fight in WWII.



Question	Answer
1. Describe three ways that Hitler consolidated his power from 1933-34	
2. What did the Enabling Act do?	
3. How many people were killed on the Night of the Long Knives?	
4. Who was the leader of the SS?	
5. What was the name of the secret police?	
6. What organisation did all judges have to be members of?	

Question	Answer
7. What was the name of the agreement that Hitler signed with the Catholic Church?	
8. What was the name of the Protestant Church that was set up to oppose the Nazis?	
9. Who was in charge of propaganda and censorship in Nazi Germany?	
10. How many newspapers were closed down in 1935?	
11. What percentage of German homes had a radio?	
12. Where was a rally held every year?	
13. How many books were burned in May 1933?	
14. How many medals did Germany win at the 1936 Olympics?	
15. How many Nazi films were produced?	

Topic 4: How did life change for women and children under the Nazis?



Young people

Education

Bernard Rust - Education Minister.

Teachers:

- **1933** sacked some teachers e.g. 180 in Prussia.
- All swore an oath of loyalty, had to join **Nazi Teachers League**.
- **1939** over 200,000 attended courses.
- Nazi salute, heil Hitler, Nazi flags.

Curriculum:

- New subject - race studies
- PE 1/6th of the timetable by 1939.
- 1935 all text books Nazi approved.
- Mein Kampf was a compulsory text.



Nazi Youth movements

- 1933 most youth groups banned.
- 1936 Hitler Youth controlled all sports
- March 1939 compulsory to join from 10+, except Jews.

Hitler Youth (boys)

6-10 Pimpfe

10-14 Deutsche Jungvolk

14-18 – Hitler Jugend (Hitler Youth)

- *Political training* e.g. 'The evil of Jews'.
- *Physical training* e.g. map reading, 1.2 million small arms shooting.
- *Character training* e.g. ice cold water.



League of German Maidens (BDM) (girls)

10-14 young maidens,

14-21 BDM. Trained to cook, make beds, sew, marry Aryans as well as political training.



Opposition

Edelweiss Pirates:

- Working class teenagers, e.g. travelling dudes in Essen, Navajos in Cologne.
- Wore US clothes, white Edelweiss flower
- Taunt/attacked Hitler Youth.
- 2000 members by 1939.

Swing Youth:

- Middle class teenagers
- Wore US clothes, watched US films, music, e.g. Glen Miller Orchestra.
- Drinking, smoking, illegal dances (6000 people) e.g. jitterbug.
- Jazz Youth – Listened to Louis Armstrong.
- Not major threat.



Women ♀



The Nazis believed women were important as mothers and housewives, and wanted to encourage them to have children.

Nazi beliefs about women:

Appearance: 'natural' look e.g. simple plaited/tied back hair and long skirts.

Employment: Women stay at home raise family.

Marriage and family: .women to marry, have many children to make Germany bigger and stronger.



Nazi policies towards women

Getrud Scholz-Klink Reich Women's Leader, she created **the German Women's Enterprise**. This spread Nazi ideas about women e.g. 1939, 1.7 million had attended Nazi courses on childcare, cooking and sewing.

- **Law for the Encouragement of Marriage:** Married couples loaned 1000 marks, it was paid off if the couple had 4 children.
- **Divorce:** If a wife could not have children, their husbands could divorce them.
- **Mother's Cross:** Medal given to women who had 4+ children Bronze 4/5 children, silver 6/7 & gold for 8+.



Women and employment

Encouraged women to leave work. 'Three ks' – kinder, kuche, kirche (children, kitchen & church).

- **1933** women banned from being teachers, doctors and civil servants.
- **1936** women couldn't be judges/lawyers.
- Schoolgirls trained for motherhood
- **1937 grammar schools for girls banned.**
- Female students in higher education fell from 17,000 in 1932 to 6,000 in 1939.

Success?

- Birth rate increased
- Number of marriages increased at first by over 200,000
- Fewer women went to university
- Some women were pleased with the stricter rules and return to tradition.

Limitations?

- Many women didn't support the ideas, felt it was demeaning.
- Many women kept their jobs – there were 7 million women in work in 1939 compared to 5 mill in 1933

Topic 4: How did life change for workers under the Nazis?



How did the Nazis reduce unemployment?

Jan 1933 unemployment **5 million** (25%). Hitler reduced unemployment from 4.8 mil 1933, 1.5 mil 1936, **0.5 mil 1939**.

National Labour Service (RAD)

- Paid work for unemployed (repairing roads planting trees, draining marshes).
- Initially it was voluntary, but it was made **compulsory from 1935** for all young men to serve 6 months.
- **422,000 men**.
- Unpopular due to uniforms, living in camps, military drill parades, poor pay, poor food.



Autobahns (motorways)

- **Sept 1933** Hitler started building autobahn, first one opened in May 1935.
- **By 1935, 125,000 men** employed building autobahn, 2500km finished by 1938.
- Also created public buildings, bridges, coastal walls sports facilities.
- Spending on public works grew from **18bn marks in 1933** to **38bn marks by 1938**.



Rearmament

- Announced **military conscription 1935**.
- By **1939** there were **1,360,000** in armed forces.
- Increased spending on arms from **3.5bn marks** in 1933 to **26bn marks** in 1939.
- **1933 4000** employed in aircraft construction industry, grew to **72,000 by 1935**.



Invisible unemployed

- These were people who were not included in the unemployment statistics.
- Moving women and Jews out of jobs 'invisible unemployed'.
 - Also unemployment reduced as more in armed forces, prisons, concentration camps, SS, Gestapo.
 - Also part time jobs were counted as full-time employed.

How did the Nazis improve the standard of living?

Employment – more people in work increased the standard of living.

Wages

- Rose slowly from 1933-36, but quickly from 1936-9.
- Some e.g. armaments rose more than others e.g. labour service.
- Prices rose by 20% 1933-39.
- High earners could pay the extra cost of food and have money left for luxuries e.g. car owners tripled 1930s.

Hours – Working week rose from 43 hours in 1933 to 49 hours in 1939.

Labour Front (DAF)

- Trade Unions (protecting workers rights) were banned 1933.
- Hitler replaced them with the DAF –which controlled employers and employees. It protected workers: set out rights in workplace, maximum hours, minimum pay. It also meant workers lost rights to negotiate pay/conditions, maximum working week rose by 6 hours, DAF could punish workers who 'disrupted'.



Strength through Joy (KdF)

- Made work enjoyable.
- Had **35 million** members by 1936.
- Provided sports events, films, theatre shows, outings, foreign travel, could win holidays.
- Workers paid 5 marks a week to get a **Volkswagen**, but this was disrupted due to war.



Beauty of Labour (SdA)

- Campaigned to get employers to provide better facilities for workers e.g. better toilets, changing rooms, showers and canteens.
- SdA gave tax breaks to businesses to help building costs.
- 1938 claimed 34,000 companies had improved facilities.
- But workers often had to do the building themselves with no extra pay.

Those working in the rearmament industries aside, living standards did not really improve for German workers under the Nazis. From 1933 to 1939 wages fell, the number of hours worked rose by 15 per cent, serious accidents in factories increased and workers could be punished by employers if they attempted to question their working conditions.

Autarky

Hitler wanted Germany to become an autarky – to produce everything that it needed. In 1937, Hermann Göring was made Economics Minister with the job of making Germany self-sufficient in four years. However, the measures he introduced were not successful. By the outbreak of World War Two Germany was still importing 20 per cent of its food and 33 per cent of its raw materials.

Question	Answer
1. What did all teachers have to join in Nazi Germany?	
2. Describe two other changes Hitler made to education	
3. Describe two activities boys in the Hitler Youth did	
4. What did young girls have to join?	
5. Describe two methods the Nazis had of encouraging women to have children	
6. In 1933 women were banned from which jobs?	

Question	Answer
6. Name three methods the Nazis had at reducing unemployed	
7. What organisation was set up to provide paid work for the unemployed?	
8. By 1935, how many men were employed building the autobahn?	
9. How many men were in the armed forces by 1939?	
10. Name one group of people who were classified as ‘invisible unemployed’	
11. What was created which replaced trade unions in Nazi Germany?	
12. What organisation was set up to provide enjoyable activities for workers?	
13. What organisation was set up to improve working facilities?	
14. In Nazi Germany, working hours increased from ___ to ___?	

Topic 4: How and why were people persecuted by the Nazis?



Nazi Racial beliefs

Eugenics – selective breeding to produce better humans, taught eugenics in schools, prevented ‘unsuitable’ Germans reproducing.

Racial hygiene – Taught at schools (Aryans should only reproduce with other Aryans). Laws prevented mixed race marriages.

Hitler’s views – Mein Kampf wrote Aryans master race ‘herrenvolk’, other races were untermenschen (sub-human), worst were Jews & ‘gypsies’.
Lebensunwertes – unworthy of life.

Persecution of minorities

Slavs - Eastern Europeans

- Seen as subhuman (*untermenschen*)
- Nazis threatened to invade Slav countries for *lebensraum* (living space)

Gypsies’ – Roma people, travellers

- 26,000 in Germany.
- 1933 arrested as social nuisances, sent to concentration camps.
- 1936 some forced to live in special camps.
- 1938 ‘gypsies’ banned from travelling in groups, given test and had citizenship removed if failed.
- 1939 deported.

Homosexuals

- Nazis believed they lowered moral standards.
- 1936 4000 arrested, by 1938 8000 arrested.
- Released homosexuals sent to concentration camps, 5000 died there.
- Encouraged voluntary castration.

People with disabilities

- 1933 **Law for the Prevention of Hereditarily Diseased Offspring** – compulsory sterilisation for 400,000 mentally ill, deformed, epileptic, deaf or blind.
- **T4 programme** babies killed with disabilities, up to 17 years old. 5000 killed.

The Persecution of Jews

Anti-Semitism – common in Europe, blamed for execution of Christ, jealousy. Jews scapegoats for Germany’s problems e.g. Treaty of Versailles, hyperinflation.

Persecution begins

- **Nazi education** and **propaganda** called Jews ‘vermin’ ‘filth’, ‘evil’ and ‘scheming’.
- **April 1933** Jews banned from government jobs, civil servants & teachers sacked.
- **1934** some councils banned Jews from parks & swimming pools.
- Nazi Party announced from 1st April 1933 an **official boycott of Jewish businesses**.



Nuremberg Laws (1935)

- **Reich Law on Citizenship:** Jews not German citizens, wore yellow star patch sewn on clothes.
- **The Reich Law for the Protection of German Blood and Honour** Forbade Jews from marrying/having sexual relations with German citizens.

Kristallnacht ‘the night of broken glass’ (1938)

- 9-10th Nov 1938 gangs smashed & burned Jewish property & attacked Jews.
- Gangs were non-uniformed Nazis, SA or Hitler Youth.
- Sparked by murder of German ambassador by a Jew in Paris.
- Official figures report 814 shops, 171 homes, 191 synagogues destroyed.
- 100 Jews killed. J
- Jews fined 1 billion marks & by 12th Nov 20,000 were in concentration camps.



Emigration

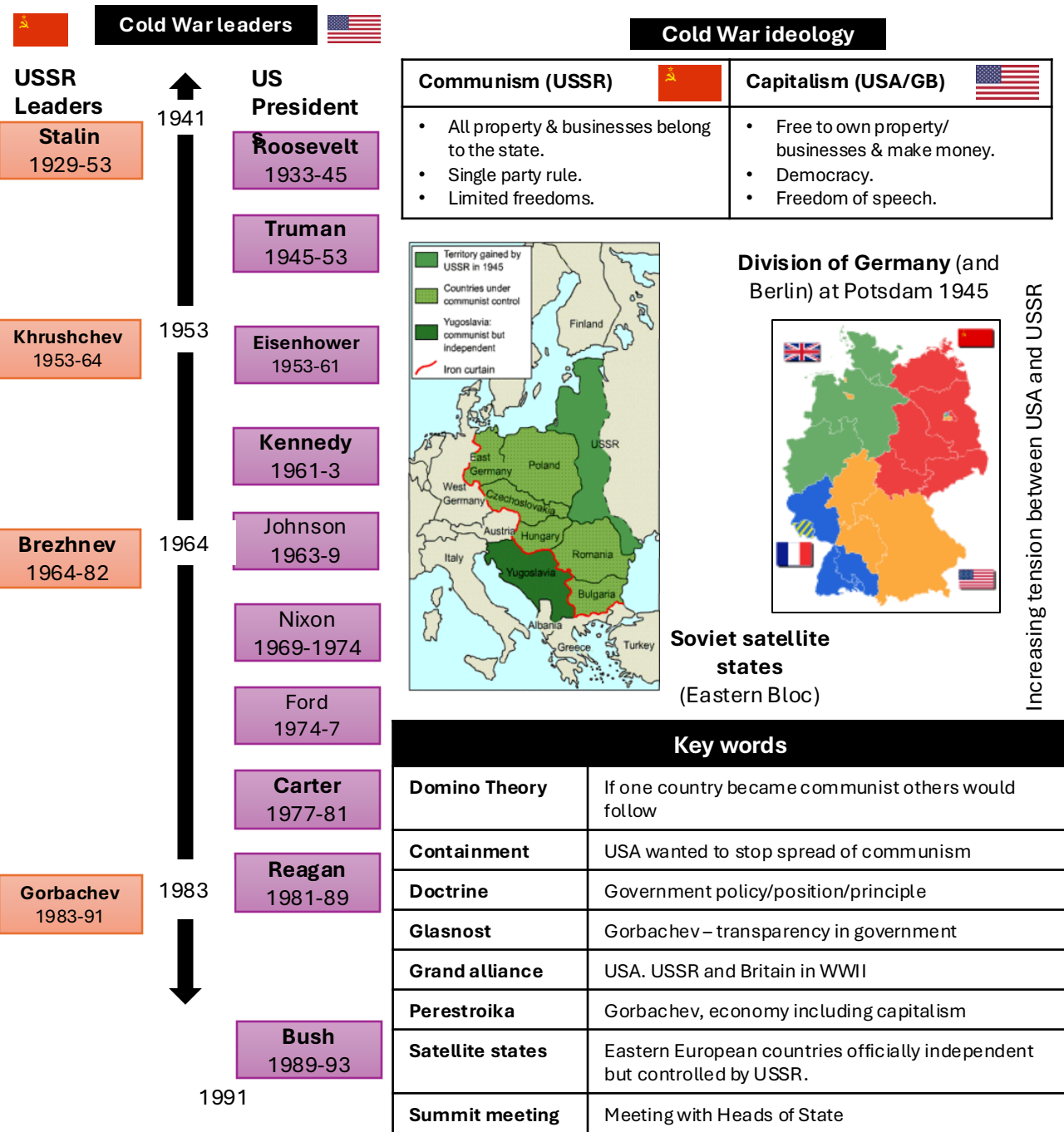
- Jan 1939 Nazis set up Reich Office for Jewish Emigration.
- April 1939 orders given to evict Jews from homes to be deported.

The role of the German people

- Nazis kept some atrocities against Jews secret, but most people knew what was happening, both within and outside of Germany. Many Germans took part in the persecution and many others did little to stop it.
- People who criticised the Nazis were severely dealt with, so some Germans were too scared to oppose it. Many Germans became convinced by ideas at the time that persecution of the Jews was justified, so they supported and even took part in it.

Question	Answer
1. What was eugenics?	
2. What was racial hygiene?	
3. Name two ways that ‘gypsies’ were persecuted by the Nazis	
4. How many homosexual people died in concentration camps by 1939?	
5. Name one law passed against disabled people	
6. Which jobs were Jews banned from in 1933?	

Question	Answer
7. Describe the two Nuremberg Laws	
8. When was Kristallnacht?	
9. What happened on Kristallnacht?	
10. How did Nazis encourage Jews to emigrate?	



Topic 1: The origins of the Cold War 1941-58	
1943	Tehran Conference USA/GB agreed to a 2 nd front in Northern France
Feb 1945	Yalta Conference Nazis banned, prosecuted, UN set up, free elections in Poland and border to be moved West, Germany split into 4 zones.
July-Aug 1945	Potsdam Conference Germany & Berlin divided into 4; took own reparations. Disagreements about Poland.
Aug 1945	Atomic bomb used by US on Japan
1945-1948	Satellite states: Stalin took over eastern Europe, used as a 'buffer zone' to protect USSR
1946	Churchill's 'Iron Curtain' speech said Stalin was dividing Europe in two by increasingly the Communist influence in the East.
	Novikov Telegram Said USA wanted to dominate world
	Long Telegram Said Stalin wanted to destroy capitalism and spread Communism, this led to the US policy of Containment
1947	Truman Doctrine Communism should be contained, US will support countries by sending troops/money.
	Marshall Plan US sent \$13 billion to Western Europe.
	Cominform set up, politically controlled Eastern Bloc
1948-49	Berlin Blockade and airlift Stalin blocked land routes to West Berlin in the hope that he'd be given all Berlin but USA/GB airlifted supplies for 318 days.
1949	Creation of FDR (West Germany) by 'Trizonia'
	Creation of GDR (East Germany) by Stalin
	USSR created the atomic bomb
	Comecon created as response to Marshall Plan – created 5 year plans (economic) for satellite states.
	NATO created as a military alliance between Western countries to protect them from Soviet expansion.
1952	USA created hydrogen bomb 1000x more powerful than A-bomb
1955	Warsaw Pact created – communist military alliance in response to NATO
1956	Hungarian Uprising: Hungarians rebelled against Soviet control, the unpopular leader Rákosi was replaced with Imre Nagy who threatened to withdraw Hungary from the Warsaw Pact, the USSR invaded Hungary with 1,000 tanks killing 20,000 Hungarians and replacing Nagy with the Soviet supporter Janos Kadar

Question	Answer
1. What is the difference between Capitalism and Communism ?	
2. What agreement was reached at the Tehran Conference in 1943?	
3. What decisions were made at the Yalta Conference about Germany and Poland	
4. What did disagreements between the USA, Britain, and the USSR increase at the Potsdam conference?	
5. What were the Soviet Satellite states and why did Stalin create them after World War II?	
6. What did Churchill mean by the term “ Iron Curtain ” in his 1946 speech?	
7. How did the Long Telegram lead to the policy of containment and increase tensions between the USA and USSR?	

Question	Answer
8. How did the Truman Doctrine and Marshall Plan support the policy of containment?	
9. What policies did the Communist governments use to become established in Eastern Europe after WWII?	
10. How did Domino Theory increase American fears about Communism spreading?	
11. What was the Berlin Blockade and how did the USA and Britain respond?	
12. How and why was Germany divided after World War II?	
13. Why was NATO created and how did it help the USA prevent the spread of communism?	
14. Why did the USSR create the Warsaw Pact in 1955?	
15. Why did the Hungarian Uprising occur and how did the USSR respond?	

Topic 2: Cold War Crises 1958-70	
Berlin Crisis 1958-61	
1958	Refugee Crisis: 3 million East Germans migrated to West Germany.
	Khrushchev's Ultimatum – Berlin to demilitarise & become free city in 6 months, if Britain, France and USA did not agree, USSR would cut off Western access.
May 1959	Geneva Summit USA and USSR foreign ministers, no agreement on Berlins future.
Sept 1959	Camp David Khrushchev & Eisenhower meet, 6 month ultimatum withdrawn.
May 1960	Paris Summit U2 spy plane shot down over USSR, Khrushchev stormed out, worsening relations
June 1961	Vienna Summit Khrushchev reinstated 6 month ultimatum due to continued defections. JFK refused to back down, spending \$2bn on armed forces.
12 Aug 1961	Berlin Wall East German troops start building 165km wall around West Berlin.
1963	JFK visited West Berlin made famous 'Ich bin ein Berliner' speech
Cuban Missile Crisis 1959-62	
1959	Cuban Revolution Castro becomes Cuban leader, took over US land in Cuba, threatened US as 90 miles off the coast of Florida
1960	Castro made agreement w/USSR to sell sugar, buy arms. US banned trade w/Cuba
April 1961	Bay of Pigs invasion 1400 Cuban exiles sent to Cuba secretly by US to try and overthrow Castro, they were meant by 20,000 Cuban soldiers – humiliating defeat
14-28 Oct 1962	13 days – U2 spy plane photographs nuclear missile sites on Cuba/Soviet ships with missiles. JFK set up naval blockade. Khrushchev sent 2 telegrams saying he would back down (1) if the US removed missile sites in Turkey (2), JFK agreed to both, but only telegram 1 publicly.
1963	'Hotline' set up between US and USSR
	Test Ban Treaty banned testing nuclear weapons in space or atmosphere
1967	Outer Space Treaty USA/USSR agreed not to use space for military purposes
1968	Nuclear non-proliferation Treaty Agreed not to give weapons to other countries
Czechoslovakia 1968	
1968	Alexander Dubcek elected head of Czech gvmt, 'socialism with a human face'
April 1968	Prague Spring reforms reducing censorship, trade with West, travel to other countries, trade unions wider powers, more power to regional governments
Aug 1968	Brezhnev felt this opposed Communist control and sent 500,000 Warsaw Pact troops into Prague, arrested Dubcek who was ordered to reverse reforms. Brezhnev Doctrine: all communist countries would be prevented from introducing liberal reforms that threatened Communist rule

Topic 3: The end of the Cold War 1970-91		
DÉTENTE (peace)	May 1972	SALT 1 Anti-Ballistic Missile Treaty (maximum of 100 ABMs), Interim Treaty (Restricted ICBMs and SLBMs), and Basic Principles Agreement.
	1975	Helsinki Conference European borders can't be changed by force, international cooperation e.g. Apollo-Soyuz, human rights
	June 1979	SALT 2 Restricted missile launchers and strategic bombers – never carried out (ratified).
COLLAPSE OF DÉTENTE	Dec 1979	USSR invaded Afghanistan assassinating Hafizullah Amin (pro USA), replaced with Kamal (pro USSR), fought 10 years against mujahideen.
	1980	Olympic Boycott – USA boycotted Moscow Olympics, USSR boycotted LA Olympics in 1984
REAGAN'S 2 nd COLD WAR	1982-4	Arms spending Reagan spent 13% more on weapons in 1982, then 8% more in 1983/4. Also created Trident submarines and Stealth bombers
	1983	Reagan Doctrine – supported anti-communist groups abroad
	1983	Reagan's 'Evil Empire' speech – described USSR as 'evil empire'
	1984	SDI (Strategic Defence Initiative) 'Star Wars' Nuclear umbrella to use missiles in space to shoot down USSR missiles.
END OF COLD WAR	Nov 1985	Geneva Summit Gorbachev and Reagan met 1 st time +ive relationship
	Oct 1986	Reykjavik Summit After Chernobyl disaster, no formal agreement
	Dec 1987	Washington Summit (INF Treaty) Both countries abolished all land-based missiles within a range of 500-5500km
	1988	Moscow Summit Led to Gorbachev going to US, troops left Afghanistan
	1989	Malta Summit Gorbachev met with President Bush, end of Cold War
COLLAPSE OF EASTERN BLOC (satellite states)	May 1989	Hungary took down border with Austria, free elections held
	June 1989	Poland - Solidarity legalised and won victory
	Nov 1989	East Germany - Berlin Wall torn down, uniting East and West Germany
		Czechoslovakia – Velvet Revolution elected Havel as President
	Dec 1989	Romania, Bulgaria and Yugoslavia become independent from USSR
	July 1991	Warsaw Pact ended
	Dec 1991	Gorbachev resigned as Soviet leader, and the Soviet Union broke up

Y11 History GCSE Retrieval Questions

Topic 2: Cold War Crises 1958-1970

Question	Answer
1. What caused the Berlin Refugee Crisis in 1958 and how many moved?	
2. What was Khrushchev's 1958 Ultimatum?	
3. Why did Geneva Summit fail top resolve the Berlin Crisis?	
4. What happened at Camp David? How did this affect the Ultimatum?	
5. How did the U-2 spy plane affect relations between the USA and USSR?	
6. Why did Khrushchev renew pressure on Berlin at the Vienna Summit	
7. Describe the construction of the Berlin wall, including the date and its purpose	

Question	Answer
8. How did Fidel Castro come to power in Cuba and why did this concern the United States?	
9. What was the Bay of Pigs invasion and why was it a failure?	
10. What evidence did the United states gain in October 1962 that revealed the presence of Soviet nuclear missiles in Cuba?	
11. Explain the terms of the agreement that ended the Cuban Missile Crisis?	
12. What were the Test Ban Treaty (1963), the Outer Space Treaty (1967) and the Nuclear Non-Proliferation Treaty (1968)?	
13. Who was Alexander Dubcek and what were the Prague Spring reforms?	
14. Why did Brezhnev and the Soviet Union oppose the Prague Spring Reforms?	
15. What happened during the Soviet invasion of Czechoslovakia and what was the Brezhnev Doctrine?	

Y11 History GCSE Retrieval Questions

Topic 3: The End of the Cold War 1970-1991

Question	Answer
1. What were the terms SALT I May 1972 and what did this mark beginning of?	
2. Explain 2 outcomes of the Helsinki conference	
3. Why was Salt II never fully implemented?	
4. Why did the USSR invade Afghanistan in December 1979?	
5. How did the invasion contribute to the end of détente?	
6. Why did the USA boycott the 1980 Olympics in Moscow?	
7. What was the Reagan Doctrine?	

Question	Answer
8. Why does Reagan describe the USSR as an evil Empire?	
9. What is SDI (1985)?	
10. How did the Geneva Summit help improve relations between Reagan and Gorbachev?	
11. What was agreed at the Washington Summit December 1987?	
12. Explain the importance of Gorbachev’s decision to withdraw Soviet troops from Afghanistan in 1988.	
13. What major events in Eastern Europe during 1989 weakened the Soviet control?	
14. Why was the fall of the Berlin wall so significant?	
15. How did events between 1989 and 1991 lead to the collapse of the Soviet Union?	

YEAR 11 - UNIT 1

GRADIENTS & LINES

Sparx Codes: U315, U377, U477,

U669, U741, U848, U898

What do I need to be able to do?

- Find the equation of a straight line (from a graph, from one point & the gradient, and from two points)
- Decide whether a point is on a line
- Recognise & find equations for perpendicular lines
- Solve simultaneous equations graphically

Keywords

- Parallel** - parallel lines have the same gradient, so they never meet
- Perpendicular** - perpendicular lines meet at 90°
- Gradient** - how steep a line is (change in y + change in x)
- y-intercept** - where a line crosses the y -axis
- Simultaneous equations** - equations where the variables have the same values
- Reciprocal** - one over (divided by) a given number

Lines parallel to the axis

- A is parallel to the x -axis.
 - B and C are parallel to the y -axis.
- 
- $y = 3$ is parallel to the x -axis.
 $x = -2$ is parallel to the y -axis.

Plot straight line graphs

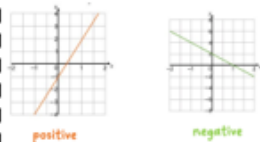
- Complete the table for $y = 3x + 2$.
- | x | -2 | -1 | 0 | 1 | 2 |
|---|----|----|---|---|---|
| y | -4 | -1 | 2 | 5 | 8 |
- $3 \times -2 + 2 = -6 + 2 = -4$
 $3 \times -1 + 2 = -3 + 2 = -1$
 $3 \times 0 + 2 = 0 + 2 = 2$
 $3 \times 1 + 2 = 3 + 2 = 5$

Interpret $y = mx + c$

- $y = mx + c$
- m = gradient (change in y + change in x)
 - c = y -intercept (where the line crosses the y axis)
 - Parallel lines have the same gradient (m)
- $y = 3x$ $y = 3x + 1$
 $y = 3x + 2$ $y = 3x + 5$

Equation of a line from a graph

- A graph with a positive gradient moves upwards as it moves right.
- A graph with a negative gradient moves downwards as it moves right.



Equation of a straight line from points

- Gradient = $\frac{dy}{dx} = \frac{31 - 5}{3 - 0} = \frac{26}{3} = 8\frac{2}{3}$
- y -intercept = 5 (from the graph)
- So, our equation is $y = 2x + 5$

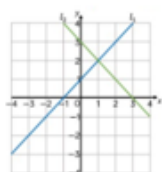


Determine if a point is on a line

- We can use substitution to see whether a point is on a given line.
- Is (2, 7) on the line $y = 3x + 1$?
- $x = 2$ $y = 7$
- $y = 3x + 1$
 $7 = 3 \times 2 + 1$
 $7 = 6 + 1$
 $7 = 7 \rightarrow$ This is true, so (2, 7) is on the line!

Solving simultaneous equations graphically

- The lines l_1 and l_2 are shown on a graph.
- They cross at the point (1, 2).
- Therefore the equations for lines l_1 and l_2 have a solution $x = 1, y = 2$.



Unit 1 – Gradients & Lines

- What does the gradient tell you?
- What is the y -intercept?
- What does m represent in $y = mx + c$?
- What does c represent in $y = mx + c$?
- What indicates a positive gradient?
- What indicates a negative gradient?
- Gradient between (1,2) and (3,8)?
- How do you check if a point lies on a line?
- Give a line parallel to x -axis?
- Give a line parallel to y -axis?
- Parallel lines have what in common?
- Perpendicular gradients relationship?
- How do you find the equation from graph?
- What does the solution of simultaneous equation graphs represent?
- How do you find an equation from two points?

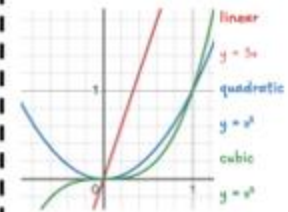
YEAR 11 - UNIT 2

NON-LINEAR GRAPHS

Sparx Codes: U667, U989, U980, U593, U601, U229, U567

What do I need to be able to do?

- Recognise, sketch, and interpret graphs of **linear**, **quadratic**, **cubic**, **reciprocal**, and **exponential** functions
- Plot graphs using a table of values
- Find approximate solutions using a graph
- Identify and interpret roots and intercepts of quadratic functions graphically
- Recognise and use the equation of a circle with centre (0, 0)
- Draw a tangent to a given curve
- Find the gradient of a given tangent line



Keywords

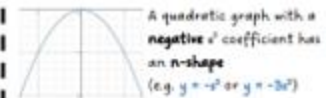
- Quadratic graph** - a graph involving x^2 (U or n-shaped curve)
- Cubic graph** - a graph involving x^3
- Reciprocal graph** - a graph involving x in the denominator (e.g. $y = 1/x$ or $y = 5/x$)
- Asymptote** - a line that is approached, but never met, by a curve
- Exponential graph** - a graph involving a power of x , which increase rapidly (e.g. $y = 3^x$ or $y = -2^x$)
- Pythagoras' theorem** - a rule used to work out missing lengths in right-angle triangles ($a^2 + b^2 = c^2$)
- Tangent** - a straight line that meets a curve at exactly one point (but doesn't cross it)

Plot and read from quadratic graphs

A quadratic graph with a **positive** x^2 coefficient has a **U-shape** (e.g. $y = x^2$ or $y = 3x^2$)



A quadratic graph with a **negative** x^2 coefficient has an **n-shape** (e.g. $y = -x^2$ or $y = -3x^2$)



Plot and read from cubic graphs

Cubic graphs can vary in appearance. Some have two turning points, some have none. All cubic graphs tend towards $\pm\infty$ on the y-axis.



Just like other equations, we can use substitution to produce a table of values for cubic graphs.

$x = x^3$	1	-1	2	-2	3	-3
	1	-1	8	-8	27	-27

Plot and read from reciprocal graphs

Reciprocal equations involve dividing by x . They never cross the x -axis or y -axis. This means the axes are **asymptotes** - lines that are approached, but never crossed.



$$y = 1/x$$

$$y = -1/x$$

$$y = 7/x$$

Recognise graph shapes

We can identify the type of graph by looking for key features.

linear - straight lines
quadratic - U or n-shape curves
cubic - 0 or 2 turning points
 tend to $\pm\infty$

reciprocal - axes are both asymptotes (don't cross them)

exponential - rapidly gets steeper (increasing gradient)

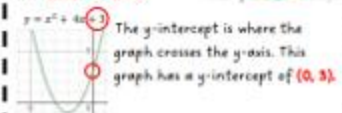


Identify and interpret roots and intercepts of quadratics

A **root** is where the graph crossed the x -axis. Quadratics can cross the x -axis 0, 1, or 2 times. This graph has roots $x = 1$ and $x = 5$.



$y = x^2 + 6x - 7$
 The y -intercept is where the graph crosses the y -axis. This graph has a y -intercept of (0, -7).



Unit 2 – Non-Linear Graphs

1. Shape of quadratic graph?
2. Shape of cubic graph?
3. What is a reciprocal graph?
4. What is an asymptote?
5. Why do graphs not cross asymptotes?
6. What happens in exponential growth?
7. What is a root?
8. What is a y-intercept?
9. How many roots can a quadratic have?
10. Purpose of table of values?
11. How do you identify graph types?
12. What is estimating a solution?
13. Asymptotes of $y = 1/x$?
14. Roots are linked to which axis?
15. Linear vs quadratic differences?

YEAR 11 - UNIT 3

USING GRAPHS

Sparx Codes: U638, U462, U403, U914,
U562, U937, U611, U238, U601, U836, U882

What do I need to be able to do?

- Plot and interpret graphs of non-standard functions in real contexts e.g. kinematic problems involving distance, speed, and acceleration
- Apply the concepts of instantaneous and average rate of change
- Calculate and interpret gradients and areas under graphs

Keywords

- Direct proportion** - as one quantity increases, the other quantity increases (proportionally)
- Inverse proportion** - as one quantity increases, the other quantity decreases (proportionally)
- Gradient** - how steep a line is (change in y ÷ change in x)
- Distance** - the length of a path travelled (typically measured in metres, kilometres, or miles)
- Speed** - the rate at which an object travels distance (typically measured in m/s or mph)
- Acceleration** - the rate at which an object changes speed (typically measures in m/s^2)
- Trapezium** - a quadrilateral with at least one pair of parallel sides

Reflect shapes in given lines

Horizontal lines: $y = 3$ $y = -2$ $y = 0.5$

Vertical lines: $x = 6$ $x = -1$ $x = -2.3$

Diagonal lines: $y = 3x - 1$ $y = -2x + 7$

When a shape is reflected, the new shape will always be the same distance from the mirror line as the original.

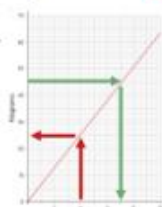


Construct and interpret conversion graphs

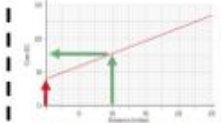
We can use a conversion graph to easily convert from one unit into another.

45kg = 7 stone

4 stone = 25kg



Construct and interpret other real-world straight line graphs



A journey of 10 miles would cost around £5.50.

The minimum cost of a journey is £8.

Construct and interpret distance/time graphs

- A horizontal line represents **no movement**
- The **gradient** represents **speed** (straight lines indicate a constant speed)
- A positive gradient indicates movement away from the starting point
- A negative gradient indicates movement towards the starting point

Construct and interpret speed/time graphs

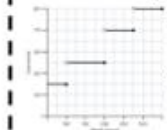
Speed/time graphs look very similar to distance/time graphs - read the axis labels carefully!

- A horizontal line represents a **constant speed**
- The **gradient** represents **acceleration**



Construct and interpret piece-wise graphs

Piece-wise graphs have different rules for different values. This graph shows the cost to post a letter based on its weight.



- indicates the value is included
- indicates the value is not included

Recognise and interpret graphs that illustrate direct and inverse proportion

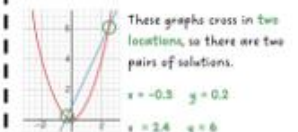
Direct proportion is represented by graphs that pass through the origin (0, 0). They are always of the form $y = kx$



Inverse proportion is represented by a reciprocal graph in the first quadrant. They never touch either axis.

Find approximate solutions to equations using graphs

When looking for the solutions to a pair of simultaneous equations, we can look for where the lines cross over.



Unit 3 – Using Graphs

1. What can graphs show?
2. What is a coordinate?
3. How do you plot a point?
4. What does the x-axis show?
5. What does the y-axis show?
6. What is an intercept?
7. What is Discrete data?
8. What is Continuous data?
9. Why do scales matter?
10. What is an increasing graph?
11. What is a decreasing graph?
12. How do you estimate from a graph?
13. What checks should you do before interpreting a graph?
14. How can you compare values?
15. Give one real-life graph use?

YEAR 11 - UNIT 4

EXPANDING & FACTORISING

Sparx Codes: U179, U768, U606,
U365, U178, U228, U960, U963, U665

What do I need to be able to do?

- Recognise equations and identities
- Use a variety of methods to factorise quadratic expressions and solve quadratic equations
- Use algebra to construct arguments and proofs
- Solve simultaneous equations graphically

Keywords

- Factorise** - taking the highest common factor of all terms outside of a bracket
- Expand** - multiply a bracket by the term outside the bracket
- Expression** - a combination of numbers and variables with **no** equals sign (or inequality symbol)
- Equation** - a combination of numbers and variables with an equals sign
- Identity** - an equation that is true for all possible values of each variable
- Quadratic** - involving x^2 (and no higher powers of x)

Expand and factorise with a single bracket

We can expand brackets by multiplying **each term** inside the bracket by the term outside

$$5(x+2) = 5x + 10$$

We can factorise by dividing by the highest common factor of the terms in the brackets.

$$9 - 6x = 3(3 - 2x)$$

Expand binomials

There are a variety of models we can use to expand multiple brackets.

$$(2 + x)(3 + x) = 6 + 5x + x^2$$

Multiplication grid

$$(3 + x)(1 + x) = 3 + 4x + x^2$$

Algebra tiles

$$(x + 5)(x - 3) = x^2 + 2x - 15$$

FOIL

$$(2 + x)(3 + x)$$

$$(3 + x)(1 + x)$$

$$\begin{aligned} \text{First: } x \times x &= x^2 \\ \text{Outer: } x \times -3 &= -3x \\ \text{Inner: } 5 \times x &= 5x \\ \text{Last: } 5 \times -3 &= -15 \end{aligned}$$

Factorise quadratic expressions

When factorising a simple quadratic expression, we look for a pair of numbers that **add to the x coefficient**, and **multiply to the number term**.

$$x^2 + 9x + 14$$

7 and 2 add to 9 7 and 2 multiply to 14

$$x^2 + 9x + 14 = (x + 7)(x + 2)$$

We can also use algebra tiles to factorise.

$$x^2 + 9x + 14$$

Solve equations equal to 0

To solve an equation, we rearrange to get the variable by itself e.g. $x = 15$. We use **inverse operations** to achieve this.

Dexter and Amir are solving $1 - 3x = 0$

$$\begin{aligned} \text{Dexter's method} \\ 1 - 3x &= 0 \\ \text{So } 3x &= 1 \\ x &= \frac{1}{3} \end{aligned}$$

$$\begin{aligned} \text{Amir's method} \\ 1 - 3x &= 0 \\ 1 &= 3x \\ \frac{1}{3} &= x \end{aligned}$$

Solve quadratic equations by factorisation

Once a quadratic equation has been factorised, we solve by making each bracket equal 0.

$$x^2 + 9x + 14 = 0$$

$$(x + 7)(x + 2) = 0$$

$$x = -7 \text{ or } x = -2$$

$$x^2 + 7x - 18 = 0$$

$$(x + 9)(x - 2) = 0$$

$$x = -9 \text{ or } x = 2$$

The solutions are also the negative of the bracketed number.

Unit 4 – Expanding and Factorising

1. What is factorising?
2. What is expanding?
3. What is an expression?
4. What is an equation?
5. What is an identity?
6. What is a quadratic expression?
7. Expand $3(x+4)$.
8. Expand $2(x+5)$.
9. Factorise $x+xy$.
10. Factorise $4x+8$.
11. Factorise x^2+3x .
12. Why do we factorise?
13. Solve $x(x+2)=0$.
14. What is Highest common factor?
15. How do you solve factorised quadratic?

YEAR 11 - UNIT 5

CHANGING THE SUBJECT

Sparx Codes: U237, U759, U556,
U413, U573, U434, U779, U168

What do I need to be able to do?

- Recognise equations and identities
- Solve linear equations and inequalities
- Use algebra to construct arguments and proofs
- Form, solve, and interpret equations from real-world situations
- Find approximate solutions to equations using iteration
- Use inverse operations to change the subject of a formula

The **subject** is bold in each formula

$$F = ma$$

$$a^2 + b^2 = c^2$$

$$V = \pi r^2 h$$

Keywords

Solve - rearrange an equation or inequality to get the variable by itself (find its value)

Equation - a combination of numbers and variables containing an equals sign

Inequality - a combination of numbers and variables containing an inequality sign ($<$, $>$, $\leq$ or $\geq$)

Formula - a rule that uses mathematical symbols to show how quantities are related

Subject - the variable from a formula that is being worked out (generally by itself in the formula)

Rearrange - using inverse operations to change the way an equation, inequality, or formula looks

Iteration - a repeated calculation, where the output is used in the next calculation

Solve linear equations

To solve an equation, we rearrange to get the variable by itself e.g. $x = 75$. We use inverse **operations** to achieve this.

$$\begin{array}{l} 2x + 3 = 13 \\ 2x = 10 \\ x = 5 \end{array} \begin{array}{l} > -3 \\ > -10 \\ > -10 \end{array}$$

$$\begin{array}{l} x/4 - 1 = 2 \\ x/4 = 3 \\ x = 12 \end{array} \begin{array}{l} > +1 \\ > +4 \\ > +4 \end{array}$$

Solve inequalities

We can solve inequalities using the same methods we use for equations. The only exception is that multiplying/dividing by a negative number changes the inequality sign.

$$\begin{array}{l} 4x + 3 > 7 \\ 4x > 4 \\ x > 1 \end{array} \begin{array}{l} > -3 \\ > -3 \\ > -3 \end{array}$$

We can also represent the solution to an inequality on a number line.



Form and solve equations and inequalities in the context of shape

The perimeter of the rectangle is greater than the perimeter of the triangle. Find the smallest possible integer value of a .



$$\begin{array}{l} 2(a+4) + 2(2a-1) > 2(a+5) + 2a \\ 2a + 8 + 4a - 2 > 2a + 10 + 2a \\ 6a + 6 > 4a + 11 \\ 2a > 5 \\ a > 2.5 \end{array}$$

So the smallest possible integer value of a is 3!

Change the subject of a simple formula

We can rearrange a formula using inverse operations, just like solving an equation. The goal is to get the desired subject by itself in the formula.

Make **a** the subject: Make **c** the subject:

$$\begin{array}{l} F = ma \\ F/m = a \\ a = F/m \end{array} \begin{array}{l} y = mx + c \\ y - mx = c \\ c = y - mx \end{array}$$

Change the subject of a known formula

Make **r** the subject of the formula:

$$\begin{array}{l} A = \pi r^2 \\ A = \pi r^2 \\ \sqrt{A} = \sqrt{\pi} r \\ r = \sqrt{A} / \sqrt{\pi} \end{array} \begin{array}{l} > +\pi \\ > +\pi \\ > +\pi \\ > +\pi \end{array}$$

Change the subject of a complex formula

Make **a** the subject of the formula:

$$\begin{array}{l} A = \left(\frac{\sqrt{x-b}}{3} \right)^2 \\ \sqrt{A} = \frac{\sqrt{x-b}}{3} \\ 3\sqrt{A} = \sqrt{x-b} \\ 3\sqrt{A} + b = x \\ (3\sqrt{A} + b)^2 = x \\ x = (3\sqrt{A} + b)^2 \end{array} \begin{array}{l} > \sqrt{} \\ > \sqrt{} \\ > \sqrt{} \\ > \sqrt{} \\ > \sqrt{} \end{array}$$

Unit 5 – Changing the Subject

1. What is the subject of formula?
2. What is rearranging formula?
3. What are Inverse operations?
4. Solve $x+4=10$.
5. Solve $3x=21$.
6. What is an inequality?
7. How do you solve inequalities?
8. When should you reverse an inequality?
9. Make x subject of $y=x+5$.
10. Make x subject of $y=2x$.
11. Make x subject of $y=3x+4$.
12. What is Iteration?
13. What is a Formula?
14. Why might we change the subject?
15. What is the meaning of rearrange?

YEAR 11 - UNIT 6

FUNCTIONS

Sparx Codes: M428, U637, U448, U895, U996, U989, U133, U450

What do I need to be able to do?

- Interpret expressions as functions
- Interpret the reverse process as the inverse function and the succession of two functions as the composite function
- Solve simultaneous equations graphically
- Identify and interpret roots and turning points
- Solve and represent linear and quadratic inequalities
- Recognise, sketch, and interpret graphs of quadratic functions

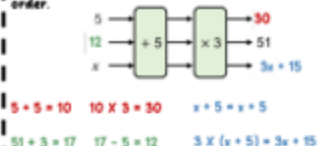
$f(x) \rightarrow$ a function of x
 $g(x) \rightarrow$ a different function of x

Keywords

- Function** - a relationship between an input and an output
- Inverse operation** - the opposite operation (should cancel each other out)
- Composite function** - a function made out of other functions
- Inverse function** - the opposite function (undoes the action of the original function)
- Root** - where a function equals zero
- Turning point** - a point at which a curve changes direction e.g. from having a negative gradient to having a positive gradient

Use function machines

We can substitute an input or an output into a function machine. If we substitute an output, we need to use the **inverse operations** in the **opposite order**.



Substitution into expressions and formulae

Substitution involves replacing a variable (letter) with a given value.

Substitute $a = 3$ into each expression below.

$$5a = 5 \times 3 = 15$$

$$(a - 5)^2 = (3 - 5)^2 = (-2)^2 = 4$$

$$a^3 - 2a + 4 = 3^3 - 2 \times 3 + 4 = 9 - 6 + 4 = 7$$

Use function notation

Given that $f(x) = 3x + 1$:

calculate $f(2)$: $3 \times 2 + 1 = 6 + 1 = 7$

calculate $f(-0.5)$: $3 \times -0.5 + 1 = -1.5 + 1 = -0.5$

solve $f(x) = 16$:

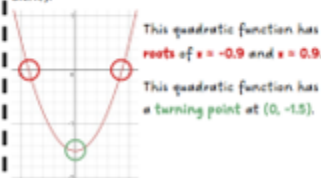
$$3x + 1 = 16$$

$$3x = 15$$

$$x = 5$$

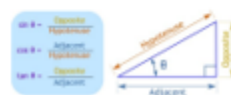
Graphs of quadratic functions

Quadratic graphs always have a U shape (positive x^2 coefficient) or n shape (negative x^2 coefficient).



Understand and use trigonometric functions

Sine, cosine, and tangent are trigonometric ratios. We can use them to find a missing side, if we know one side and one angle. We can use them to find a missing angle, if we know two sides.



Unit 6 – Functions

- What is a function?
- What is an input?
- What is an output?
- $f(x) = x + 3$, find $f(2)$.
- $f(x) = 2x$, find $f(4)$.
- What is function notation?
- What is a mapping diagram?
- Can one input have two outputs?
- Find $f(5)$ if $f(x) = x - 1$.
- Find $f(3)$ if $f(x) = 3x$.
- What is an Inverse function?
- Why do we use functions?
- What is a composite function?
- What is substitution in functions?
- Example function rule?

Foundation Tier Formulae Sheet

Perimeter, area and volume

Where a and b are the lengths of the parallel sides and h is their perpendicular separation:

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

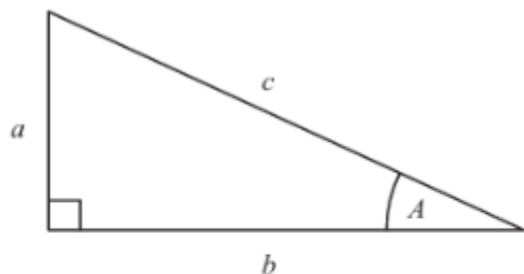
Volume of a prism = area of cross section $\times$ length

Where r is the radius and d is the diameter:

$$\text{Circumference of a circle} = 2\pi r = \pi d$$

$$\text{Area of a circle} = \pi r^2$$

Pythagoras' Theorem and Trigonometry



In any right-angled triangle where a , b and c are the length of the sides and c is the hypotenuse:

$$a^2 + b^2 = c^2$$

In any right-angled triangle ABC where a , b and c are the length of the sides and c is the hypotenuse:

$$\sin A = \frac{a}{c} \quad \cos A = \frac{b}{c} \quad \tan A = \frac{a}{b}$$

Compound Interest

Where P is the principal amount, r is the interest rate over a given period and n is number of times that the interest is compounded:

$$\text{Total accrued} = P \left(1 + \frac{r}{100} \right)^n$$

Probability

Where $P(A)$ is the probability of outcome A and $P(B)$ is the probability of outcome B :

$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$

GCSE Formula Sheet

1. Area of trapezium sides 8 cm and 14 cm, height 5cm.
2. Area of circle radius 6 cm.
3. Circumference diameter 12 cm.
4. Circumference radius 9 cm.
5. Prism cross-sectional area 15 cm^2 , length 8 cm. Volume?
6. Prism volume 180 cm^3 , length 12 cm. Cross-sectional area?
7. Right triangle $a=6, b=8$. Find c .
8. Right triangle $c=13, a=5$. Find b .
9. Find $\sin A$ if opposite=7, hypotenuse=25.
10. Find $\cos A$ if adjacent=12, hypotenuse=13.
11. Find $\tan A$ if opposite=9, adjacent=12.
12. Find angle A if $\sin A = 3/5$.
13. £1500 at 3% compound interest for 4 years.
14. $P(A)=0.4, P(B)=0.5, P(A \cap B)=0.15$. Find $P(A \text{ or } B)$.
15. When is $P(A \text{ or } B) = P(A) + P(B) - P(A \cap B)$ used?

Origins and Meaning Key terms

Key concept	Meaning	
Creation ex nihilo	A Latin phrase meaning creation "out of nothing" . For Christians this is the idea that the universe was created by God from nothing.	
Evolution	The process of mutation and natural selection which leads to changes in species over time to suit particular environments.	
Imago Dei	Translated from Latin as 'the image of God' . Humans are created in the image of God.	
Inspiration	God breathed . The belief that the spirit of God guides an individual to act or write what is good and true.	
Omnipotence	The idea that God is all-powerful .	
Revelation	The word used to describe all of the ways in which God makes himself known to human beings . Christians believe that God does this finally and fully in the person of Jesus Christ .	
Stewardship	The duty to care for creation responsibly , as stewards rather than consumers , and to protect it for future generations.	
Transcendence	Existing outside of space and time; God exists in a way that makes him nothing like anything that exists, above and beyond creation	

Catholic and Fundamental Christian views on the Origins (creation) of the world

- Catholics believe that God created the world from nothing - 'ex nihilo' – this teaching comes from St Augustine in his book 'The Confessions'.
- Catholic Church leaders state that the **Genesis accounts** of creation should be interpreted as **symbolic stories** and they **should not be read literally**. They convey messages, for example:
- Genesis 1 teaches Catholics:** The world has a beginning. God is the creator of the universe '*God created the heavens and the earth*' This shows that God is **transcendent and omnipotent**. It does not mean God created the world in exactly 6 days. Each day could be 1 billion years. God created the world for a purpose.
- Genesis 2 teaches Catholics** that humans have a duty to be **good stewards**. Humans must look after the universe as **God gave Adam and Eve dominion** (see below box on stewardship). Humans were created last and are the pinnacle of God's creation, giving them **special dignity**.
- Pope John Paul II** said that Catholics do not have to read Genesis literally. Instead, Catholics should read the story as a myth that teaches important things about God. Pope John Paul also there is no conflict between evolution and religion.
- Catholics will accept scientific views on evolution and the Big Bang.**
- Fundamentalist Christians** read the Bible literally. They believe the Bible is 100% correct and should be taken literally, word for word.
- Fundamental Christians** do not accept that there are different literary forms (styles of writing) in the Bible that should be understood differently, they should all be taken as God's word and as fact. e.g. Stories of Origin like Genesis should be read as History or Science, instead of stories with a meaning.

Scientific views on the origins of the world

Stephen Hawking and Richard Dawkins are atheist (do not believe in God). They believe there is no need for God to explain the origins of the world. They argue that the theory of the Big Bang Theory fully explains the origins (creation) of the world and Charles Darwin's theory of evolution fully explains human life and how we have evolved.

The structure of the Bible and the different literary forms (styles of writing) in the Bible

The Bible is split into two parts, the Old and New Testament. The Old Testament, is known as the Hebrew Bible, is a collection of books that lays out the history, laws, prophecies, and poetry of the Jewish people. On the other hand, the **New Testament focuses on the life, teachings, death, and resurrection of Jesus Christ**. There are many different styles of writing in the Bible:

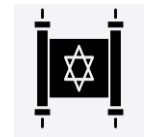
Stories of Origin e.g. Genesis **History** e.g. Kings, **Law** e.g. Exodus, **Prophecy** e.g. Jeremiah,
Wisdom e.g. Proverbs, **Gospels** e.g. Matthew, **Apocalyptic** e.g. revelation
Letters e.g. of Paul

Catholics believe the Bible is the 'inspired' word of God. God inspired the writers of the Bible. The Bible is a form of **revelation**; it reveals what God is like. Catholics believe that some of the stories in the Bible are metaphorical for example Genesis.

Stewardship

- Stewardship is the belief that humans have a duty to protect and preserve the environment for **future generations**.
- Catholics** believe they have a duty to care for the planet and look after the world for future generations. This is based on the teachings of Genesis that say humans should 'rule over the land and animals.'
- Catholic teachings are inspired by Pope Francis and Laudato Si – an encyclical (letter) aimed at everyone on the planet telling them to protect the earth.
- Humanists** like Peter Singer also think we should be stewards. We all are responsible, not just religious people. We need to recycle and reuse where possible to ensure a good quality of life for future generations.
- Jewish people** also believe we have a responsibility to be stewards. This teaching comes from Genesis in the Torah (Jewish written law).
- The **mitzvot (actions to perform or avoid)** outline being stewards – Genesis gives dominion over the land to the Jewish people.

Origins and Meaning Part 1/2



Christian and Jewish views on Abortion + Sanctity of Life

- Catholics believe all abortion is wrong. Life begins at the moment of conception so to remove the foetus before it can survive is murder. They believe in the sanctity of life (life is holy and belongs to God)
- God gave life and only God can take it away. This is because of the belief in 'imago dei'. The belief that humans are made in the image of God.
- The Bible teaches that they should not end life "Do not kill"
- Catholics** believe that **adoption is an alternative** to abortion that should be carried out.
- Other Christians generally agree with Catholics, but some take a **relative approach** (consider the circumstances). For example, Church of England Christians accept abortion in some situations – they argue for mother's rights and believe it should be allowed in some scenarios based on Jesus' teaching 'Love your neighbour'.
- Orthodox Jews** will reject abortion as it goes against the 10 commandments, 'Do not kill'. However, if the mother's life is at risk, based on Pikuach Nefesh they will break the mitzvot to save a life.

Humanist views on Quality of Life of life and abortion

Peter Singer is a humanist. He argues that it is wrong to put human beings above other animals, or to think of humans as somehow unique. He rejects Sanctity of Life (humans being made in the image of God). Singer argues that quality of life is more important. This is the idea life must have some value to be worth living. He refers to 'non-human persons' as people with a low quality of life.

Catherine of Siena: Sanctity of life

St Catherine, believes all humans were created in the image of God – imago dei. Humans are placed above all creatures. They are the pinnacle of creation. "Man is placed above all creatures" Humans reflect God. We are a mirror image of God.

Exam 1 (FCT)

Ai) Origins and meaning

1. Define imago dei
2. Define revelation
3. Define inspiration
4. What are Catholic beliefs about the origin of the universe?
5. What are Fundamentalist Christian views on the origin of the universe?
6. What are non-religious views on the creation of the universe?
7. Define stewardship
8. What does Genesis teach about stewardship?
9. What are Jewish beliefs about stewardship?
10. What are 2 Catholic teachings on the sanctity of life and how do they link to abortion?
11. What do the Church of England teach about abortion?
12. What do Orthodox Jews believe about abortion?
13. What does St Catherine of Siena teach about sanctity of life?
14. What are Peter Singer's views on the sanctity of life?
15. Describe three different literary forms used in the Bible

Catholic Charities are inspired to help others through teachings such as 'love thy neighbour', imago dei and the 'Golden Rule'.

CAFOD: CAFOD helps those in need by providing long term aid. For example, through development programmes such as schools, hospitals, education and jobs. They also offer short term aid. E.g. Emergency and disaster relief such as Food, water, medicine and shelter. CAFOD also help those in need by raising awareness of poverty. They use social media, the CAFOD website as well as posters and leaflets in churches and schools. CAFOD help those in need through education and fundraising.

SVP: The St Vincent de Paul Society (SVP) is a Catholic charity whose mission is to uphold human dignity and show love of neighbour. The charity is based on the Jesus' parable of the sheep and goats. The SVP feed the hungry through food banks, soup kitchens and raising money in Catholic churches and schools. The charity welcomes the stranger by offering shelter for the homeless, visiting those who may be lonely and providing holiday camps for families that are in need. The SVP work in the UK and abroad to provide doctors to care for the sick in the poorest parts of the world. They also have volunteers who visit the sick and elderly.

The Tree of Life- A Catholic church mosaic, symbolising God's connection with humanity.

The hand of God represents God reaching out to his son Jesus and taking him to heaven. Following Jesus' death on the cross it is believed that Jesus rose again. The hand shows God's power to overcome death.

Twelve of the lambs represent the twelve disciples who were given the task of passing on Jesus' message. The lamb in the centre with a halo represents Jesus who is known as the Lamb of God. It links back to the Passover story in the book of Exodus. Jesus will be sacrificed to save the world like the lambs were sacrificed to save the Jewish slaves. Alpha and Omega symbolise Christ is the beginning and end.

The tree and vines are symbolic of how the message of Christianity will grow and spread throughout the world. The tree is the tree of life and vines/branches will grow as the Jesus' message is passed on.

The cross represents the belief that Jesus was a sacrifice and he died on behalf of humanity. The dead snake/serpent shows Jesus' victory over death.

Catholic Social Teaching

- Catholic Social Teaching is the official teachings of the Catholic Church on matters of social justice.
- Catholics believe that all humans were created in the image and likeness of God. This teaching comes from the book of Genesis and is called the Imago Dei.
- Catholics Social Teaching is focused on people being treated fairly. The Church produced a document in the 1960's called Gaudium et spes which teaches about treating people fairly and with dignity.
- Catholic Social Teaching focuses on areas such as human dignity, equal rights and care for creation. This shows that Catholics have a responsibility to show "love of neighbour".
- It teaches about care for creation which is linked to stewardship and the teachings of Genesis that we must look after the planet and hand more on to the next generation.

Interfaith dialogue: People of different faiths working together and listening to one another, engaging in **conversation** about what they have in common.

It is important because:

- Jesus washed the feet of his disciples, including Judas, to give us an example of how we should lovingly serve others, no matter who. - promotes mutual understanding and respect between faiths
- Helps you to appreciate your own faith
- Jesus taught us that the greatest person is the one who "is servant to all". This includes people of other faiths.
- Helps community cohesion: a society where people respect each other is a united and peaceful society

Origins and Meaning Part 2/2



Laudato Si – Pope Francis wrote a letter called 'Laudato Si' which means 'Care for our Common Home' it states all humans have a responsibility to care for the environment.

Gaudium et Spes – A document put together at Vatican II which teaches that all humans should be treated with dignity



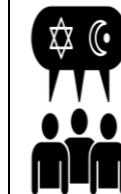
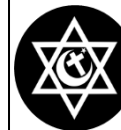
Michelangelo's Creation of Adam

God looks strong and powerful, and his grey beard and hair suggest age/wisdom. This is to show him as omnipotent and omniscient.

God is flying through the heavens and surrounded by a swirling crowd of angels. This also highlights that God is transcendent – above and beyond The fingers about to touch represent the spark of life – this links to sanctity of life. Life is sacred and belongs to God.

Adam is young and naked which shows the parent like relationship between God and humans. God and Adam mirror one another in the picture which shows that humans are created in God's image (imago dei). Arms and shoulders are identical.

Adam is on the earth which links to stewardship – humans were created to protect and preserve the environment.



Multifaith Britain

The UK is a culturally and religiously **pluralistic society**. This means it has many different cultures and religions. The UK encourages all people to practice their religion and culture freely.

Benefits of pluralism:

- Culturally enriching for the UK, as different food, music, fashions are introduced
- Makes the UK more tolerant and globally aware, as people encounter other races, religions and cultures.
- Immigrants are often highly motivated to make a success of their lives: they work hard and contribute to the economy and to society. Improves business opportunities with these countries.

Exam 1 (FCT)

Aii) Origins and meaning

1. Name one Catholic charity and describe one way that the charity shows love of neighbour.
2. Name a second Catholic charity and describe one way that the charity shows love of neighbour.
3. What is Laudato Si and what does it teach?
4. What is the Tree of Life mosaic and what do the twelve lambs represent on it?
5. What does the 'tree and vine' and 'alpha and omega' symbolise on the Tree of Life Mosaic?
6. What is Michelangelo's, 'Creation of Adam'? Describe one thing it teaches about God's nature
7. What does the 'Creation of Adam' teach about the sanctity of life?
8. What is Catholic Social Teaching and how does it link to imago dei?
9. How does Catholic social teaching links to the Catholic teaching of 'love thy neighbour' ?
10. How does Catholic social teaching link to stewardship
11. What is Gaudium et Spes and how does it link to imago dei?
12. What is interfaith dialogue and what it the role of the Catholic Church in interfaith dialogue?
13. What is one teaching of Jesus that can be used to describe Catholic views on interfaith dialogue?
14. What is meant by a multifaith society?
15. What are two benefits of living in a multifaith society?

Good and Evil Key terms

Key concept	Meaning	Image
Conscience	An inner feeling of right and wrong that comes from God.	
Evil	The absence of good which often results in suffering.	
Free Will	The ability to choose right from wrong freely and without being controlled.	
Goodness	The quality of being like God; putting the needs of others first.	
Incarnation	Meaning 'made flesh'. The Christian belief that God became man in the person of Jesus.	
Natural Law	The belief that there are universal laws of what is right and what is wrong.	
Privation	The absence of a quality that is normally present. St Augustine said that evil is a privation of good.	
Suffering	Pain or loss which harms human beings.	

Ambivalence Having mixed feelings towards something. Catholics have an ambivalence towards suffering.

- Other positive Christian and Jewish beliefs about evil and suffering
- John Hick says that God created the world with evil and suffering on purpose in order to help people **grow and develop**. This is called **soul making**. Evil and suffering is part of God's plan.
 - Jews believe God created everyone with free will and the ability to choose right and wrong. Jewish people argue that suffering is caused by their **failure to follow the commandments and mitzvot**. The commandments and mitzvot are part of the covenant between God and the Jewish people. If they follow the laws of the Torah, then they will avoid suffering. Jews believe in **Pikuach Nefesh** which means certain laws can be broken in order to save lives. This teaching comes from the Torah and Talmud.

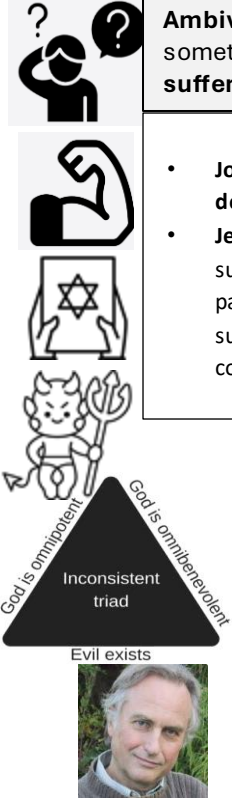
- Atheist views on evil and suffering: The challenge (problem) of evil and suffering
- God is meant to be **all-powerful, all knowing and all loving**. Surely if God had all these abilities, he would and could prevent all evil.
 - John Mackie argues that the existence of evil proves that God is not powerful and loving. He calls this the **inconsistent triad**. The three ideas contradict each other, which proves God does not exist.
 - William Rowe and John Stuart Mill argue that the world is too unfair for there to be a God. They give examples of moral and natural evil that and question why God would allow this.
 - Richard Dawkins is an atheist. He argues that the world contains too much suffering for there to be a God. He uses the example of the digger wasp that lays its eggs in other insects which then hatch and kill the insect. Dawkins says a good God would not have created this.
 - John Stuart Mill said some suffering is unfair e.g. when innocent people suffer

Beliefs about statues

Catholic views: Catholics have **statues of Jesus to honour and preserve his memory**. It is also a place to focus on when praying so that the mind can truly connect with and focus on Jesus. Statues of Jesus also **remind Catholics of the suffering and sacrifice of Jesus**. Statues of the Virgin Mary and the Saints are used to **intercede on our behalf**.

Jewish views: Jewish people will not use statues or sculptures. The second commandment teaches **"You shall not worship idols"**. This shows that Jews must not make images of God, or they will be breaking his commandments. Jews believe that people will start to worship statue instead of focusing their worship on God. Jews are **monotheist** and this goes against the covenant with Abraham.

Michelangelo's Pieta statue: Michelangelo's Pieta is a statue that represents the suffering of Mary when Jesus died. It helps Catholics reflect on their own suffering. Mary's face shows her sadness and grief. This helps people relate to her suffering. Jesus is in Mary's arms showing that she has lost a child. Mary's hand is open showing that she accepts her suffering.



Natural evil:
Evil caused by nature.

Moral evil: Evil caused by humans.



Catholics beliefs about evil and suffering

Augustine's beliefs

- In his Enchiridion, St. Augustine defines evil as a privation of good, not as a substance or entity in itself.
- St Augustine** believes God created the world (ex nihilo). The world was perfect because God is perfect. This perfection was damaged by the actions of **Adam & Eve** who used their free will to cause evil. Humans fell from their state of perfection by **misusing their free will** and damaged their relationship with God.

Other Catholic teachings

- Evil helps us appreciate the good and leads to the greater good.
- Pope John Paul II** wrote a letter to all Catholics in the 1980's called **Salvifici Doloris** which means the **'beauty of suffering'**. Pope John Paul II argued that **love comes from suffering and evil**. Like Augustine, he said that **suffering leads people to respond with kindness**.
- Suffering inspires Catholics to work with charities like **CAFOD and the SVP**. **God will reward those that suffer**. This was shown through Jesus who suffered and died but three days later was resurrected.

Popular Piety:

Popular Piety is a non formal type of worship; it can involve 1) **Pilgrimage** or 2) **Rosary**.

1) Pilgrimage: A journey to a holy place. Can be alone, or with others. The time and effort involved, is already a kind of offering to God.

Lourdes: Lourdes is a pilgrimage destination in France where the Virgin Mary is said to have appeared to a girl named Bernadette. Catholics go on pilgrimage to Lourdes to **strengthen their faith in God**. They can do this by visiting areas such as the **Stations of the Cross** and the statue of the Virgin Mary. They can take part in processions with thousands of other pilgrims where they pray and sing hymns.

Visit Lourdes in the hope of **physical and emotional healing**.

Jewish Pilgrimage: Traditionally, Jews would go up to the temple in Jerusalem, at three specific times in the year: Sukkot, Passover and Shavuot

2) The Rosary: The Rosary is another example of popular piety - a type of informal prayer that many ordinary Christians pray in their own time. It involves repetition of the Hail Mary prayer. Although the Rosary is primarily addressed to Mary, it focusses on the life of Jesus. The events in his life to focus on are called **"mysteries"** and there are 4 altogether- glorious, sorrowful, joyful, and luminous. Each mystery has 5 events from the life of Jesus.

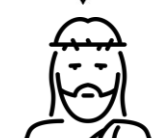
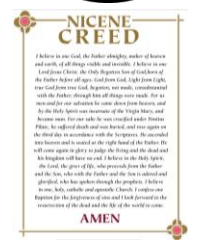
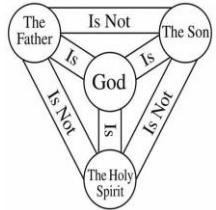
The sorrowful mysteries are: 1. **Agony in the Garden** of Gethsemane 2. **Scourging at the pillar** 3. **Crown of thorns** 4. **Carrying his cross** 5. **Crucifixion** and death on the cross. They help people reflect on their own suffering and how Jesus suffered.



Exam 1 (FCT)

Bi) Good and Evil

1. Define conscience
2. Define evil
3. Define suffering
4. What are St Augustine's teachings on the existence of evil and suffering?
5. What does Isaiah 53 teach Catholics about the purpose of suffering?
6. What does Salvifici Doloris teach Catholics about the purpose of suffering?
7. Describe John Hick's teachings on evil and suffering
8. What are Jewish beliefs about why evil and suffering exists in the world?
9. What is an atheist response to suffering?
10. Define popular piety and describe two forms of popular piety in Catholicism
11. What are two practices completed at Lourdes and how do they help those who are suffering?
12. Describe the sorrowful mysteries of the Rosary
13. Why are statues meaningful and significant in Catholic worship?
14. Which of the Ten Commandments teaches why statues should not be used in worship?
15. Describe two ways that Michelangelo's Pieta expresses beliefs about the meaning of human suffering



The Trinity

- The belief that God is one, but God exists as **three distinct persons, God the Father, God the Son and God the Holy Spirit**. It allows Christians to see the different ways God has made himself present in the world,
- The Bible includes direct references to the Trinity. For example, **Jesus's Baptism**: God the Son is baptised, God the Father's voice is **heard 'This is my Son, with whom I am well pleased'** and the God the Holy Spirit appears in the form of a dove.
- Augustine developed the idea of the Trinity for Catholics. **Augustine described God the Father as Love, God the Holy Spirit as Lover and God the Son as Beloved.**
- **The Nicene Creed** (statement of Christian beliefs) refers to God as Father, son and Holy Spirit. Shows God as an omnipotent creator and Jesus as the Incarnation.

Jewish people reject the belief in the Trinity. Jews are **monotheist, which** is the belief that God is one. This teaching comes from the **Shema** and the Torah: **"You shall have no other Gods before me"**. Jews do not accept that Jesus is the Son of God. The Jewish Messiah will be a human descendant of King David as foretold by the prophet Isaiah.



The Incarnation

- The Incarnation is the belief that **God became human in the person of Jesus**. It is significant for Roman Catholics because they believe that Jesus is both human and divine.
- **St Paul** taught Christians that God became human to be an example to others.
- Beliefs about the Incarnation come from the **Gospel of John**. The Gospel mentions how **Jesus is the 'Word of God'** that becomes human. John teaches. **"The word became flesh and made its dwelling amongst us"**.
- The incarnation is also referred to in the **Kenosis hymn**. **Kenosis** is a Greek word meaning empty and it shows how Jesus gave up his power to become human.
- **Jesus' divinity** is shown through miracles and his resurrection.
- **Jesus' humanity** is shown through suffering. **'My God, my God, why have you forsaken me'** on the cross.
- **Isaiah 53** is a part of the Old Testament that talks about a servant who suffers and is rejected but helps save others. Christians believe this servant is Jesus.

Jewish beliefs:

- Jewish people reject the belief in the Incarnation. Jews are **monotheist**, which is the belief that God is one. This is part of the **covenant God made with Abraham** and Jews should only worship one God. This teaching comes from the Shema and the Torah: **"You shall have no other Gods before me"**.
- Jews do not accept that Jesus is the Son of God. The **Jewish Messiah will be a human descendant of King David** as foretold by the prophet Isaiah.

Good and Evil Part 2/2

Moral Authority and Decision Making

Moral Authority= What / Who has authority to guide our decisions?

See below sources of moral authority:



Roman Catholics use the **Bible** as one source of **revelation**. The **Bible is the Word of God**, and the writers were inspired by the Holy Spirit. It reveals what God is like and teaches Catholics examples of how to live i.e. 'Do not kill'.

Jesus' example and the Sermon on the Mount

- Catholics and other Christians will follow the **teaching and example of Jesus**. For instance, Jesus gave the **'Beatitudes'**. **This was a speech** which outlined the different qualities that Jesus expected from his followers. For example, Jesus said **"Blessed are the merciful (forgiving)"**
- Jesus also gave the **Sermon on the Mount**. It was a **speech on a mountain** (hence the name!). This is a teaching found in the Gospel of Matthew where Jesus updates the Law of Moses. He tells his followers to not take revenge but **to turn the other cheek and love your enemies**.
- Jesus tells **Parables** such as the **Good Samaritan, the Lost Son**.
- Jesus treats women, the sick and outcasts in society equally which was not the norm at the time.

Natural Law

Catholics follow a universal moral law of right and wrong called **Natural Law**. It is a theory put forward by **St Thomas Aquinas**. Based on Natural Law, Catholics should try and follow **the 5 Primary Precepts** (Preservation of life, Orderly society. Worship one God. Education and Reproduction) This means that the law is always the same for all people.

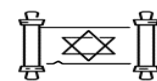
Conscience

Catholics are guided to follow this law by their **conscience**. The conscience is the God given inner feeling of right and wrong. It guides them on what to do and can make you feel guilty when you make incorrect decisions.

Jewish views: Jewish people use the **Torah** (written law of God). It contains the Ten Commandments e.g. **"Do not kill"** and **613 mitzvot** actions to perform / avoid. Jews use the **Talmud** which is the teaching of the rabbis. The Rabbis interpret the **613 mitzvot** as found in the Torah and give clear direction on how Jewish people should live their lives e.g. **Pikuach Nefesh**.

The role of suffering in the development of the virtues

Catholics believe there are **moral habits called virtues**, which support people to become more moral. Examples of virtues are **kindness, patience and self-control**. Suffering can help us grow in virtue: e.g. illness or poverty -> can bring out patience, perseverance, courage to face difficulties, even compassion towards others



Exam 1 (FCT)

Bii) Good and Evil

1. What is the Nicene Creed and what does it teach Catholics about the Trinity?
2. Describe what the Baptism of Jesus teaches Catholics about the Trinity
3. Which of the Ten Commandments teaches why Jews do not believe in the Trinity?
4. What is meant by the term incarnation?
5. Give one quote from the Gospel of John that teaches about the incarnation
6. What does the Kenosis hymn teach about Jesus?
7. What are two reasons why Jews do not believe in the incarnation?
8. What is moral authority?
9. Define natural law
10. Name the 5 primary precepts of Natural Law
11. Why is the Bible a source of moral authority for Catholics?
12. Describe two teachings of Jesus during the Sermon on the Mount
13. Why is the conscience a good source of moral authority for Catholics?
14. Why is the Torah a source of moral authority for Jews?
15. What are virtues and how are they developed?

Key concept	Meaning	Image
Death	The end of physical life. Catholics see death as a change rather than an ending.	
Eternal Life	Spiritual existence in heaven after the death of the body.	
Heaven	Eternal existence in God's presence	
Hell	The lack of God for all eternity	
Judgement	Judging someone on their actions. Catholics believe God will judge people on how they have lived their lives.	
Magisterium -	The teaching authority of the Roman Catholic Church that comes from the Pope and Bishops.	
Resurrection	The raising of the body to life following death. Catholics believe Jesus rose from the dead on the third day.	
Soul	The spiritual part of a human that can never die. The part created by God that lives on after the death of the physical body.	

Catholic beliefs about euthanasia, assisted suicide and dying well

- Catholics believe that euthanasia and assisted suicide are **wrong** because **life is sacred (sanctity of life)**.
- Doctors and professionals can prescribe drugs and offer support and let a person die naturally. This is called **palliative care**.
- **Palliative care** is special medical care that helps people who have serious illnesses feel as comfortable as possible by managing pain and other symptoms. It also supports their emotions and helps their families during difficult times.
- The commandments clearly state, **“Do not kill”** and as euthanasia ends life then they would be breaking the commandment.
- The book of Genesis teaches that all humans were created in God’s **image and likeness** which is called **imago dei** so no one should end life.

Arguments in favour of euthanasia

- **Quality of life** - Life must have some benefits for it to be worth living. If this is not the case, then a person should be allowed to die. **Peter Singer** prioritises quality of life over sanctity of life.
- Some argue we should have the **human right to die** how we wish.
- Jesus taught his followers that they should **love their neighbour**. Euthanasia can be seen as the most loving action.
- **Treat others as you would like to be treated yourself**. If you were suffering, then you may want to end your life so we should allow others the same option.

Jesus’ Parables of judgment

Parable of the Unforgiving Servant

- God is like a king that will reward or punish. People will be held to account for how they behave in their lives. If you treat others as you would like to be treated, then God will reward you. However, if like the unforgiving servant you do not you will be punished.

Parable of the Rich Man and Lazarus

- Those people who follow the laws and commandments of God will be rewarded in heaven. Those who are selfish and do not put the needs of others first will suffer and be punished. We should not ignore those people who need our help. The Rich man ignored Lazarus throughout his life. Lazarus was rewarded unlike the rich man

The Second Vatican Council

The Second Vatican Council was a meeting during the 1960’s in which Bishops from all over the world came together to discuss how Roman Catholicism needed to meet the challenges of the modern world. They made a number of changes to the Church (see below)
The council produced **four major documents** that guide Catholics on how they can be part of the Church today:

1. **Church in the modern world (Gaudium et Spes)** - this document focused on how Catholics should interact with the world. Focus on charity, science and technology.
2. **The Word of God (Dei verbum)** - this document sets out how important the Bible is. Focused on how Catholics interpret the Bible.
3. **The Church (Lumen Gentium)** - this document put more emphasis on the people within the Church. The laity could take a more active part.
4. **Sacred Liturgy (Sacrosanctum Concilium)** – this document changed how the Catholic Mass took place. The language changed **from Latin and the Priest would face the congregation**.

The Magisterium

- The **Magisterium** is made up of Church leaders such as the Bishops, Cardinals and the Pope. Their job is to explain Catholic teachings, especially on **modern issues** that are not directly mentioned in the Bible or Church tradition, such as **IVF, social media, or euthanasia**.

- The Magisterium is based on **Apostolic Succession**, the belief that the Pope and Bishops continue the leadership that began with **Jesus appointing Peter as the first Pope**.
- There are two types of Magisterium:

1. **Ordinary** (the Pope and Bishops' regular teachings, like letters and homilies)
2. **Extraordinary** (rare and official, such as when the Church declared Mary was born without sin in 1854,).

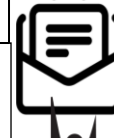
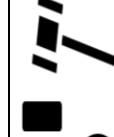
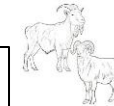
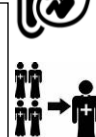
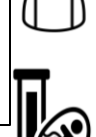
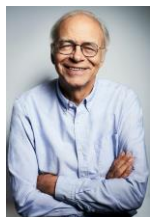
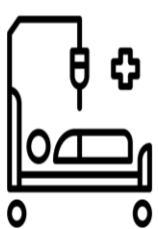
- Church teachings can also be defined in two ways: **Pontifical** (by the Pope alone) or **Conciliar** (by a council of Bishops).
- Only the Catholic Church has a Pope and a Magisterium.

Catholic beliefs about life after death

- Catholics believe in **Immortality of the soul**. This is the belief that every human has a soul that can live on after the death of the physical body (in heaven, hell or purgatory).
- God will **judge them after death** – those who live a good life are **rewarded with heaven** which is eternal life with God – seen in the **Parable of the Sheep and Goats**.
- Those who do not are **punished with hell (a lack of God for all eternity)** This is shown in the **parable of the unmerciful servant and the Rich Man and Lazarus**
- **Purgatory**. This is the belief that after death their souls need to be purified (prepared) for the judgement God will make. St Paul described purgatory as being **“Revealed with fire, and the fire will test the quality of each person's work.”** In order to go to heaven, you have to be perfectly pure, and this purification takes place here.
- **Resurrection of the body**. This is the idea that that death is not the end, and humans are raised from the dead in a new body at the end of the world.
- **St Paul** teaches in letter to the **Corinthians** that flesh and blood cannot live after death. Our bodies will be changed and will be immortal. St Paul teaches in the full resurrection of the body.

Other religious and non-religious beliefs about life after death

- Humanists argue we have **no evidence** to prove the existence of an afterlife where resurrection could take place. As there is no God, there is no heaven or hell and therefore no life after death.
- **Hindus and Sikhs** reject the resurrection. They believe that after death the body dies, and a person’s soul can be reborn in a new body. This is known as **reincarnation** where the soul is born again. The soul lives on in a new body.
- **Scientists have proven** when the brain dies the body can’t survive. Body can’t live without brain so no resurrection.
- Humanists argue in favour of **materialism**. They argue that life after death is impossible. There is no evidence that a body can resurrect. Bodies are material. Material decays. Bodies decay and die.



Exam 2 (ACT)

Ai) Life and Death

1. Define Magisterium:
2. Define Soul:
3. Define Resurrection:
4. Define Hell:
5. What is meant by “sanctity of life” and what does this tell you about Catholic beliefs on euthanasia?
6. What is palliative care and what do Catholics believe about it?
7. What does the book of Genesis teach about Catholic beliefs on euthanasia?
8. What does Peter Singer say about euthanasia?
9. What happens in the Parable of the unforgiving servant and what does it tell Catholics about judgement?
10. What four documents were produced at the Second Vatican Council?
11. Who makes up the Magisterium and what is their role?
12. What are the two types of Magisterium and how are they different?
13. What do Catholics mean by Resurrection of the body?
14. Describe 2 Catholic teachings about life after death including what St. Paul teaches in his letter to the Corinthians about life after death?
15. Describe 2 non-religious beliefs about life after death.



Catholic Funeral Service

- The **coffin is sprinkled with holy water**. This expresses beliefs about eternal life because it acts as a reminder of their baptism.
- The coffin is usually put near the altar. The priest places a book of the **gospels and a crucifix** on it. The altar is the place where we remember the sacrifice that Jesus made.
- Mass is celebrated with **readings and prayers** focused on the Christian hope of eternal life.
- The coffin is covered in a **white pall** and **incense** is used to bless the person. The pall represents the white garment we wore in baptism and the incense shows that the body is sacred and the soul is being lifted to God.



Music used in worship

Music is used in lots of ways in the Catholic Church; it is a great way to bring people to together. The Catechism of the Catholic Church states, **'To sing is to pray twice'**

Where is music used?

- **Introductory Rites** – Hymns are sung during the priest's entrance and sometimes the **Gloria** ("Glory to God in the highest"), creating an **uplifting and joyful** atmosphere.
- **Liturgy of the Word** – The **Alleluia** may be sung before the Gospel as a **joyful expression of thanks** for Christ's teachings.
- **Liturgy of the Eucharist – Memorial acclamations** (e.g., "Holy, Holy, Holy") are sung to encourage **reflection** before receiving the Eucharist. A hymn may also accompany the **procession of gifts**.
- **Concluding Rites** – A final hymn is sung **after the blessing**, sending the congregation out **joyfully** in God's spirit.

Styles of Music –

- **Family Masses** use **folk/popular** styles with instruments.
- **Solemn Masses** may feature **Gregorian chant** (vocal, no instruments).
- **Evangelical/Pentecostal services** often include **Gospel or**



Life and Death Part 2/2

Types of prayer and the Importance of Prayer / Prayer for the Dead

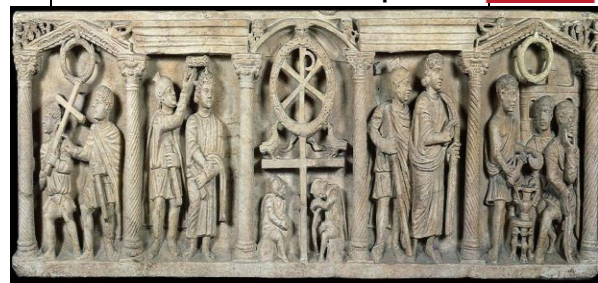
- The Catholic Church defines prayer as **'raising the mind and heart to God'**. This means being totally focussed on God.
- Jesus taught his disciples to pray using the **'Our Father'**. It is a model for prayer because it contains the 4 types of prayer **A.C.T.S** (Adoration, Confession, Thanksgiving, Supplication)
- Catholics use **Formulaic prayers** like the 'Hail Mary'. These are the prayers that Catholics will say when they attend Mass. Other examples are the Our Father and the Glory Be'.
- Catholics also use **extempore prayers**. These are spontaneous and allow people to connect with God on a more personal level. People might say this prayer in their heads, or they might make up their own prayer to offer to God on behalf of someone else.
- **Pope Francis** taught that prayer can help people come to terms with their suffering. Prayers to the saints mean they will **intercede** on our behalf.

Prayers and Masses for the dead

- Catholics believe in life after death and prayers are said in the hope that people will have **eternal life with God**.
- They ask God to **welcome the deceased into His presence** so they can have eternal life in heaven.
- It is believed prayer and Masses will help the person's time in **purgatory**.

Faure's Requiem

- **Requiem Masses** offer hope for the loved ones that are grieving.
- Music is used in Catholic funerals as a form of prayer and to express prayers for the soul of the deceased.
- **Faure's requiem** focuses on the hope that after death the deceased have eternal life with God.
- The requiem focuses on the **hope that the dead will be in heaven**, he expresses this in the music using harps, violins and the sound of angelic sopranos.
- Faure's music helps the grieving to have **faith, comfort and hope**. It does not focus on sadness, but on the peacefulness of death.



Paschal candle

- The Paschal Candle contains 5 metal pins that represent the **five wounds of Jesus**. They show the suffering that Jesus went through as a sacrifice.
- It has the **empty cross**. This is a symbol of the resurrection that is used in baptisms, funerals and during Easter.
- It contains the **Alpha & Omega**. These are the first and last letters of the Greek alphabet showing that Jesus has **eternal life**.
- The **flame** shows that Jesus is a light in the world and provides hope of life after death and the date shows Jesus is present.

Sarcophagus with Scenes of the Passion in the Museo Pio Cristiano, Vatican, Rome

- The sarcophagi has a **cross with the 'Chi-Rho' symbol** standing for Jesus. The Chi-Rho is an ancient symbol of the resurrection.
- It has **a wreath and eagles** which were Roman symbols of victory – it shows Jesus' victory over death as he resurrected.
- Objects such as Scenes of the Passion Sarcophagi and the Paschal Candle are important for Roman Catholics because they symbolise the events of **Jesus death and resurrection** which give Catholics **hope** of life after death.

Exam 2 (ACT)

Aii) Life and Death

1. Define Eternal Life
2. Define Death
3. Define Judgement
4. Define Heaven:
5. How is holy water used in the Catholic funeral rite and what does it signify?
6. Explain why Catholics use prayers and Masses for the dead.
7. What does Faure's requiem express Catholic beliefs about eternal life and how does it help the grieving?
8. What does the Catechism say about music in worship and explain its meaning.
9. Describe 2 ways music is used in the Mass.
10. Describe 2 styles of music used in worship.
11. How do Catholics define prayer and what are the different types of prayer?
12. What is the difference between formulaic and extempore prayers?
13. What does Pope Francis teach about prayer?
14. Name 2 features of the Paschal Candle and describe what they symbolize.
15. What do 2 of the features of Sarcophagus with Scenes of the Passion in the Museo Pio Cristiano, Vatican, Rome symbolise?

B6 – Photosynthesis

What is photosynthesis?

Plants make their own food using photosynthesis. The food produced is the sugar called **glucose**. Food produced by plants is important, not only for the plants themselves, but for other organisms that feed on the plants.

Algae can also make their own food by the process of photosynthesis. Plant will increase **biomass** as a result of photosynthesis.

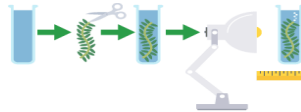


Pondweed practical

Independent variable: Distance the pondweed is from the lamp

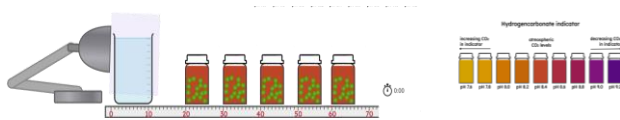
Dependent variable: How many bubbles of oxygen are produced

Control variables: mass of pondweed/ size of pondweed/ volume of water/ temperature



Algal balls practical

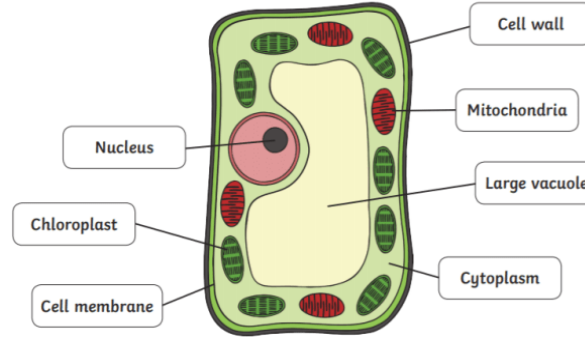
Hydrogen carbonate indicator detects carbon dioxide levels. Carbon dioxide is an acid gas so the hydrogen carbonate indicator turns yellow if there is more carbon dioxide present (less photosynthesis taking place).



As the distance from a lamp increases the light intensity decreases. This is called the inverse square law and can be used to calculate the light intensity.

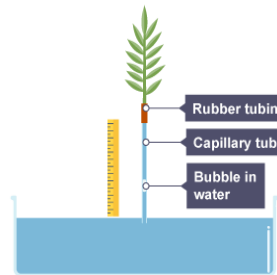
$$\text{Light intensity} = \frac{1}{\text{Distance}^2}$$

Photosynthesis is an **endothermic** reaction as it **requires light energy** to react carbon dioxide and water to produce glucose and oxygen. The light energy required is absorbed by a green pigment called **chlorophyll** in the leaves. **Chlorophyll** is in **chloroplast** in plant cells.



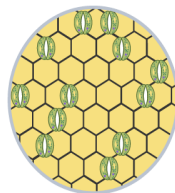
Transpiration vs translocation

Tissue	Process	What is moved	Structure
Xylem	Transpiration	Moves water and minerals from roots to leaves	Columns of hollow, dead reinforced cells
Phloem	Translocation	Moves food substances from leaves to rest of plant and from stores such as in the roots	Columns of living cells



A **potometer** can be used to investigate the rate of transpiration. Measure the start point of a bubble and then the end point to see how much water has been up taken by a plant.

Opening and closing of stomata



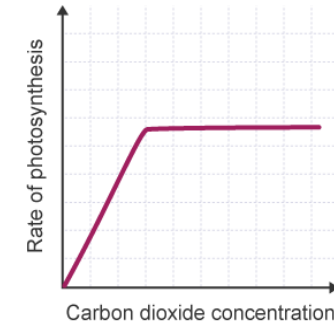
Opening – **guard cells** fill with water by **osmosis** and become **turgid**

Closed – **guard cells** lose water by **osmosis** and become **flaccid**

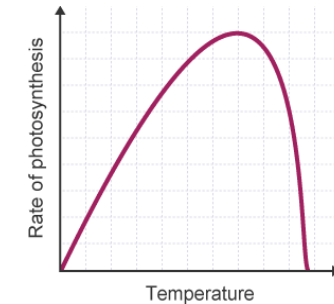
Several factors can affect the rate of photosynthesis:

- light intensity
- carbon dioxide concentration
- Temperature

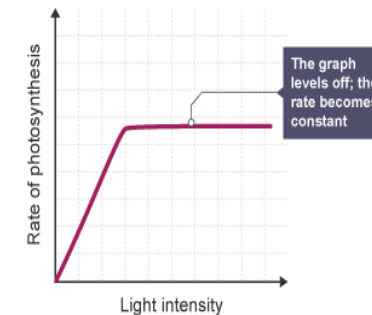
You need to be able to **describe** and **explain** the following graphs.



Carbon dioxide is one of the reactants in photosynthesis. If the concentration of carbon dioxide is increased, the rate of photosynthesis will therefore increase. At some point, another factor may become limiting and this is shown by the plateau (flattened section) of the graph.



At low temperatures, the rate of photosynthesis is limited by the number of collisions between enzymes and substrate. As temperature increases the number of collisions increases, therefore the rate of photosynthesis increases. However, at high temperatures, enzymes are denatured and this will decrease the rate of photosynthesis.



Increasing the light intensity increases the rate of photosynthesis, until some other factor - a limiting factor - becomes in short supply.

Key Question		Answer
1	Name the type of energy required for photosynthesis and where this comes from	
2	Name the reactants and products of photosynthesis	
3	Name the site of photosynthesis in a plant cell and the pigment found in these cell structures	
4	Give three factors that can affect the rate of photosynthesis	
5	Give the definition of transpiration	
6	Describe how sucrose moves through a plant	
7	Describe how stomata open	
8	Name the piece equipment used to measure the rate of transpiration	
9	Name the indicator used to measure carbon dioxide levels when investigating rate of photosynthesis in the algal balls practical	
10	What happens to the rate of photosynthesis as the distance of a plant from a lamp increases	

Y11 Chemistry Module 1a - Metals

Reactions of metals

The reactivity of a metal is how chemically reactive it is. When added to water, some metals react very vigorously – these metals have high reactivity. Other metals will barely react with water or acid, or won't react at all – these metals have low reactivity.

Reactivity series

The reactivity series places metals in order of their reactivity. Sometimes, for example in the table below, hydrogen and carbon are included in the series, even though they are non-metals.

Reaction with water	Reaction with acid	Reactivity series		Extraction method
		Metal	Reactivity	
fizzes, gives off hydrogen gas	explodes	potassium	high reactivity Decreasing reactivity low reactivity	electrolysis
		sodium		
		lithium		
		calcium		
reacts very slowly	fizzes, gives off hydrogen gas	magnesium		reduction with carbon
		aluminium (carbon)		
		zinc		
		iron		
no reaction	reacts slowly with warm acid	tin		mined from the Earth's crust
	no reaction	lead (hydrogen)		
		copper		
		silver		
		gold		

Life-cycle assessments

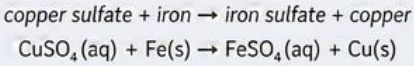
A life-cycle assessment ❶ or LCA is a 'cradle to grave' analysis of the impact of a manufactured product on the environment ❶. The main stages are:

1. obtaining the raw materials ❶ needed
2. manufacturing the product
3. using the product
4. disposing of the product at the end of its useful life

Displacement reactions

In a **displacement** reaction a more reactive element takes the place of a less reactive element in a compound.

For example:



Iron is more reactive than copper, so iron displaces the copper in copper sulfate.

Metal extraction

Some metals, like gold, are so unreactive that they are found as pure metals in the Earth's crust and can be mined.

Most metals exist as compounds in rock and have to be extracted from the rock. If there is enough metal compound in the rock to be worth extracting it is called an **ore**.

Metals that are less reactive than carbon can be extracted by reduction with carbon. For example:



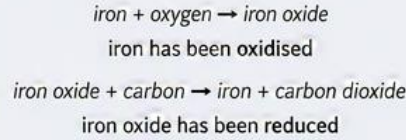
Metals that are more reactive than carbon can be extracted using a process called **electrolysis**.

Reduction and oxidation

If a substance gains oxygen in a reaction, it has been **oxidised**.

If a substance loses oxygen in a reaction, it has been **reduced**.

For example:



Metals ores	These resources are limited	Copper ores especially are becoming scarce. New ways of extracting copper from low-grade ores are being developed.
Phytomining	Plants absorb metal compounds	These plants are then harvested and burned; their ash contains the metal compounds.
Bioleaching	Bacteria is used to produce leachate solutions that contain metal compounds	The metal compounds can be processed to obtain the metal from it e.g. copper can be obtained from its compounds by displacement or electrolysis.

Advantages of recycling metals

The advantages of recycling compared to producing metals from metal ore ❶ include:

- more economic – less energy ❶ is needed to produce a metal
- less damage to the environment – fewer quarries ❶ and mines, less noise and less heavy traffic
- saves valuable raw materials – reserves of metal ores will last longer

Disadvantages of recycling

Disadvantages of recycling arise from the recycling process itself:

- the collection and transport of used items needs organisation, workers, vehicles and fuel
- it can be difficult to sort different materials from one another

Alkali metals										Halogens					Noble gases		
1	2	Transition metals										3	4	5	6	7	0
H																	He
Li	Be											B	C	N	O	F	Ne
Na	Mg											Al	Si	P	S	Cl	Ar
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	?	?	?						

Elements arranged in order of atomic number

Elements with similar properties are in columns called groups

Elements in the same group have the same number of outer shell electrons and elements in the same period (row) have the same number of electron shells.

The Periodic table

Alkali metals	Soft and easily cut	Low melting and boiling points.
	Very reactive with oxygen, water and chlorine	Only have one electron in their outer shell. Form +1 ions.
	Reactivity increases down the group	Negative outer electron is further away from the positive nucleus so is more easily lost.

Halogens	Consist of molecules made of a pair of atoms	Have seven electrons in their outer shell. Form -1 ions.
	Melting and boiling points increase down the group (gas → liquid → solid)	Increasing atomic mass number.
	Reactivity decreases down the group	Increasing proton number means an electron is less easily gained as outer shell is further away from nucleus, therefore the attraction force is weaker.

EDEXCEL TOPIC 6: Groups in the periodic table

Halogen	Colour at room temperature	State at room temperature
Chlorine	Yellow-green	Gas
Bromine	Red-brown	Liquid
Iodine	Dark purple	Solid

Metal	Reaction with water	Word equation
Lithium	Fizzing	Lithium + water → lithium hydroxide + hydrogen
Sodium	Fizzing more vigorously than lithium	Sodium + water → sodium hydroxide + hydrogen
Potassium	Fizzes and burns with a lilac flame	Potassium + water → potassium hydroxide + hydrogen

With metals	Forms a metal halide	Metal + halogen → metal halide e.g. Sodium + chlorine → sodium chloride	e.g. NaCl metal atom loses outer shell electrons and halogen gains an outer shell electron
With hydrogen	Forms a hydrogen halide	Hydrogen + halogen → hydrogen halide e.g. Hydrogen + bromine → hydrogen bromide	Dissolve in water to form acidic solutions.
With aqueous solution of a halide salt	A more reactive halogen will displace the less reactive halogen from the salt	Chlorine + potassium bromide → potassium chloride + bromine	(HT) These are redox reactions. The halogen gains electrons and the halide ion from the compound loses electrons.

Noble gases	Unreactive, do not form molecules	This is due to having full outer shells of electrons.
	Boiling points increase down the group	Increasing atomic number.

Helium	Used in balloons	Due to being less dense than air, which means balloons will float.
Neon	Used in signs	Glow when electricity flows through it.
Argon	Used in filament light bulbs	Stops the heated filament reacting with oxygen. Bulbs filled with unreactive argon instead.

Y11 Module 1 Homework - Chemistry Knowledge Organiser Questions

Page 1

Question number	Questions	Answer
1	What is the name of the series that places metals in order of their reactivity?	
2	Which gas is produced when reactive metals react with water?	
3	Which metal is more reactive: iron or copper?	
4	What is a displacement reaction?	
5	What extraction method is used for metals that are more reactive than carbon?	
6	What extraction method is used for metals that are less reactive than carbon?	
7	What is the term for a rock that contains enough metal compound to make extraction worthwhile?	
8	Define the terms oxidation and reduction	
9	What does LCA stand for in environmental assessments?	
10	Give one advantage of recycling metals compared with extracting metals from metal ores	

Y11 Module 1 Homework - Chemistry Knowledge Organiser Questions

Page 1

Question number	Questions	Answer
1	Which group contains the alkali metal?	
2	Describe the trend in reactivity as you go down group 1.	
3	Write the general word equation when a <u>group 1</u> metal reacts with water.	
4	State the test for hydrogen gas, and what a positive result would look like.	
5	State two observations when potassium reacts with water.	
6	Which group contains the halogens?	
7	What is formed when a metal reacts with a halogen?	
8	Which halogen is a red-brown liquid at room temperature?	
9	Which group contains the noble gases?	
10	Why are noble gases stable and unreactive?	

Y11 Cycle 1 Topic 1 Knowledge Organiser

The Particle Model

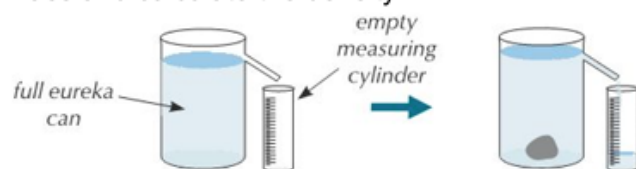
Density

Density is how compact the particles are. You can find it by:

$$\rho = \text{density (kg/m}^3\text{)} \rightarrow \rho = \frac{m}{V} \leftarrow \begin{array}{l} m = \text{mass (kg)} \\ V = \text{volume (m}^3\text{)} \end{array}$$

You can measure density 2 ways. You can put a measuring cylinder on a balance and measure the mass for 10 ml - then keep repeating until the cylinder is full. Calculate density for each value and then find an average.

Or use a eureka can. You can fill a eureka can and then put an irregular sized object in it. By collecting the water that drains out the spout you can find its volume. You can then find the object's mass and calculate the density.



Energy

Internal energy - The total energy of particles (potential + kinetic).

Potential energy - The further apart particles are, the more potential energy they have.

Kinetic energy - How quickly the particles move around.

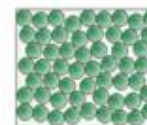
By increasing an object's temperature you are increasing the internal energy - this can be a mixture of potential and kinetic energy. The particles move faster and become further apart. You can find the kinetic energy by using:
K.E. = $\frac{1}{2} mv^2$

States of matter:

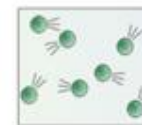
In a solid there are strong forces of attraction between the particles that hold them together. The particles do not have much kinetic energy.



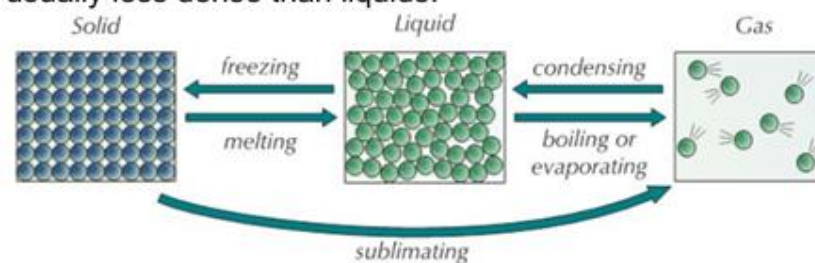
In a liquid there are weaker forces of attraction. The particles are close together but can move past each other. The particles have more kinetic energy and move in random directions at low speeds. They fill the shape of the container.



In a gas there are almost no forces of attraction between the particles and they are free to move in random directions at high speeds.



Liquids are usually less dense than solids. Gases are usually less dense than liquids.

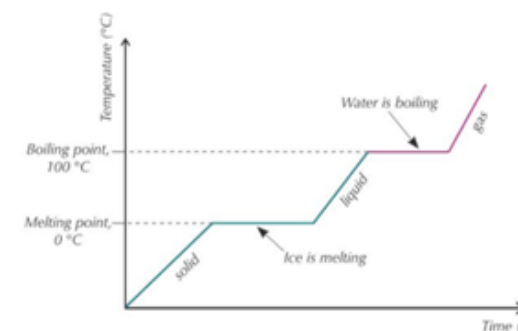


When particles have zero energy, they are the coldest they can be. This temperature is at -273°C (absolute zero). Scientists used absolute zero to form the kelvin scale (another temperature scale). Absolute zero is 0 K. A change of 1°C is the same as a change of 1 K.

$$\text{Temperature in K} = \text{Temperature in } ^{\circ}\text{C} + 273$$

$$\text{Temperature in } ^{\circ}\text{C} = \text{Temperature in K} - 273$$

Heating a system will change its temperature. It can also change states - as these are reversible changes they are called physical changes. When these stage changes happen the mass will stay the same.



Heating a substance and recording the temperature will give you a graph shapes like this. The sloped parts show where the heating increases the temperature of

the substance. This is when the energy from heating is transferred to the kinetic energy of the particles and they move faster. We can calculate the energy needed to raise the temperature of 1kg of a substance by 1°C using this equation:

$$\Delta Q = \text{change in thermal energy (J)} \rightarrow \Delta Q = m \times c \times \Delta\theta \leftarrow \begin{array}{l} \Delta\theta = \text{change in temperature (}^{\circ}\text{C)} \\ m = \text{mass (kg)} \\ c = \text{specific heat capacity (J/kg}^{\circ}\text{C)} \end{array}$$

The flat parts of the graph show where the substance is 2 states e.g. solid and liquid. Here the energy given isn't going into raising the temperature, but is given to the potential energy of the substance (the particles move further apart). When enough energy has been given, the substance will have changed state. We can find that energy using the equation below:

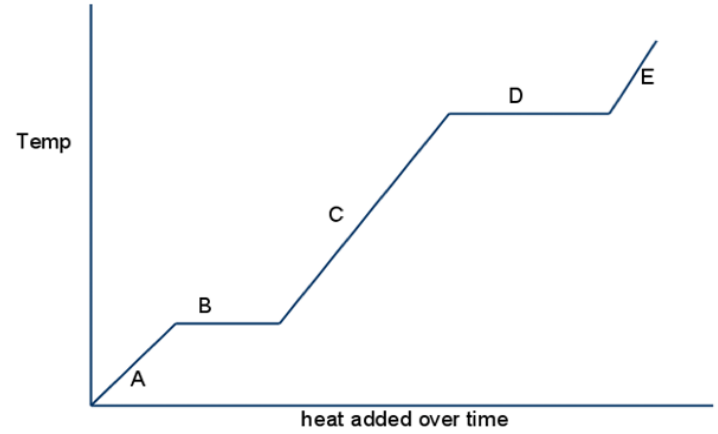
$$Q = \text{thermal energy for a change of state (J)} \rightarrow Q = m \times L \leftarrow \begin{array}{l} L = \text{specific latent heat (J/kg)} \\ m = \text{mass (kg)} \end{array}$$

When completing these experiments we need to make sure everything is well insulated. This will ensure that there isn't much energy lost as wasted heat. When using electricity to heat something, we can find the energy transferred using:
 $E = I \times V \times t$

Physics Y11 Cycle 1: Topic 1 The Particle Model

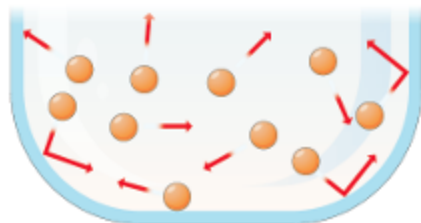
Retrieval Questions

Question	Answer
1. Describe one way to find the volume of an object	
2. What is internal energy made up of?	
3. Define potential energy	
4. Define kinetic energy (of particles)	
5. How can you measure the internal energy of a substance?	
6. What causes particles to be held together in a solid?	
7. Which state of matter is the least dense?	

Question	Answer
8. Describe the motion of particles in a solid	
9. Describe the motion of particles in a liquid	
10. Describe the motion of particles in a gas	
11. What is the equivalent of 0K in °C?	
12. Label this heating curve	 The graph shows a heating curve with temperature on the vertical axis and heat added over time on the horizontal axis. The curve consists of five segments: a linear increase from A to B, a horizontal plateau at B, a linear increase from B to C, a horizontal plateau at C, and a final linear increase from C to E.

Pressure

Gases have pressure. Gases have a pressure because the particles collide with the walls of the container and produce a force. If a gas is heated up, the particles will move faster and so will collide with the walls more often and with a larger force.



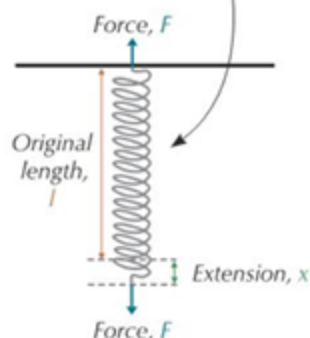
Stretching objects:

When forces are applied to an object in 2 different directions, the object can stretch or compress (be distorted). If an object has stretched, we can measure the extension.

If the object returns to its original shape after the forces are removed it has been elastically distorted. This can only happen with elastic objects.

If an object doesn't return to its original shape after the forces are removed, it has been inelastically distorted.

If a spring is supported at the top and a weight is attached to the bottom, it stretches.

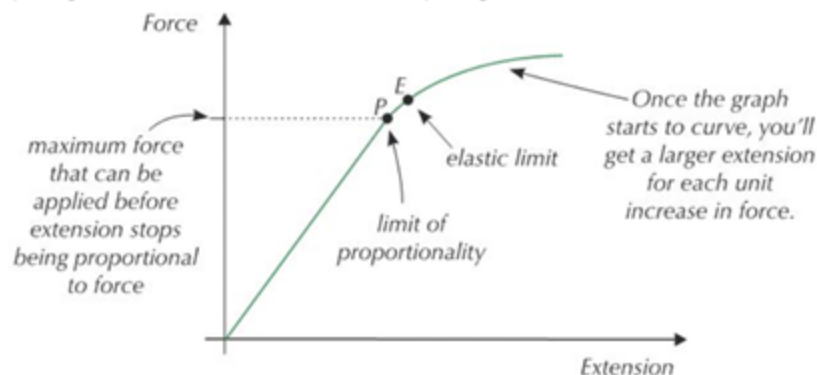


Forces and Matter

In elastic distortions you can use the following equation:

$$F = \text{force exerted on a spring (N)} \quad F = k \times x \quad \begin{matrix} k = \text{spring constant (N/m)} \\ x = \text{extension (m)} \end{matrix}$$

The spring constant depends on the material. A larger spring constant will mean the spring is stiffer



Plotting the graph of force against extension will show what is happening in the spring. Initially, force and extension are proportional. Here you can use the equation: $F = kx$. This part of the graph is a straight line and if you remove the force the object will go back to its original shape.

By continuing to increase the force the graph the graph begins to curve. At this point the object has been permanently distorted and it won't go back to its original shape.

On the graph the point P is the limit of proportionality. After this point force and extension are not proportional.

On the graph the point E is the elastic limit. After this point the object is permanently distorted.

Work done:

Work is done when a force stretches or compresses an object. If the object is being elastically distorted, all of the energy is transferred to the elastic potential energy store. You can work out the work done by:

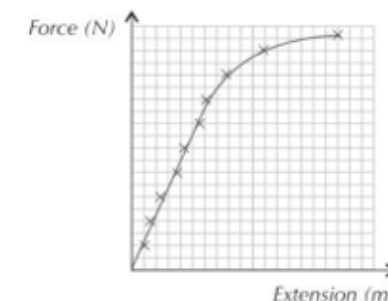
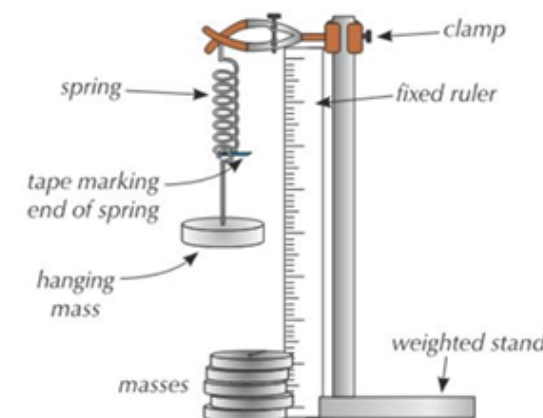
$$E = \text{energy transferred in stretching (J)} \quad E = \frac{1}{2} \times k \times x^2 \quad \begin{matrix} k = \text{spring constant (N/m)} \\ x = \text{extension (m)} \end{matrix}$$

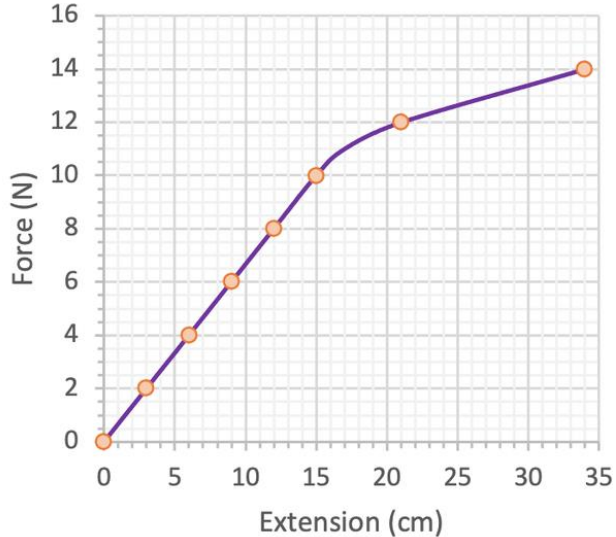
You can also work it out by finding the area underneath the force-extension graph.

Core Practical:

Measure the length of a spring unstretched. Add masses to it, waiting for the spring to stop moving. Find the new length (you can then take away the original length to find the extension. By

getting more than 6 values and then plotting them on a force-extension graph. The start of the graph should be a straight line (and the spring constant is the gradient).



Question	Answer
1. What is pressure caused by?	
2. What is it called when an object can be stretched/ compressed but return to its original shape	
3. If a spring had a larger spring constant, what would it be like?	
4. Mark the limit of proportionality (P) and the elastic limit (E) on this graph	
5. What energy type is stored when an object is stretched or compressed?	

Question	Answer
6. What is found by the area underneath a force-extension graph?	
7. In the Hooke's Law core practical, what is the independent variable?	
8. Describe how to calculate the extension of a spring in the core practical	
9. Draw a particle model of a liquid	
10. Draw a particle model of a gas	



St. Wilfrid's RC College - Knowledge Organiser

GCSE - Fine Art - AQA

AO1 EXPLORE BEGIN TO LINK A THEME TO YOUR CHOSEN ARTISTS WORK WRITTEN ANALYSIS LINK ARTISTS WORK TO IDEAS AND ARTWORK

AO1 – Develop Ideas (Research & Inspiration)

- Research artists, designers and other relevant sources.
- Gather inspiration from a range of sources, such as artworks, photographs, objects, books, memories, observations, culture and nature.
- Analyse your sources rather than simply collecting them.
- Explain what interests you and how it links to your theme.
- Show how artists and other sources have influenced your ideas.
- Compare sources and make connections between them.
- Use your research and inspiration to develop personal and original outcomes.

How to develop ideas

- Artist research
- Mind maps/mood boards
- Sketches
- Experiments
- Observations
- Photography

AO2 EXPERIMENT LINKING TECHNIQUES TO ARTISTS AND THEMES TEXTILES CLAY MIXED MEDIA PHOTOGRAPHS OIL PASTEL WITH A RANGE OF MEDIA WATERCOLOUR PEN AND INK

AO2-Refine Work (Experiment & Improve)

- Develop and improve ideas over time.
- Experiment with a range of materials and techniques.
- Take creative risks and explore new approaches.
- Record what works and what doesn't.
- Make improvements based on your discoveries.
- Adapt artist techniques in your own way.

How to refine:

- Experiment
- Practise
- Review
- Improve
- Repeat

AO3 IDEAS LINKING TO ARTISTS WORK ALL ARTWORK LINKING TOGETHER PLANS, DESIGNS IN A RANGE OF DIFFERENT MEDIA OBSERVATIONAL DRAWINGS PLANS EXPLANATIONS ANNOTATION

Ways to record:

- Observational drawings
- Photography and contact sheets
- Annotations
- Sketches
- Colour studies

AO4 FINAL MEANINGFUL PIECE OF WORK INFORMED SHOW UNDERSTANDING RESPONSE LINKS LINK BETWEEN VISUALS AND ARTISTS TO ARTISTS WORK PRESENTATION RELEVANT

How to Present a Personal Response:

- Final piece
- Personal style
- Artist links
- Refined techniques
- Considered choices

AO3-Record Ideas (Observations & Thinking)

- Create observational drawings from primary and secondary sources.
- Use annotations to explain ideas and decisions.
- Record your process through sketches, photos and notes.
- Show how ideas develop step-by-step.
- Make your intentions clear throughout the project.
- Demonstrate growing understanding and confidence.



AO4- Present a Personal Response (Final Piece)

- Create a final outcome linked to your theme and research.
- Combine artist inspiration with your own ideas.
- Demonstrate skill, creativity and control.
- Show a clear journey from research to final outcome.
- Explore and develop several ideas before deciding on a final piece.
- Produce a personal and meaningful response.



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AO1 – Develop Ideas (Research & Inspiration)

- ☐ Is your source historical, contemporary or personal?
- ☐ What themes, ideas or subjects does it explore?
- ☐ What do you notice first about it?
- ☐ What colours, tones, textures, lines, shapes or forms can you see?
- ☐ What mood, atmosphere or message does it communicate?
- ☐ Why is this source relevant to your theme?
- ☐ What do you find interesting about it and why?
- ☐ What visual elements, techniques or ideas could you use in your own work?
- ☐ How does this source connect to other sources you have researched?
- ☐ How could it inspire the development of your ideas?
- ☐ What have you learnt from this source that could influence your next piece?

Remember: Focus on analysing why the source is relevant and how it can inspire your work. Information such as where an artist was born, when they were born, or details about their personal life are only useful if they help you understand the artwork or ideas being explored.



How to refine:

- Experiment
- Practise
- Review
- Improve
- Repeat

AO2 – Refine Work (Experiment & Improve)

- ☐ Have you explored a range of materials and media?
- ☐ Have you completed artist-inspired experiments?
- ☐ Have you tried different compositions or layouts?
- ☐ Have you tested colour combinations and techniques?
- ☐ Have you taken creative risks and tried new ideas?
- ☐ Have you documented your process with photographs?
- ☐ Have you explained what worked well and why?
- ☐ Have you explained what didn't work and how you improved it?
- ☐ Have you developed your ideas from one experiment to the next?
- ☐ Have you shown clear refinement throughout your project?

How to develop ideas:

Sources can include:

- Artists & designers
- Photographs
- Objects
- Books & articles
- Personal experiences
- Culture
- Nature

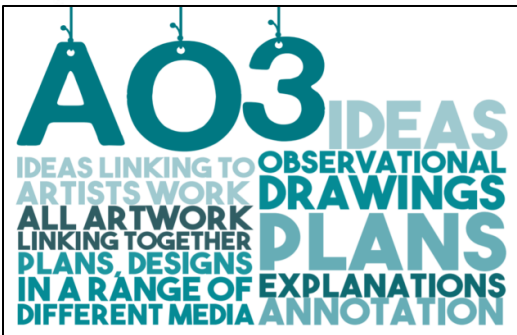
Show development through:

- Research
- Mind maps
- Mood boards
- Observational studies
- Photography
- Sketches
- Experiments



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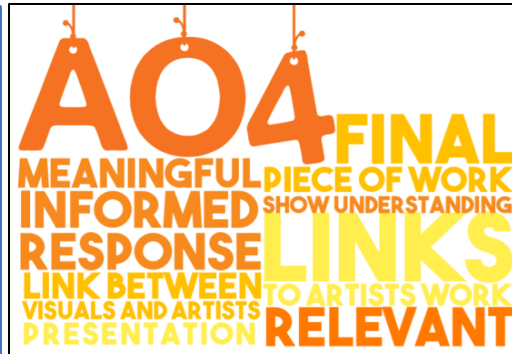


AO3 – Record Ideas (Observations & Thinking)

- ☐ Are your observational drawings clear and detailed?
- ☐ Have you worked from primary sources (real objects, photographs, first-hand observations)?
- ☐ Have you recorded details such as line, tone, texture, shape and form?
- ☐ Have you included annotations explaining your ideas and decisions?
- ☐ Have you used photographs, sketches and notes to record your process?
- ☐ Have you shown how your ideas developed over time?
- ☐ Have you included studies from different viewpoints or compositions?
- ☐ Have you clearly communicated your intentions?
- ☐ Have you linked your observations to your theme?
- ☐ Have you shown evidence of a creative journey?

Ways to record:

- Observational drawings
- Photography and contact sheets
- Annotations
- Sketches
- Colour studies



How to Present a Personal Response:

- Final piece
- Personal style
- Artist links
- Refined techniques
- Considered choices

AO4 – Present a Personal Response (Final Piece)

- ☐ Have you mind-mapped or planned your final ideas?
- ☐ Have you created communicative sketches to explore and develop your final outcome?
- ☐ Have your sketches helped you explain composition, layout, colour or design choices?
- ☐ Have you explored more than one possible outcome?
- ☐ Have you included influences from artists you have researched?
- ☐ Have you explained why you selected your final idea?
- ☐ Have you combined your own style with artist inspiration?
- ☐ Does your final piece link clearly to your theme?
- ☐ Does your final piece show skill and control?
- ☐ Have you shown how your experiments informed your final outcome?
- ☐ Is your response creative, personal and original?
- ☐ Have you clearly presented and evaluated your final outcome? (For coursework projects)

LOOK – Observational Recording

- ☐ I have worked from **primary sources** (real objects, my own photographs, observations from life) or **secondary sources** (artists, artworks, photographs, books, films, articles, etc.)
- ☐ I have drawn from **different angles or viewpoints**
- ☐ I have used a **range of media** (pencil, ink, paint, charcoal, etc.)
- ☐ I have recorded **details carefully** (texture, tone, shape, form)
- ☐ I have **interacted with the subject** (not just copied an image)

Key question:

What can I see, and how accurately can I record it?

THINK – Analyse & Understand

- ☐ I have researched **relevant artists, designers or other sources** of inspiration
- ☐ I have analysed the **formal elements** (colour, line, tone, texture, pattern, form, shape)
- ☐ I explain **why** the artist made certain choices
- ☐ I describe **how the work makes me feel and why**
- ☐ I identify the **message or meaning** behind the work
- ☐ I avoid simple comments like “I like it” without explanation

Key question:

What is the artist communicating, and how?

LINK – Develop & Apply

- ☐ I have applied **artist techniques** to my own work
- ☐ I have combined **artist ideas with my own observations**
- ☐ I show **clear development** from research to my own outcomes
- ☐ I explain **how my work is influenced**
- ☐ I take **creative risks** and try new approaches
- ☐ My work becomes more **personal and original**

Key question:

How will this influence my next piece?

Annotation: Look, Think, Link



Sentence Starters (Use these in your annotations!)

- *The artist/source uses... to...*
- *This communicates...*
- *This creates... because...*
- *This makes me think/feel...*
- *I could/will apply this by...*
- *This links to my work because...*
- *This has inspired me to...*
- *I will develop this idea by...*

What Good Annotation Looks Like

- ✓ Written clearly next to your work
- ✓ Explains **ideas and decisions** (not just describes)
- ✓ Uses **art vocabulary (keywords)**
- ✓ Shows **thinking and development over time**



Job production 	Is the process of production where products are made individually
Batch production 	Is the process of production where one type of product is made and then production is switched to make a different product
Flow production 	Is production of one product that takes place continuously using a production or assembly line. This is sometimes called mass production.
Automation 	Is a production process involving machinery that is not controlled by a person but usually controlled by a computer
Robotics 	Is the use of robots in the process of production
Production processes 	Are the three methods or processes of production - job, batch and flow

Advantages of technology in the production process	Disadvantages of technology in the production process
• Costs are reduced as the number of workers required is reduced • Machines can be more accurate - improving quality • Machines can work 24/7 • Production can be more flexible because the machine can be programmed to make different products	• Workers may be redundant adding to the short term costs to a business • New, skilled workers may need to be recruited • Workers may need training which can be expensive • Machines can break down and this will disrupt production • It can be expensive to buy and finance

	Job production e.g. a bridge, piece of art work, item of furniture	Batch production e.g. loaves of bread, paint	Flow production e.g. motor car assembly
Advantages	High-quality products Can be made to meet the needs of customers	Batches are made to meet specific orders from customers Costs can be reduced by using some specialist machinery	Large amounts can be made Unit costs are lower Products are made with accuracy
Disadvantages	Costs of production will be high Labour costs may be high -skilled labour	It takes time to switch production It may be necessary to keep stocks of materials to be able to switch production Tasks may be repetitive and boring	Very expensive to set up a production line If the production line stops this will be very costly Jobs can be repetitive and boring



OCR GCSE Business: 4.1 Production Processes

1. State the **three production processes**;

-
-
-

2. Give me **one benefit** and **one drawback** of using **batch** production.

.....
.....

3. Why might a business **use technology** (automation/robotics) in their production process?

.....
.....

4. Which production process is **expensive to set up initially**?

-

5. Which production process involves '**switching**' to another type of product?

-

6. Which production process usually requires **expensive materials** and high levels of skill?

-





4.2 Quality of goods and services



knowledge and understanding

Quality	Is about a product being fit for purpose
Quality assurance	Is an approach that involves the whole business focusing on quality, aiming to prevent quality problems arising
Quality control	Is a system for inspecting the quality of the goods or services produced and they are of a good standard
Returns	Are goods which customers take back to the shop because there are problems with the quality of them
Recalls	Are when a fault occurs with a product and the business asks for the product to be brought back so it can be repaired or replaced

The importance of providing quality goods and services

- It avoids waste, which will reduce costs
- It avoids recalls, which will reduce costs
- It will affect the reputation and sales of a business. If a customer receives poor quality products, they may decide to buy from a competitor in the future
- Customers will continue to buy from the business in the future - repeat customers

	Advantages	Disadvantages
Quality control	• It can help to prevent faulty goods and services being sold • It is not disruptive to production - workers continue working and inspectors do the checking • May benefit from an improved reputation which may increase sales	• It does not prevent waste of resources when products are faulty • The process of inspecting costs money e.g. wages of inspectors • It does not encourage all workers to be responsible for quality
Quality assurance	• There may be less wastage and this will reduce production costs • Workers may feel valued because they have been given responsibility for quality and this may motivate them to work harder • A better reputation which may increase sales	• It may disrupt production because workers are stopping to check the quality of what they have produced • It may cost a lot to train workers • Workers may worry about the extra responsibility and may resist the introduction of quality assurance methods



OCR GCSE Business: 4.2 Quality of goods and services

1. State the **two quality checking methods**

-
-

2. Explain what is meant by the term '**quality**'.

.....
.....

3. What is a product recall and why might this happen?

.....
.....

4. Which quality checking process involves the use of **a trained inspector**?

-

5. Which quality checking process creates a culture of quality by **making it everyone's responsibility**?

-

6. Which quality checking process **slows down production**?

-



E-commerce 	Is the bringing together of buying and selling electronically
Customer service 	Is the name given to an area of business that deals with customer enquiries
Customer engagement	Is the contact between the business and customer
Face to face selling 	Is usually completed in a shop where there is direct contact between buyer and seller
Telesales 	Is sales completed over the telephone
After-sales service 	Is advice and help given to a customer after they bought a product or service
Product knowledge	Is the detailed knowledge of a product or service that staff within a business use to help persuade a customer to buy

How a business might provide good customer service

After-sales service is important because...

It ensures customers are satisfied and encourages customer loyalty

Good product knowledge is important because...

It encourages the customer to make a purchase

Customer engagement is important because...

It encourages the customer to return to your business and increases customer satisfaction

Advantages to customers of using e-commerce	Disadvantages to customers of using e-commerce
Price comparison - customers can use these to find the best deal making their purchase cheaper Seven-day availability - the customer can buy whenever is convenient Wide range of products - customers have greater choice	Lack of personal contact Security - risk of having details stolen Methods of payment - customers are not able to use cash Technology - some customers may not be comfortable using the internet or have access to it Only images of goods seen
Advantages to businesses using e-commerce	Disadvantages to businesses using e-commerce
Sell world wide - bigger target audience Open all the time Lower operating costs - business often do not need a physical location now so do not need to pay these costs Professional look at little cost	Worldwide competition Problems of delivering goods and accepting returns Online security - they must keep data safe Advances in technology - the business must keep up to date with technology which can be costly



OCR GCSE Business: 4.3 The Sales Process

1. Define the term '**E-commerce**'

.....

2. Give me **three methods** of selling:

.....
.....

3. Give me two ways a business could **provide good customer service**.

.....
.....

4. Give me one benefit to a business of **using e-commerce**

-

5. Give me one drawback to the customer of **using e-commerce**

-

6. What does the term '**after-sales**' mean?

-





Consumer Protection:

All consumers are protected under legislation that stipulates that goods have to be safe for use/ must not cause any harm. This means businesses should have efficient quality checking processes to identify any defects and prevent products from being sold that are unsafe.

Fit for purpose	Means that goods must do what they are meant to do
As described	Means that goods must be as the business described them
Consumer law	Is the area of law that protects the customers of a business. This is mainly through the Consumer Rights Act 2015
Satisfactory quality of goods	Means that how the goods are made will reflect the price. A high-priced product must be of high quality
Reputation	Of a business is what customers say and feel about a business.

The Consumer Rights Act 2015 gives customer's protection when they buy goods and services.

It states they must be:

- Of satisfactory quality
- Fit for purpose
- As described



What these mean for a business using examples:

Of satisfactory quality	Goods must not be damaged or faulty when you buy them. The quality expected in different products should be taken into account. Cheaper 'bargains' should be expected to have a lower quality than luxury goods,
Fit for purpose	Goods must do what they are meant to do. If the seller claims that a product does a particular function, then it must be able to do that.
As described	Goods must be as you describe them. If you order orange trainers, then you should receive orange ones not blue ones.

The impact of consumer law on business

Advantages of consumer law for a business	Disadvantages of consumer law for a business
• Improves business' reputation which could increase sales • Help to reduce recalls/ returns which will lower costs	• Can be expensive to provide training for employees to ensure they are producing satisfactory quality goods • If a business does not provide 'of satisfactory goods, customers may demand a refund which will increase costs and reduce profits • Customers can claim compensation of goods are not safe • They may also lose their reputation



OCR GCSE Business: 4.4 Consumer Law

1. **The Consumer Rights Act 2015** stipulates that goods/services must be three things- list the three things below;

.....

2. Give me **one consequence** to a business of not abiding by the law.

.....
.....

3. Goods /services must be of what kind of quality?

.....
.....

4. Give me **one benefit** to a business of abiding by consumer law.

-

5. Explain the difference between The Consumer Rights Act 2015 and Consumer Protection legislation.

.....
.....



4.5 Business Location

Location - refers to the place where a business is sited.

Proximity - means 'nearness to' or how close something is

Costs

- Locating in an area where the cost of land, premises or labour is low enables a business to save on costs
- Businesses need to transport raw materials and finished goods, so areas with good road, rail, sea or air links will keep transport costs low
- Access to reliable and cheap ICT communication, such as fast broadband.

Proximity to the market

- Service businesses must locate near their customers i.e. a hairdresser will locate near to where consumers live
- Manufacturing businesses may locate near their customers for easier communication, i.e. a business that makes car components may locate near to the company that purchases them, to enable them to respond quickly to orders
- A business located near its customers may be able to reduce the cost of transporting products to this market i.e. a local bakery will not transport bread to

Factors influencing business location

Government

- The government may give businesses grants towards start-up costs, or it may reduce corporation tax for those businesses locating to an area of high unemployment, which may encourage firms to locate in enterprise zones, such as in South Wales

Proximity to materials

- A business may locate near to a source of raw materials to save on transportation costs
- E.g. a cheese manufacturer may locate near to dairy farms so milk does not need to be transported a long distance.
- Shorter transport journeys are good for the environment as this minimises carbon emissions and enables the business to be more environmentally friendly. This also helps to reduce business costs.

Proximity to labour

- A business needs a supply of skilled workers. 'Silicon Fen' is an area near Cambridge where many ICT firms and skilled workers are located, so an ICT business might wish to locate here
- A business that needs a lot of unskilled workers might locate in an area of high population and/or high unemployment



OCR GCSE Business: 4.5 Business Location

1. What does the term “**proximity**” mean in business location?

.....

2. Give one reason why **transport links** (road, rail, air, sea) are important when choosing a location.

.....
.....

3. Why might a business choose to locate **near its customers** (the market)?

.....
.....

4. What is **one benefit to a business** of locating near **raw materials**?

.....
.....

5. How can the **government influence where a business locates**?

.....
.....



4.6 Working with suppliers

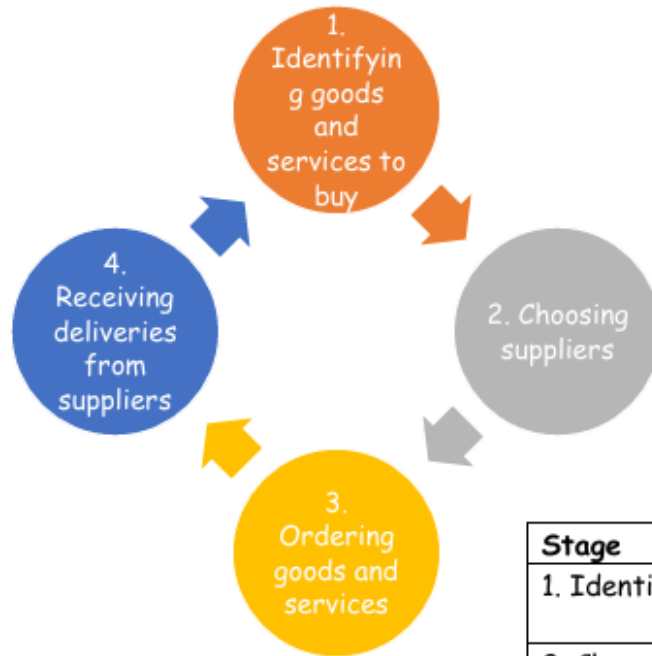


Procurement - the management of purchasing within a business

Logistics - the process of organising the transport of goods from the seller to the buyer

Supply chain - the chain of businesses involved in the production of a product and its delivery to the user.

Stages of the procurement process



Issue	Explanation	Potential problem
Time	Supplier must be able to deliver the goods on time	Supplier may be short of materials or components which may delay its production of goods and services = lose sales and revenue
Reliability	Supplier must be able to supply the quantity and quality of goods needed by the customer	If the supplier is short of materials or they are not of sufficient quality, it may have to delay or stop production = lose sale and revenue
Length of the supply chain	A long supply chain (one with a large number of businesses) has an increased risk of problems occurring along the chain	Business which makes a component may not get the materials it needs and so cannot produce the components its customer needs to assemble its product
Costs	Customers will want delivery costs to be as low as possible but this must not be at the expense of reliability	High delivery costs may make the total production costs too high and the firm may not be able to sell its goods at a profit
Customer service	A supplier will need to provide customer service to deal with problems and enquiries from its potential and actual customers	The business may lose customers if businesses that buy from it are not happy with the service they receive.

Stage	Definitions
1. Identify goods and services to buy	What to buy can be influenced by the time of the year, fashion or technology
2. Choosing suppliers	Who can you buy from? What do they charge?
3. Ordering goods and services	The actual process of ordering and procuring goods.
4. Receiving deliveries from suppliers	When will the goods be delivered? Where will they be stored?



1. What does **procurement** mean?

.....

2. What is the supply chain?

.....
.....

3. Give **one problem** a business might face if a supplier is **not reliable**.

.....
.....

4. What is **one stage** in the procurement process?

.....
.....

5. What does **logistics** refer to?

- A) Managing employees
- B) Transporting goods from seller to buyer
- C) Advertising products
- D) Setting prices



Network Hardware

Five Pieces of Network Hardware

Hardware	Function
1 Network Interface Controller (NIC)	Allows devices to connect to a network — usually built into the motherboard.
2 Switch	Receives and transmits data between devices on a LAN using MAC addresses.
3 Transmission Media	Wires or wireless radio waves that allow data transmission between devices.
4 Wireless Access Point (WAP)	Allows devices to connect to a network wirelessly. Similar to a switch.
5 Router	Transmits data between networks by directing data as 'packets' to their destination. <i>Most 'routers' are a router, switch and WAP all in one.</i>

Wired Networks

Three cables to connect devices on an Ethernet (wired) network:

- 1 Twisted pair — copper wires twisted together in pairs to reduce internal interference.
- 2 Coaxial — a single copper wire surrounded by plastic insulation and metallic mesh to shield from outside interference.
- 3 Fibre optic — transmits data as light. Can send data over long distances with little interference. High performance but expensive.

Wired networks tend to be faster and more reliable than wireless networks.

Wireless Networks

Radio waves transmit data between devices on wireless networks.

Two common wireless technologies:

- 1 Bluetooth® — direct connection between two devices to share data. Low bandwidth.
Max range 10 metres
- 2 Wi-Fi® — can connect multiple devices to a LAN at once. High bandwidth.
Max range 40-100 metres

Wireless networks tend to be cheaper and more convenient than wired networks.

Types of Network

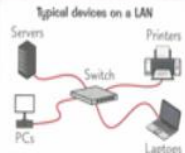
LANs — Local Area Networks

LANs cover small geographical areas at single sites — e.g. in businesses or schools. LAN hardware is usually owned by the organisation using it.

They can be **wired** or **wireless**.

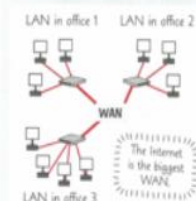
Users on a LAN can:

- Access and share files on the network.
- Share hardware.
- Share an Internet connection.
- Log in from any device on the network.
- Roll out security and software updates to all computers at once.



WANs — Wide Area Networks

WANs connect LANs in different geographical locations.



Organisations hire infrastructure (e.g. fibre optic lines or satellite links) from telecommunications companies, who own and manage the WAN.

More **expensive** to set up than LANs.

Network Performance

BANDWIDTH — amount of data that can be transferred in a given time. It's shared between devices on a network. Low bandwidth, heavy use (e.g. streaming video), or too many devices can slow a network.

Wired network performance can depend on the type of cables used.

Wireless performance depends on signal quality, which is affected by:

- Range of the device
- Interference from other networks
- Physical obstructions



Networks and Topologies

Client-Server Networks

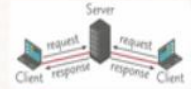
Files, software, user profiles and passwords are all stored centrally on the server. Client sends a request to the server. Server processes the request and responds.

PROB

- Easy file tracking — all stored centrally.
- Back up files and update software easily.
- Servers are reliable and always on.
- Security — servers can request passwords or access levels before fulfilling requests.

CONS

- Expensive to set up and maintain.
- If the server goes down all clients lose access.
- Servers can get overloaded with too many requests.



Peer-to-Peer Networks

Devices connect directly — no server. Files are stored on individual devices and shared with others.



PROB

- Easy to maintain without expertise.
- No dependence on a server.

CONS

- Updates and backups are complicated.
- Hard to track files — copying between devices creates duplicates.
- Data could be lost if one device fails.

Star Topology

All devices connect to a central switch or server that controls the network.



PROB

- Network unaffected if a device fails.
- Easy to add more devices.
- High performance.

CONS

- Expensive for wired networks.
- Switch is a single point of failure.

Mesh Topology

No switch — data sent along fastest route from one device to another.



PROB

- No single point of failure.
- Add devices without affecting performance.

CONS

- Expensive for wired networks.
- Hard to maintain lots of connections.

Network Terminology

Key Term	Definition	Key Term	Definition
LAN	"Small geographic area". All the hardware for the LAN is owned by the organisation using it.	Stand-Alone Computer	"A single computing device not connected to any other on a network, either wired or wireless."
WAN	"Large geographic area". Infrastructure is hired from telecommunication companies who own and manage it.	Star Network Topology	"Computers connected to a central switch. If one computer fails no others are affected. If the switch fails all connections are affected."
Client-Server Network	"A client makes requests to the server for data and connections. A server controls access and security to one shared file store. A server manages access to the internet, shared printers and email services. A server runs a backup of data."	Mesh Network Topology	"Switches (LAN) or routers (WAN) connected so there is more than one route to the destination. e.g. The Internet More resilient to faults but more cable needed."
Peer-to-Peer Network	"All computers are equal. Computers serve their own files to each other. Each computer is responsible for its own security and backup. Computers usually have their own printer."		

Network Protocols

Network Addressing

IP ADDRESSES — unique 32- or 128-bit identifiers given to devices when they access a network.

E.g. 37.153.62.136 — *decimal*

MAC ADDRESSES — unique 48- or 64-bit identifiers given to network devices by the manufacturer.

E.g. 98-81-55-CD-F2-2F — *hex*

Protocols

NETWORK STANDARD — a set of agreed requirements for hardware and software that allows different manufacturers to make compatible products.

NETWORK COMMUNICATION PROTOCOL — rules for how devices communicate, and how data is organised and transmitted across a network.



Transmission Control Protocol (TCP) — sets rules for how devices connect to a network. Splits and reassembles data packets. Checks they're sent and delivered.



Internet Protocol (IP) — directs packets to their destination across a network.



Simple Mail Transfer Protocol (SMTP) — sends and transfers emails between servers.



Post Office Protocol (POP) — retrieves emails from a server. Server deletes the email after you download it.



Hyper Text Transfer Protocol (HTTP) — web browsers use it to access websites and web servers.



HTTP Secure (HTTPS) — encrypts website information sent and received for security.



File Transfer Protocol (FTP) — accesses, edits and moves files between devices on a network.



Instant Messaging Access Protocol (IMAP) — retrieves emails from a server. Server holds it until you delete it.

Network Layers

Network communication is divided by functionality into **layers**. Each layer is self-contained. It serves the layer above it and depends on all the layers below it.

Benefits of network layers:

- Developers can each focus on one area of the network.
- Layers can be changed without affecting others.
- Standards develop ensuring compatibility between different pieces of hardware and software.

Layer	Protocol
4	HTTP
3	TCP
2	IP
1	Ethernet

Internet Services

The Internet

INTERNET — a worldwide collection of computer networks.

WORLD WIDE WEB — a collection of websites hosted on web servers. Accessed through the http protocol.

URLs — addresses used to access web servers and resources on them, e.g:

https://www.cgsbooks.co.uk/guestbook
Protocol Domain name Path to a file or page.

Domain Name Service (DNS)

A service made of many **domain name servers** that store domain names and matching IP addresses.

- 1 Browser sends URL to DNS.
- 2 DNS finds matching IP address and sends it back to browser.
- 3 Browser requests web page from the web server at the IP address.
- 4 Web server processes the request and sends the web page back.

Hosting and The Cloud

HOSTING — when a business uses its servers to store files for another organisation, e.g. hosting websites on web servers or files on file servers.

THE CLOUD — servers accessed over the Internet that offer a range of services including:

- 1 Storing and accessing data and files — users need less storage space on their own computer.
- 2 Running cloud applications — users can access software without needing it on their own computer.
- 3 Providing increased processing power — users don't need to have expensive hardware in their computer.



Pros of the cloud	Cons of the cloud
Access files from any device.	Requires Internet connection.
Easy to increase storage space.	Relies on host for security and backups.
No need for expensive hardware and the staff to manage it.	Stored data can be vulnerable to hackers.
Host provides security and backups.	Unclear who has ownership of data.
Automatic updates.	Expensive subscription fees.

Network Security Threats

Four Types of Network Attack

Attack	How it works
1 Data interception and theft	Sensitive information travelling on a network is intercepted using monitoring hardware and software like packet sniffers.
2 Brute-force	Automated software is used to try millions of potential passwords until one works.
3 Denial of service (DoS)	Hacker prevents users from accessing a network or website by flooding it with useless traffic/requests.
4 SQL injection	SQL code is typed into input boxes on a website. If the site doesn't have strong input validation, the hacker can gain access to databases behind the website. E.g. databases of customer details.

Malware

MALWARE — software designed to damage or disrupt a device or network.

-  **Spyware** — monitors user actions and sends info to the hacker.
-  **Viruses** — attached to other files. Only run or replicate when the file is opened.
-  **Scareware** — tricks user into paying to fix fake problems.
-  **Worms** — like viruses but self-replicate so spread quickly.
-  **Ransomware** — encrypts files. User pays for decryption key.
-  **Trojans** — malware disguised as legitimate software. Do not replicate themselves.
-  **Rootkit** — gives hackers admin access to the system.

Two Types of Social Engineering

SOCIAL ENGINEERING — gaining access to networks or sensitive information by using people as a system's weak point.

- 1 Telephone** — a person is called by someone pretending to be a friend, colleague or company and is persuaded to disclose confidential information.
- 2 Phishing** — criminals send emails pretending to be well-known businesses. They contain links to fake websites that ask users to update their personal information, which the criminals steal.

Network Security Measures

Passwords

Passwords prevent unauthorised users from accessing a network. They should be strong and changed regularly to protect against brute-force attacks.

bossman X Weak
B9E1B5Tr1y*A ✓ Strong

Encryption

Data is translated into a code that needs a specific **decryption key** to access.

Secures data sent over a network which limits the effectiveness of data interception attacks.

Secures data stored on the network which limits the effectiveness of SQL injection.

User Access Levels

- User access levels can control:
- who has access to sensitive data,
 - who has read/write access to files,
 - who can change access levels of other users.

Limiting the number of people who can access sensitive data and important files makes social engineering and malware attacks less effective.

Anti-Malware Software

Anti-malware software prevents malware from damaging a network and the devices on it.



Antivirus programs isolate and destroy computer viruses.

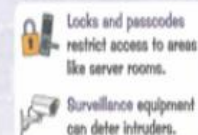
Firewalls

Firewalls examine all data entering and leaving a network. They identify threats using a set of security rules, blocking unauthorised access and unwanted data.

Help to protect against most types of attack including brute-force, denial of service, malware and phishing.

Physical Security

Protects physical parts of a network from damage (e.g. theft and vandalism).

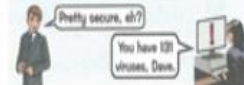


Locks and passcodes restrict access to areas like server rooms.

Surveillance equipment can deter intruders.

Penetration Testing

Organisations hire specialists to simulate attacks — they identify and report weaknesses in a network's security. The weaknesses can be fixed to help to protect against real network attacks.



Network Security Terminology

Key Term	Definition
Malware	"Software written to cause loss of data, encryption of data, fraud and identity theft: virus, worm, trojan, ransomware and spyware."
Phishing	"Sending emails purporting to be from reputable companies to induce people to reveal personal information."
Social Engineering	"Most vulnerabilities are caused by humans. Not locking computers. Using insecure passwords. Not following/poor company network policies. Not installing protection software. Not being vigilant with email/files received. Not encrypting sensitive data."
Brute Force Attacks	"A trial and error method of attempting passwords. Automated software is used to generate a large number of guesses."
Denial of Service Attacks	"Flooding a server with so much traffic it is unable to process legitimate requests."
Data Interception	"Stealing computer-based information."
SQL Injection	"A hacking technique used to view or change data in a database by inserting SQL code instead of data into a text box on a form."
Network Policies	"Rules put in place on a Local Area Network by a systems administrator. They control aspects such as what certain types of users are allowed to / what they are allowed to access etc."
Penetration Testing	"Testing designed to check the security and vulnerabilities of a system."
Network Forensics	"Network forensics is a sub-branch of digital forensics relating to the monitoring and analysis of computer network traffic for the purposes of information gathering, legal evidence, or intrusion detection."

System Software — The OS

Five Functions of an Operating System (OS)

Function	Features
1 Peripheral management and drivers	- Communicates with internal hardware, and peripherals connected to the system, using drivers. - Chooses correct drivers for connected hardware on startup. - Installs drivers for new hardware and updates drivers automatically. 
2 Providing a user interface	Allows users to interact with a computer. Different interfaces are designed for different types of user: - Graphical User Interfaces (GUIs) have windows, icons, menus and pointers. Designed for everyday users. - Command-Line Interfaces are text-based and use fewer system resources than GUIs. Used by advanced users. 
3 Memory management and multitasking	- Moves application data to main memory when in use and removes it when it's no longer needed. - Allocates memory addresses so apps don't overwrite or interfere with each other. - Divides CPU processing time between tasks to complete them efficiently. - Uses memory buffers to store data until other components or processes are ready. 
4 File and disk management	- Organises files into a hierarchical structure of folders. - Deals with naming, saving, moving, editing and deleting files and folders. - Splits the hard disk into sectors and decides where files are written to. - Maintains the hard disk with utility software.  The OS uses extensions to match files with apps.
5 User management	- Controls which users, and how many users, can access the computer system. - Grants users access to specific data and resources — e.g. their own personal data and account, but not that of other users. - Uses anti-theft measures to prevent access for other users — e.g. password or pin protection. 

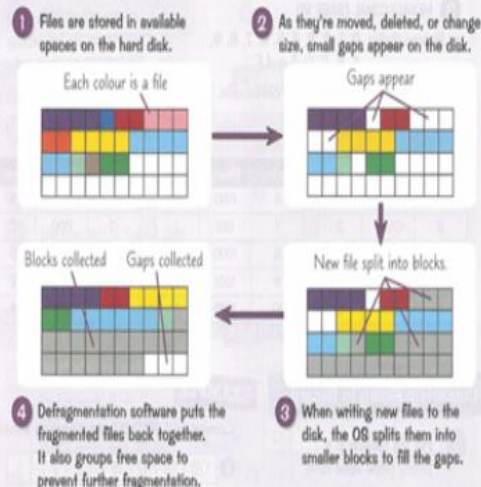
System Software — Utilities

Defragmentation Software

UTILITY SOFTWARE — software designed to help maintain a computer system.

Defragmentation software reorganises a HDD by putting related data back together. This speeds up reading/writing files as the read/write head no longer has to move as much.

SSDs don't need to be defragmented, they can access fragmented files quickly.



Compression Software

Reduces size of files by permanently or temporarily removing data from them.

Compressed files take up less disk space and are quicker to upload and download.

Compressed files need to be extracted before they can be used.

Encryption Software

Scrambles (encrypts) data to stop third-parties from accessing it.

To decrypt it back to its original form, a special 'key' is needed.

Only the computers of intended readers have the key, so stolen encrypted data is still secure.

Strong encryption makes it almost impossible to find the key through brute force methods.

System Software Terminology

Key Term	Definition
Systems Software	"Collection of systems software that manages the computer. Usually supplied with the computer. Most common operating systems are Windows, Linux, Unix, MacOS, iOS."
User Interface	"The means by which the user and a computer system interact, in particular the use of input devices and software."
Memory Management	"The process of the operating system deciding what should be in memory at any given time. Responsible for loading data and programs into and out of memory when required."
Multitasking	"Running more than one application at a time by giving each one a slice of processor time."
Peripheral Management	"The process of your operating system dealing with requests / input / output to and from any connected peripheral devices such as a mouse, keyboard, webcam, speaker, scanner, printer etc."
Device Drivers	"Translates commands from the operating system into hardware specific commands that a device understands. e.g. A printer driver tells the printer how to print a document from the operating system."
User Management	"Operating system provides for: Allowing different people to log into the same computer with a username and password. Remembering personal settings. Managing access rights to files."
File Management	"Operating system provides: Access permissions for files (read and write). Opening files in associated programs. Moving, deleting and renaming files. Presenting a folder structure to the user."
Utility System Software	"A systems program that performs some specific task in the operation of the computer, for example file backup, virus checking or a compression program."
Encryption Software	"Turns plaintext data into unreadable ciphertext data using a key. Protects data from being read by hackers."
Defragmentation Software	"Different sized files saved on disk are deleted over time creating gaps on the disk. New files fill up the gaps but may need more space than the gap provides resulting in fragments of the file being spread across the disk. Defragmentation rearranges parts of files back to contiguous space. Makes access quicker."
Data Compression	"Reduces the size of a file. Takes up less disk space. Quicker to download over the internet. Compressed files must be extracted before they can be read."
Full Backup	"Every file is copied to an alternative storage device. E.g. portable hard drive. Files can be recovered if it is deleted or corrupted. Can be slow to copy large numbers of files."
Incremental Backup	"Only the files that have changed since the last backup are copied. Files can be recovered if it is deleted or corrupted. Much quicker than a full backup."

Structured Programming

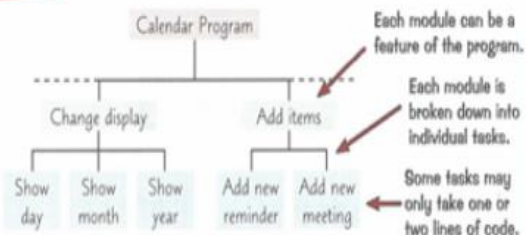
Using Structure Diagrams

STRUCTURE DIAGRAM — a tool you can use to help design and create programs.

- 1 Decompose the program into manageable modules.
- 2 Continue decomposing modules into smaller modules, until each one performs a simple task.
- 3 Write sub programs to carry out each task.
- 4 Build the bigger modules and main program from the sub programs.



EXAMPLE



The advantage of using structure diagrams is that modules can be...

- Written independently
- Tested individually
- Reused elsewhere

Four Ways to Improve Maintainability

Well-maintained code is easier for other programmers to understand. They can change parts of the code without causing problems elsewhere.

- 1 Write **comments** to explain what code does.

Comments are usually written after //.



- 2 Use **indentation** to make program flow clear to see.

- 3 Use **descriptive names** for variables, sub programs and parameters so it's easier to keep track of them.

string where to
int how far

- 4 Use **sub programs** to separate parts of the program.

Defensive Design

Robust Programming

Programs that function correctly shouldn't break or produce errors. Avoid these problems by using defensive design:



Anticipate and prevent misuse by users.



Keep code well-maintained.



Reduce errors by testing.

Five Validation Checks

INPUT VALIDATION — checking if data meets certain criteria before passing it into a program.

Programs often use a mixture of validation checks, including:



Validation check	What it does...
1 Range check	Checks the data is within a specified range.
2 Presence check	Checks the data has actually been entered.
3 Format check	Checks the data has the correct format, e.g. a date.
4 Look-up table	Checks the data against a table of acceptable values.
5 Length check	Checks the data is the correct length.

Authentication



AUTHENTICATION — confirming the identity of a user before allowing access.

Passwords or biometrics are usually associated with a username.

Four ways to make passwords more secure:

- 1 Force strong passwords — long with a mix of letters, numbers and symbols.
- 2 Limit the number of failed authentication attempts.
- 3 Require that passwords are changed regularly.
- 4 Ask for a random selection of characters from a password on each attempt.

Languages, Translators & IDEs

High-Level Languages

The majority of code is written in high-level languages, e.g. Python.

- One instruction represents many instructions of machine code.
- Same code works on different machines and processors.
- Code is easy to read and write.
- Don't need to know about the processor or memory structure.
- Must be translated or interpreted before it can be executed.
- Slower and less memory efficient.

Low-Level Languages

Machine code → 00000 00010 00011...

Assembly languages → ADD r4, r2, r3

- One instruction of assembly code can represent one of machine code.
- Code usually only works for one machine or processor.
- Code is hard to read and write.
- Need to know internal structure of CPU and how it manages memory.
- Machine code can be executed directly, without being translated.
- Faster and more memory efficient.

Two Types of Translator

1 COMPILER

- Translates all code at once into machine code, creating an executable file.
- Only needed for initial translation.
- Returns a list of errors for whole program when compiling is complete.
- Compiling can take a long time, but program runs quickly once compiled.

2 INTERPRETER

- Translates and runs one instruction at a time using its own machine code subroutines.
- Used every time code is run.
- Stops and returns first error found.
- Programs run more slowly.



Five Common Features of IDEs

INTEGRATED DEVELOPMENT ENVIRONMENT (IDE) — software to help develop programs.

1 Code editor	Where code is written. Can often automatically colour, indent, correct and complete code.
2 Run-time environment	Allows code to be run and tested within the IDE.
3 Error diagnostics	Debugging tool to show information about detected errors.
4 Breakpoints	Pause the program at certain lines. Values can be checked to help diagnose logic errors.
5 Translator	A compiler or interpreter to allow source code to be executed.

CM1: Media products

Description:

A media product is a platform used to communicate information to a specific audience. There are different formats that can be used for this purpose.

Digital imaging and graphics

Definition/Meaning:

A product that uses technology to create images in digital form. This may involve the use of graphic tablets, cameras or specific software such as Photoshop.

Digital games

Definition/Meaning:

A product that uses games consoles as well as personal computers to entertain the audience. In particular, online gaming.

1.1

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Video

Definition/Meaning

A product that includes moving images and in most cases an auditory element. It's also referred to as an audio-visual product.

Audio

Definition/Meaning

A product that is recorded or transmitted in the form of sound. For example, sound effects.

Animation

Definition/Meaning:

A product that converts still images into moving elements to illustrate a sequence of events.

Music

Definition/Meaning:

A product that records audio as a way to express emotion.

Visual effects (VFX)

Definition/Meaning:

Technology is used to incorporate effects that may be too dangerous or impossible to add any other way. For example, a spaceship flying across the screen.

Special effects (SFX)

Definition/Meaning:

Special effects that can be created on set. This includes physical character creation, puppetry, animatronics or humans wearing prosthetic make-up and costumes.

CM1: Media products

Description:

A media product is a platform used to communicate information to a specific audience. There are different formats that can be used for this purpose.

Social media

Definition/Meaning:

Websites and applications that enable users to create and share content or to participate in social networking.

Apps

Definition/Meaning:

A mobile application or app is a computer program or software application designed to run on a mobile device such as a phone, tablet, or watch.

1.1

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Comics and graphic novels

Definition/Meaning

A product that is designed to tell stories in a more visual way through illustrations and speech bubbles for dialogue.

Multimedia

Definition/Meaning:

A product that combines a range of assets such as text, images, video, animation and sound.

Virtual reality (VR)

Definition/Meaning:

Virtual reality is a computer-generated simulation in which a person can interact within an artificial three-dimensional environment.

Websites

Definition/Meaning

A product that combines a range of multimedia elements to create a webpage that can be accessed with an internet connection.

eBooks

Definition/Meaning:

A product that is available in electronic form and accessible via apps or e-readers (e.g. Kindle)

Augmented reality (AR)

Definition/Meaning:

Augmented reality allows the user experience the real world, which has been digitally augmented or enhanced in some way.

CM1: Media sectors

Description:

The main means of mass communication (broadcasting, publishing, and the internet) regarded collectively. The industry itself branches out in 'traditional' media and 'new' media.

How has the traditional media industry evolved?

Examples:

- Special effects (SFX, VFX)
- Digital imaging and graphics
- Social media platforms/apps
- Digital games
- Websites
- Multimedia
- eBooks
- Augmented Reality (AR)
- Virtual Reality (VR)
- 3D technology
- Digital Audio Broadcasting (DAB)

1.1

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Traditional media

Definition/Meaning

Traditional media refers to non-digital methods of communication. These methods have been long used to create awareness of a product and existed before the internet.

Sectors

- TV (Television)
- Radio
- Film
- Print publishing

Interactive media examples:

Examples include:

Website, apps, e-learning products, information points and digital maps

New media

Definition/Meaning

On-demand content accessed via the internet through digital devices, such as personal computers and smartphones. New media can involve interactive elements such as audience engagement and feedback.

Sectors

- Interactive Media
- Video games
- Internet
- Digital publishing

Key terms:

Media
Distribution
Multimedia
Streaming
Downloading

Knowledge Organiser: KS4 Design Technology

New and Emerging Technologies: CAD CAM

CAD Computer Aided Design

Examples; 2D Design, Autodesk Inventor, Fusion 360, Photoshop, etc

Advantages

- Easy to change designs
- Designs are easily saved and sent
- Can be worked on by multiple people simultaneously
- Can be used for virtual testing
- Can produce high-quality designs

Disadvantages

- Complex and time-consuming to learn
- Expensive to buy
- PCs can crash or be hacked – causing work to be lost
- Takes up PC memory

CAM Computer Aided Manufacture

Examples; 3D Printing, Laser Cutting, CNC Router, Automated Machines and Robotics, etc

Advantages

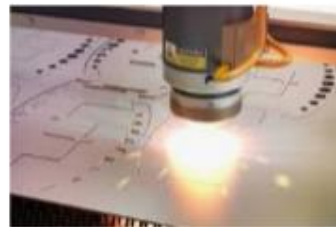
- Faster and more accurate than traditional tools
- Repetitive accuracy/ consistent outcomes
- Machines can run 24/7

Disadvantages

- Expensive to buy the equipment, etc
- Training takes cost and time
- Need specialists to maintain and repair the machines
- Dependence on CAM can cause unemployment

Key words

CAD
CAM
Just In Time
Lean
Manufacturing
CNC Router
Automation
3D printer
Laser cutter
Application
CNC Milling
machine
Prototype



Knowledge Organiser: KS4 Design Technology

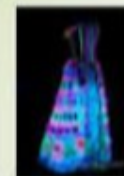
Developments in new materials: Modern and Smart materials

Smart Materials are materials that change and react to the stimuli

Material	Key info	Examples
Thermochromic Pigments	Change colour in reaction to heat	Kettles, baby bottles, etc
Photochromic Pigments	Change colour in reaction to light	Colour changing glasses, windows, etc
Shape Memory Alloy	Returns to its original shape, in reaction to heat	Braces and glasses
Polymorph	Granules that once exposed to hot water, become a modelling material (like a dough or clay)	Modelling and repairs

Modern Materials are materials that have been developed recently

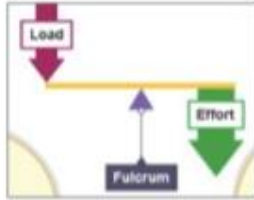
Material	Key info	Examples
Corn-starch Polymers	These are plant-based polymers that are a replacement for plastics that are biodegradable but cannot be recycled.	Plastic bottles, tubs, food containers, etc
Flexible MDF	Made in the same way as normal MDF but with grooves cut into the surface so it is flexible. Flexiply is the same but for Plywood. These can easily be shaped into curves	Modern furniture, interior walls and room dividers
Titanium	High strength to weight ratio. Doesn't corrode or rust. Suitable for medical use as its hypo-allergenic	Prosthetics, medical applications, sports cars, etc
Kevlar	A woven polymer with a high strength to weight ratio.	Bullet-proof vests, tyres, helmets, etc



Knowledge Organiser: KS4 Design Technology

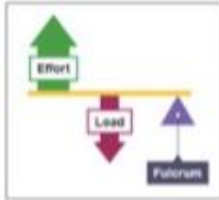
Mechanical Devices

Levers



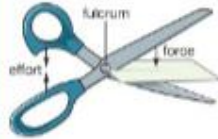
1st Class Lever:
Fulcrum in the centre
E.g. Scissors

2nd Class Lever:
Load in the centre
E.g. wheelbarrow



3rd Class Lever:
Force in the centre
E.g. Lifting a dumbbell

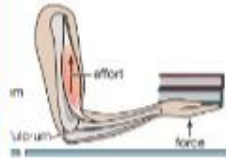
First-class lever



Second-class lever



Third-class lever



Gears and Pulleys



A Pulley is a grooved wheel, that has a belt running through it

This uses rotary motion and is often used to help with heavy loads, and transfer force from a motor to a tool in machines like drills, etc

Gears have teeth that mesh together with each other (like teeth on a zip)

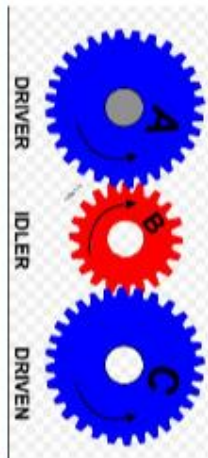
They mainly focus on rotary motion on tools and machinery e.g. car steering and pillar drills



Rack and Pinion



Worm and Wheel



Inventory management

Inventory (often referred to as stock) refers to goods and/or materials held by a business for the purpose of resale or production. Inventory management simply means methods of controlling stock through the manufacturing process or release of materials/products.

Some businesses are manufacturers only, resellers (retailers) only, or can be both – All types of businesses will employ some form of inventory management.

Just in time (JIT) manufacturing

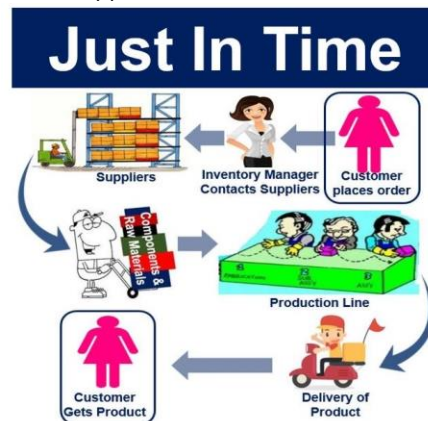
JIT production is a method of organising the manufacture of products so they are made to order – they arrive 'just in time' for the assembly or manufacture of a product.

Benefits include:

- Smaller manufacturing facilities due to no need to store materials/products.
- Products/components never become obsolete
- No risk of unsold stock

Disadvantages:

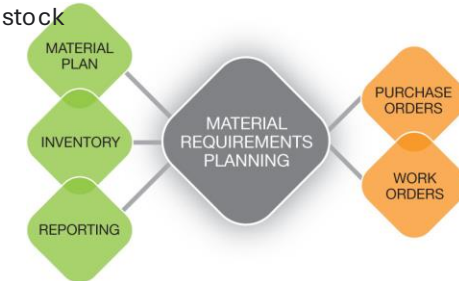
- Reliance on transport networks
- Reliance on reliable suppliers



Material requirements planning (MRP)

Material requirements planning (MRP) is a system for calculating the materials and components needed to manufacture a product. It consists of three primary steps:

1. Taking inventory of the materials and components in stock
2. Identifying which additional ones are needed
3. Scheduling their production or purchase



MRP is done primarily through specialised software.

Benefits include:

- Inventory is available right when it's needed and at the lowest possible cost.
- Improves the efficiency, flexibility and profitability of manufacturing operations.
- It can make factory workers more productive, improve product quality and minimise material and labour costs.
- helps manufacturers respond more quickly to increased demand for their products and avoid production delays.

Disadvantages:

- Software can be expensive
- Cost of training staff
- Still room for human error which can have huge cost implications.

Knowledge organiser: Topic Area 4: Developments in engineering manufacture

Lean manufacturing - The seven categories of waste

Lean manufacturing is a production method which is aimed at reducing times within the production system as well as response times from suppliers and customers.

Transportation Transportation is the process of moving something from one place to another. It does not add any value to the customer, so it should be minimised as much as possible.	Inventory This is the waste that is associated with unprocessed inventory. This includes the waste capital tied up in excess stock, wasted transport used moving the inventory, light and heating used to store the excess product.	Movement Movement wastage is any movement made that could have been used for another purpose. Anything from staff bending over to pick something up to CNC machines running inefficient programs.
Waiting This is any form of waiting that must be done by either a member of staff or machinery to complete a task.	Over-processing Lean manufacturing relies on products delivering value to the customer, but not over-engineering any product.	Over production Over-production is perhaps the most obvious form of manufacturing waste. Not only does it unnecessarily use up raw materials, but also wasted storage and excess capital tied up in unused products.

Defects

~~Not only does it unnecessarily use up raw materials, but also wasted storage and excess capital tied up in unused products.~~

Globalisation

Globalisation, is the process of interaction and integration among people, companies, and governments worldwide. Globalisation has accelerated since the 18th century due to advances in transportation and communications technology.

Requirement for transportation Selling to as many markets as possible requires materials and products to be transported all over the world via air, sea and land. Globalisation places a huge demand on transportation, and subsequent impact on the environment.	International standards Manufacturing to international standards is vital if you hope to sell your products or materials globally. International standards help ensure that materials and products meet a specification which helps keep customers safe.	Influence on employment opportunities Manufacturing and selling goods globally has led to many job opportunities around the world, including developing countries.
Differences in employment conditions Terms and conditions of employment relate to the requirements set out in an employee's contract. These outline the rights for both the employee and the business. Employment terms and conditions of businesses can include rights, responsibilities and duties.	Influence on product cost Where in the world a product, material or service is sold, can have a huge impact on the cost. This can range from how much the raw materials cost, to how much the product can be sold for based on the economic standing of the country.	Implications for sustainability Many manufacturers move their manufacturing facilities to be closer to a source of raw materials. Great care must be taken when doing this so that materials are used in a responsible way such as sourcing timbers from the Forrest Stewardship Council (FSC).

Consideration of economic, social, ethical and environmental implications

~~We must consider how globalisation can impact the economy of the country we operate from – it can greatly improve developing economies and severely negatively impact others when manufacturing plants move overseas.~~

Rebel Without A Cause (Nicholas Ray, 1955)
Knowledge Organiser

Institutional information	
Director:	Nicholas Ray
Release:	October 27, 1955
Production company:	Warner Brothers
Country of production:	USA
Starring:	James Dean, Natalie Wood
Genres:	Drama; teen drama; coming-of age.
Other information:	James Dean died in a car crash before the release of the film. Both James Dean & Natalie Wood were in their 20s during filming.
Award nominations:	3 Academy Award nominations, 2 BAFTA Award nominations.

Context:
Set in a suburb of Los Angeles in the early 1950s.
1950s; considered the birth of the 'teenager' as we recognise them today.
It was a time of peace meaning that young men were not at War. This was a confusing era for young men who could not identify with their war-time fathers. It also prevented them from having a war to fight that allowed them to prove themselves.
This new social group were seen as unruly, threatening and out of control .
The film offers a broadly sympathetic representation of teenagers, with blame for their parents in not understanding and engaging with the needs of teenagers and their delinquency.
More people were speaking out against inequality and for civil and equal rights at this time. The film demonstrates how young people like Jim have a desire to do the right thing & seek justice.

Narrative (The method and means by which you construct the events of a story into a plot)	
Narrative structure:	Five Act structure
Narrative viewpoint:	Teen POV.
Production company:	Warner Brothers
Country of production:	USA
Binary oppositions:	Create conflict. Key oppositions are children vs. their parents and teenagers vs. adults.

Characters	
Jim Stark:	Protagonist; 'The Outsider'. Struggles to find his place in the world. Wants to do the right thing.
Judy:	Craves love and affection from father. Falls in love with Jim.
John 'Plato' Crawford:	Another 'outsider'. Bullied and alone. Has an absent father and mother leaves him for long periods. He too craves love and affection. First gay teenager in film? His sexuality is only ever inferred.
Buzz:	Antagonist: The bully, a classic archetype. Provides opposition to Jim.
Frank Stark:	Unable to connect with his Son. Unable to stand up for himself throughout the film until the ending.

Key Elements of Film Form (Micro elements)	
Clothing (mise-en-scene):	The colour red used throughout: Judy's lipstick and dress at the start of the film symbolise her desire to be noticed. Jim's jacket later in the film does likewise, as well as suggesting danger or offering a warning sign; Plato later wears the jacket and dies. The colour red also contrasts with the clothes worn by the adults in the film, suggesting differences and conflict and anger.
Props (mise-en-scene):	Cars are used to highlight independence and individuality; freedom. Knives not only denote violence but are symbolic in marking out the teenage characters and for some, their desire for conflict.
Low-key lighting (cinematography):	Teenagers conversing with adults, often in conflict, are seen mostly indoors/at night. The use of low-key lighting helps to establish a dark and sombre mood and allows drama to be developed through a visual tone.
Blocking/camera angles:	Characters and their position on screen often suggests relationships and emotions, especially in key scenes. Note where/how Jim is sitting compared to his family in the police station scene or the scene where he's arguing with his parents about going to the police.
Soundtrack:	Classic Hollywood' style orchestral soundtrack is used to define and highlight the emotional response in key moments. See the "I got the bullets" key scene for an example.
POV (cinematography):	Many scenes are shot from (sometimes literally) the POV of the teenage characters. Editing helps to make clear where, for example Jim is, in contrast to the adults, with camera angles emphasising the relationship/the teenage perspective.

Themes/issues.	
Conflict:	Seen all the way through the film, conflict is key.
Parents vs. children:	Not just with Jim and his parents, there is a tension between parents & children throughout the film with each of the main characters.
Adults vs. teenagers:	Most notably seen as a generational conflict, note how adults and teenagers approach the same situation in different ways.
Authority:	Police, teachers, security guards, parents; authority figures are seen throughout the film often causing generational conflict.
Rebellion:	Teenagers are seen rebelling in a wide variety of ways.
Peer pressure:	The need to conform drives the teenagers motivations and the peer pressure from others often creates conflict.

Key quotes:	
"You're tearing me apart!" - Jim	A significant line in the film. Shows the impact that his relationship with his parents is having on him. Highlights key themes of the film in terms of conformity and conflict.
"How can you grow up in a circus like that?" - Jim	Jim is talking to Ray (police officer) at the start of the film and gives the audience an insight into his family life.
"What does he know about man alone?" - Plato	A line which gives the audience an insight into how Plato feels. He also feels alone and isolated, abandoned by his parents and craving love and affection.
"Don't I buy you everything you want?" - Frank Stark	Shows the audience how Jim's Dad associates material possessions with being a good parent. Also demonstrates how he does not fully understand Jim's frustrations.
"If only you could've been my dad" - Plato	Plato sees Jim as a replacement father figure; as someone who looks out for him and is kind to him. This further supports the film's themes of parent/child relationships.
"You, you say one thing, he says another, and everybody changes back again." - Jim	Emphasises how Jim is conflicted and confused by his parents constant disagreeing and how he needs communication from them; he needs to understand what they mean, what they want and the truth when needed.
"She'll outgrow it dear. It's just the age. ...it's the age when nothing fits." - Judy's mother	Along with Police Officer Ray, this is as close as any adult in the film comes to understanding the teenagers in the film and therefore, metaphorically, society in general.
"One thing I know is that I never want to be like him." - Jim	Jim is angry with his father. He doesn't feel a connection with him and doesn't look up to him as an example of how to live his life. His worst fear is turning into him.

Key scenes	
The Police Station: (bit.ly/RWACKS1)	The opening scene and a crucial one; we're introduced to the characters and their various situations. We learn how isolated they are and how they lack the relationships with many adults, especially their parents. We gain an insight into their 'rebellious' natures-how Judy, Plato and Jim do not conform with societal expectations. The film also establishes how certain elements of film form are key to this film in the use of costume, camera angles and soundtrack. (Note, the linked scene is just one small section from this opening scene.
Jim first day at school: (bit.ly/RWACKS2)	A clear example of how Jim's home/family life contrasts wildly with the 'outside world' and the life he craves with his peers. A key aspect here is how Jim alters his clothing in an attempt to fit in and impress Judy and how Judy lights a cigarette to mark her out as rebellious. Notice how the raucous nature of the teenagers contrasts wildly with the sedate nature of Jim's relatives at home. The soundtrack is another key aspect of this scene and influences the mood of the scene.
The knife fight: (bit.ly/RWACKS3)	On a narrative level, we see the literal example of Jim wanting to do what is right but struggling to fit in and be accepted by his peers. His white shirt connotes an innocence compared to the other teenagers. Props are also key, especially in Jim throwing away or rejecting weapons and symbolically, violence. The soundtrack helps to establish drama and action with camera angles and blocking establishing that Jim is isolated and trapped literally and metaphorically.
Jim fights with his parents: (bit.ly/RWACKS4)	A very important scene. Jim verbalises his issues on a personal level, his feelings about his parents and his relationship with them. We see how each of them handles the situation differently with Jim again showing how he wants to do the right thing. Camera angles and blocking here are key; pay attention to where Jim is and how he is closed in by his parents position or how the camera angles give him a general lack of 'power'. Clothing too is important for all characters.
"I got the bullets": (bit.ly/RWACKS5)	One of the final scenes in the film and it emphasises the difference between teenagers and adults, themes of justice and conflict and how the POV here is still with the teenagers. The red jacket is a vital aspect of the film and certainly in this scene is key. We also see the development of Jim's relationship with his father and get another example of Jim's desire to reject violence and conflict where he can with the classic line "I got the bullets!"

Foundational knowledge question- Y11 Film Studies Cycle 1

- 1.What year was the film Rebel Without a Cause released?**
- 2.Who directed the film?**
- 3.Which production company made the film?**
- 4.Who is the protagonist?**
- 5.What genre is the film?**
- 6.Where is the film set?**
- 7.List three themes of the film.**
- 8.List three key scenes of the film.**
- 9.List a prop used in the film.**
- 10.Describe a costume used in the film.**
- 11.Name three characters that are figures of authority in the film.**
- 12.List a key quote from the film.**
- 13.What diegetic sound?**
- 14.What is a soundtrack?**
- 15.Name a type of lighting.**

- 1.What year was the film released?**
- 2.Who directed the film?**
- 3.Which company produced the film?**
- 4.Who is the antagonist in the film?**
- 5.What is the name of Ferris' friend?**
- 6.How is the theme of conflict present in the film?**
- 7.How is the theme of rebellion present in the film?**
- 8.How is the theme of education presented in the film?**
- 9.Name three setting used in the film.**
- 10.What is the impact of the soundtrack in the film?**
- 11.List a type of editing used in the film.**
- 12.Describe Ferris in three adjectives.**
- 13.List a prop used in the film.**
- 14.What is the genre of the film?**
- 15.How is a costume used to reflect a character's personality?**

BTEC Tech Award Health and Social Care: Component 2 Knowledge Organiser

Learning Aim A — Understand the different types of Health and Social Care services and barriers to accessing them.

A1: Health and Social Care Services

Health Care Services

Primary Care Services — Initial services an individual accesses first if they have a health issue for advice or treatment e.g. GP, dentist, optometry, community health care.



Secondary and Tertiary Care Services — Medical care provided by a specialist or facility or specialized consultative care. Patients referred by primary care services e.g. cardiologists (heart disease) and neurologists (nervous system problems).

Allied Health Professionals (AHP's) - Health care professionals who provide treatment and support for adults and children who are ill, have disabilities or additional needs. Work across a wide range of settings including the community, people's homes and hospitals e.g. dieticians, physiotherapists, occupational therapist and speech and language.

Social Care Services—includes informal support offered by friends and family

- Services for children and young people, e.g. foster care, residential care, youth work
- Services for adults or children with specific needs (learning disabilities, long-term health issues), e.g. residential care, respite care
- Services for older adults, e.g. residential care, home care services.
- Informal care e.g. relatives, friends and neighbours.



A2: Barriers to accessing Services

Some individuals cannot access services due to barriers which prevent (stop) them from doing so.



Physical barriers, e.g. issues getting into and around the facilities.

Sensory barriers, e.g. hearing and visual difficulties preventing access to services

Social, Cultural and Psychological barriers, e.g. lack of awareness, differing cultural beliefs

Language barriers, e.g. differing first language, language impairments

Geographical barriers, e.g. distance of service provider, poor transport links

Intellectual barriers, e.g. learning difficulties

Resource barriers for service provider, e.g. staff shortages, lack of local funding

Financial barriers, e.g. charging for services, cost of



KEYWORDS & **DEFINITION**

Barrier — An obstacle that prevents access.

Residential care — Long term care for adults and children staying in a residential setting.

Respite care — Temporary care for sick, elderly or disabled people, also providing relief for usual carers.

Domiciliary care — Help with personal care and other practical household tasks.

Dieticians — An expert of diet and nutrition

Physiotherapy — Treatment of disease, injury or deformity using physical methods e.g., massage, heat treatment and exercise.

Occupational therapy — Use of particular activities to help recuperation for physical or mental illness.

Optometry — Measures eyesight, prescribes corrective lenses detects eye disease.

Learning Aim B — *Demonstrate care values and review own practice*

B1 Care Values

Care Values are a range of standards within Health and Social Care settings, that help to guide professionals in giving the most appropriate care to each individual.

1. **Empowering and promoting independence** by involving individuals, where possible, in making choices, e.g. about treatments they receive or how care is delivered.
2. **Respect** for the individual service users' needs, beliefs and identity.
3. **Maintaining confidentiality** when dealing with records, avoiding sharing information inappropriately, e.g. gossiping
4. **Preserving dignity** of individuals to help them maintain privacy and self-respect
5. **Effective communication** that displays empathy and warmth
6. **Safeguarding and duty of care**, e.g. maintaining a healthy and safe environment, keeping individuals safe from physical harm
7. **Promoting anti-discriminatory** practice by being aware of types of unfair discrimination and avoiding discriminatory behavior.



B2 Reviewing own application of care values

Using teacher feedback from your demonstration, you will be expected to: Identify your own strengths (what was good about your demonstration of the care values) and areas for improvement (what did not go so well) against the care values.

KEYWORDS & **DEFINITION**

Independence — Freedom to make own choices.

Respect — Understanding the feelings and wishes of others.

Confidentiality — Keeping information private and secure.

Dignity — Keeping respect and for a person.



Safeguarding — Promoting the welfare of children and protecting them from harm.

Communication — The sharing of information between two or more people, the act of speaking and listening.

Duty of care — The responsibility to always act in the best interests of an individuals.

Anti-Discriminatory — Prevents discrimination on gender, age, race, disability etc.

BTEC Tech Award Health and Social Care – Component 2

20 Knowledge Organiser Questions and Answers

- 1. What is a primary care service?**
- 2. Give two examples of primary care services.**
- 3. What is secondary or tertiary care?**
- 4. Name two specialist health professionals.**
- 5. What does AHP stand for?**
- 6. Give two examples of Allied Health Professionals.**
- 7. What is social care?**
- 8. What is residential care?**
- 9. What is respite care?**
- 10. What is domiciliary care?**
- 11. What is a barrier to accessing services?**
- 12. Give an example of a physical barrier.**
- 13. What is a sensory barrier?**
- 14. What is a language barrier?**
- 15. What is meant by promoting independence?**
- 16. Why is confidentiality important?**
- 17. What is dignity?**
- 18. What is safeguarding?**
- 19. What is duty of care?**
- 20. What is anti-discriminatory practice?**

Challenge Questions

- 21. Explain the difference between health care services and social care services.**
- 22. Describe two barriers that might prevent someone accessing health services.**
- 23. Explain why effective communication is important in health and social care.**
- 24. How does promoting independence improve an individual's wellbeing?**
- 25. Give an example of anti-discriminatory practice in a care setting.**

Year 11 Spanish Cycle 1 - Theme 3 Travel and Tourism

fresco	fresh, cool	planta	plant, floor	bolsa	bag
colombiano	Colombian	ropa	clothes, clothing	arquitectura	architecture
limpio	clean	fiesta	party, festival	carretera	road
caliente	hot, warm	plaza	square	identidad	identity
chileno	Chilean	isla	island	fruta	fruit
perdido	lost	carne	meat	tarjeta	written card, bank card
barato	cheap	costa	coast	cena	dinner, evening meal
caro	expensive	cámara	camera	vacaciones; de vacaciones	holidays; on holiday
animado	lively	comida	food, meal, lunch	primavera	spring
bienvenido	welcome	costumbre	custom, habit, tradition	bebida	drink
patatas fritas	chips, fries	lluvia	rain	maleta	suitcase
tomar el sol	(to) sunbathe sunbathing	vuelta	return, trip, ride	piscina	swimming pool
pasarlo bien/mal	to have a good/bad time	tradición	tradition	excursión	trip, excursion
centro comercial	shopping centre	salida	exit, departure	camarera	waitress
dar un paseo	(to) go for a walk, stroll going for a walk, stroll	lista	list, (school) register	mezquita	mosque
historia	history, story	estación	station, season (of the year)	mochila	rucksack, school bag
vista	view, sight	montaña	mountain	sinagoga	synagogue
iglesia	church	playa	beach	corrida	bullfight
lengua	tongue, language	copa	cup, wine glass	paella	paella (dish usually of rice and seafood)
entrada	entrance, admission ticket	tienda	shop, tent	España	Spain

Translate:

- 1) Lo pasé muy bien en España ya que vi mucha arquitectura.
- 2) Diría que mi hotel está bastante limpio pero la comida no está buena.
- 3) La salida va a ser a las dos de la tarde.
- 4) La semana pasada di un paseo con mi perro y de vuelta visité la sinagoga de mi plaza.
- 5) Mi estación preferida es el verano porque no hay mucha lluvia.
- 6) Bienvenidos a la mezquita, vamos a ver mucha historia y costumbres.
- 7) Mi pasaporte está perdido, así que no puedo ir de vacaciones.

Translate:

- 8) En mi maleta hay mucha ropa pero mi tarjeta de identidad está en mi mochila.
- 9) La ciudad chilena es muy animada pero no entiendo la lengua.
- 10) Las entradas no son baratas pero quiero ver a Bad Bunny en concierto, sería una fiesta increíble.

Year 11 Spanish Cycle 1 - Theme 3 Travel and Tourism

Sudamérica	South America	metro	underground, tube, metro, metre	transporte	transport	pollo	chicken
bicicleta, bici	bicycle, bike	viento	wind	bosque	forest, wood	autobús	bus
tapas	small dishes of food, bar snacks	edificio	building	tren	train	desfile	procession, parade
café	coffee, café	piso	flat, apartment, floor (of building)	kilómetro	kilometre	alojamiento	accommodation
camping	camp site, camping	barrio	neighborhood, district	plano	map	camarero	waiter
euro	euro	calor	heat, hot	espectáculo	show, spectacle	jamón	ham
sol	sun	grado	degree (temperature)	clima	climate	ayuntamiento	Spanish town council, town hall
este	east	puerto	port, harbour	paisaje	landscape, scenery	buscar	(to) look for, fetch, search for
país	country	museo	museum	vuelo	flight	perder; perderse	(to) lose, miss (to) get lost
mundo	world	habitante	local (person), inhabitant	plato	plate, dish	comer	(to) eat eating
campo	countryside, pitch, field	verano	summer	invierno	winter	comprar	(to) buy, purchase
pie; a pie	foot; on foot	idioma	language	templo	temple	pagar	(to) pay (for) paying (for)
espacio	space, room	hotel	hotel	tráfico	traffic	vender	(to) sell selling
mercado	market	coche	car	dormitorio	bedroom	costar	(to) cost, be hard
río	river	jardín	garden	oeste	west	visitar	(to) visit visiting
viaje	trip, journey	baño	bathroom	aeropuerto	airport	viajar	(to) travel travelling
peso	weight, peso (currency)	pan	bread	castillo	castle	disfrutar	(to) enjoy enjoying
precio	price, cost, value	vino	wine	restaurante	restaurant	probar	(to) taste, try tasting, trying
extranjero	abroad, foreigner (m)	barco	boat, ship	transporte	transport	conducir	(to) drive driving
recuerdo	memory, souvenir	avión	plane, aeroplane	bosque	forest, wood	coger	(to) take, take hold of, catch

Translate:

- 1) El mejor país que visité fue China, porque vi un castillo inolvidable.
- 2) Se puede ir a pie al mercado, y comprar una variedad de pan y jamones.
- 3) El aeropuerto está muy lejos del centro, pero es posible ir en coche.
- 4) No me gusta pagar en euros porque es más caro.
- 5) Disfrutaré de las vacaciones de invierno ya que no hará tanto calor.
- 6) Hace mucho frío en mi dormitorio pero me gusta el barrio.
- 7) El río es precioso y vale la pena visitar.
- 8) Hay que probar las tapas en San Sebastián, son las mejores del mundo.

Translate:

- 9) El restaurante vende platos tradicionales del país.
- 10) El bosque está a diez kilómetros del puerto.
- 11) Los extranjeros deben visitar el campo porque es precioso.
- 12) No me gustaría perderme en el centro, voy a usar un plano.
- 13) El tráfico va a ser muy intenso la noche del espectáculo.

Year 11 Spanish Cycle 1 - Theme 3 Media and Technology

social	social	página	page	sitio (web)	place, site (website)	jugar	(to) play (sport/game) playing (sport/game)
seguro	safe, sure, secure	salud	health	resultado	result	juego	(I) play (I) am playing
fuerte	strong	carta	letter, menu	contacto	contact	juegas	(you) play (you) are playing
fácil	easy	dirección	address, direction	mensaje	message	juega ¡juega!	(she, he, it, one) plays (she, he, it, one) is playing (you (sing formal)) play Play! (you (sing informal))
popular	popular	energía	energy, power	teléfono	phone, telephone	juegan	(they) play (they) are playing
moderno	modern	red (Red)	network (Internet), net (fishing)	riesgo	risk	subir	(to) go up, upload going up, uploading
directo	direct, straight	tele, televisión	TV, television	error	error, mistake	descubrir	(to) discover discovering
eléctrico	electric	conversación	conversation	peligro	danger	bajar	(to) go down, get off, download, lower going down, getting off, downloading, lowering
peligroso	dangerous	app	app	video	video	compartir	(to) share sharing
débil	weak	tecnología	technology	correo (electrónico)	mail, post (email)	mandar	(to) send, order sending, ordering
caro	expensive	escena	scene (of film), stage	anuncio	advert	guardar	(to) keep, save keeping, saving
gratis	free (of charge)	marca	make, brand	móvil	mobile phone	enviar	(to) send sending
online	online	pantalla	screen, monitor	seguidor	follower, fan, supporter	romper	(to) break breaking
medios de comunicación	media	informática	ICT	ordenador	computer	funcionar	(to) function, work functioning, working
música	music	tableta	tablet (eg. iPad)	teclado	keyboard	proteger	(to) protect protecting
imagen	image, picture	euro	euro	videojuego	computer game	comunicar	(to) communicate communicating
acción	action, act	Internet	internet	llamar; llamarse	(to) call, name calling, naming; (to) be called being called	robar	(to) rob, steal robbing, stealing
serie	series	nombre	name	buscar	(to) look for, fetch, search for looking for, fetching, searching for	encender	(to) turn on turning on
comunidad	community	programa	programme			grabar	(to) record recording
película	film, movie	artículo	article, product, item				

Translate:

1. Ayer empecé una nueva serie en Netflix y fue un error.
2. Mi amiga piensa que es influencer pero no tiene muchos seguidores.
3. Comunicar por whatsapp es privado y gratis.
4. Mi película favorita tiene que ser Shrek porque es muy graciosa.
5. Hay que tener una comunidad de apoyo en las redes sociales.
6. Mis primos buscarán un videojuego sobre zombis.

Translate:

- 7) Es importante no tomar riesgos en línea porque hay muchos riesgos.
- 8) Un riesgo es que se pueden robar tus datos si compartes demasiada información.
- 9) El teclado de mi ordenador no funciona, voy a tener que llamar en directo.
- 10) Ayer encendí mi móvil y vi un video sobre la comunidad valenciana.

Year 11 Spanish Cycle 1 - Theme 3 Media and Technology

apagar	To turn/switch off	señal	sign, signal	emotición	emoji
votar	To vote / voting	protección	protection	portátil	laptop
rápido	Fast / quick / quickly	contraseña	password	publicar	(to) publish, post (online) publishing, posting (online)
joven	Young / young person	telenovela	soap (opera), TV serial	sufrir	(to) suffer suffering
influencer	influencer	sistema	system	comentar	(to) comment commenting
compra(s)	Shopping	comentario	remark, comment	cargar	(to) charge (phone) charging (phone)
HIGHER**		contenido	content, contents	promover	(to) promote promoting
vivo; en vivo	alive, bright; live (eg performance, broadcast)	diario	newspaper, diary, journal		(to) hang (up), post (photo) hanging (up), posting (photo)
desconocido	unknown	usuario	user	colgar	(to) manufacture, produce manufacturing, producing
digital	digital	informe	report	fabricar	(to) connect, plug in connecting, plugging in
apropiado	appropriate, suitable	canal	channel	conectar	(to) chat chatting
investigación	investigation, research	diseño	design	charlar	(to) surf, browse surfing, browsing
seguridad	security, safety	diálogo	dialogue, conversation	navegar	
generación	generation	volumen	volume		
influencia	influence	dispositivo	device, gadget		
prensa	press	retraso	delay		
velocidad	speed, velocity	documental	documentary		
víctima	victim	ciberacoso	cyberbullying		
tendencia	tendency, trend	retraso	delay		

Translate:

- 1) Hice una investigación sobre el ciberacoso en España y leí muchos informes en la prensa.
- 2) La seguridad es muy importante, los usuarios deben tener una contraseña fuerte.
- 3) El volumen de la radio es demasiado alto, debo bajarlo.
- 4) No puedo llamarte ahora porque no tengo señal.
- 5) Mi generación es adicta a las redes sociales y va a sufrir.
- 6) Mi amiga fue víctima de ciberacoso por desconocidos en su portátil.

Translate:

- 7) Me encanta conectar con amigos por internet.
- 8) Los famosos tienen mucha influencia en la red.
- 9) Voy a colgar una foto de mi gato en instagram con emoticones.
- 10) Betty la Fea es mi telenovela preferida porque me gustaría trabajar en moda y diseño cuando sea mayor.

Form and structure:

The piece is in **verse-chorus** form.

Intro	Verse 1 / Verse 2	Chorus 1 / Chorus 2	Link 1 / Link 2	Instrumental	Chorus 3	Outro
1 – 4	5 – 39 / 14 – 39	40 – 57	58 – 65	66 – 82	40 – 92	93 – 96
4 bars	35 bars / 26 bars	18 bars	8 bars	17 bars	22 bars	4 bars

Metre and rhythm:

Simple duple time – 2/2 (split common time) – with two minim beats in every bar.

Uses distinctive **ostinato rhythms** for both riffs, consisting almost totally of **quavers**, with constant use of **syncopation**.

Vocal rhythm looks complex but follows the natural rhythm of the lyrics.

Background details:

Composed by band members **David Paich** and **Jeff Porcaro**.

Recorded by the American rock band Toto in **1981** for their fourth studio album entitled **Toto IV**.

Released in **1982** and reached number one in America on 5 February **1983**.

Genre: **soft rock**.

Instrumentation:

Rock band: drum kit with additional percussion, lead and bass guitars, synthesisers, male lead vocals and male backing vocals.

Harmony:

Diatonic; mixture of root position and inverted chords.

Riff a can be heard during the intro, verses, link sections, instrumental and outro. This riff uses a three-chord pattern: **A – G#m – C#m**.



Choruses use a standard chord pattern: **vi (F#m) – IV (D) – I (A) – V (E)**.

The **harmonic rhythm** (the rate of chord change) is mostly once per bar.

Dynamics:

Most of the song is **mezzo-forte** (moderately loud) whilst the choruses are **forte**.

Melody:

Mostly **conjunct** (moving in step) with a **wide vocal range**.

Riff b uses the **pentatonic scale** (interpreted through E major):



Vocal improvisations occur towards the end of the song.

Texture:

Homophonic: melody and accompaniment.

Tonality:

The majority of the song is in **B major** whilst the choruses are all in **A major**.

Tempo:

The tempo is **moderately fast**.

CSE Music – Year 11 Homework 1 Questions

- 1.What time signature is Africa in? _____
- 2.How many verses does Africa have? _____
- 3.When is riff A first heard? _____
- 4.When is riff B first heard? _____
- 5.The texture is mainly homophonic, what does this mean? _____
- 6.Which instrument has the melody in the verses and choruses? _____
- 7.Which instrument plays the melody in the instrumental? _____
- 8.Describe the rhythm of riff A. _____
- 9.Which scale does riff B use? _____
- 10.What key are the choruses in? _____
- 11.What key are the verses in? _____
- 12.How would you describe the melodic movement

GCSE Music – Year 11 Homework 2 Questions

- 1.What is the tempo? _____
- 2.How would you describe the range of the chorus melody? _____
- 3.How would you describe the tessitura of the chorus melody? _____
- 4.Describe the dynamics. _____
- 5.Who wrote Africa? _____
- 6.What year was Africa recorded? _____
- 7.What year was Africa released? _____
- 8.What genre is Africa? _____
- 9.Which instruments are used in Africa?
- 10.Which percussion instruments are used in Africa? _____
- 11.Which unusual woodwind instrument is used in the second

GCSE Music – Year 11 Homework 3 Questions

- 1.The choruses are in A major, which sharps are in the key of A major?
- 2.The rest of the song is in B major, which sharps are in the key of B major?
- 3.Which chords are used in riff A? _____
- 4.Which section is riff A not used? _____
- 5.Riff B begins before the first beat of the bar. What is this feature called?
- 6.Which chord is used in riff B? _____
- 7.Which note values are used in the melody of riff B? Which sections use riff B?
- 9.What is word setting of the verse?
- 10.What is the melodic shape of the verse melody?
- 11.What is the pitch range of the verse? _____
- 12.Which riff is heard at the end of every phrase in the

GCSE Music – Year 11 Homework 4 Questions

- 1.Which rhythmic feature is used in both the melody and accompaniment of the verse and chorus?
- 2.Which is longer verse 1 or verse 2?
- 3.What chords are used in the chorus?
- 4.Which two pitches are used in the chorus melody?
- 5.Which new rhythmic feature is used in the instrumental?
- 6.What ornamentation is used in the instrumental?
- 7.How many link sections are there in total?
- 8.Which chorus is a guitar solo added?
- 9.How does the texture change in the outro?
- 10.How many times is the phrase ‘I bless the rains down in Africa’ repeated in the final chorus?
- 11.What is the musical term for the repeating bassline?



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



AO1 EXPLORE
ANNOTATE
BEGIN TO LINK A
THEME IMAGES
TO YOUR CHOSEN ARTISTS WORK
WRITTEN ANALYSIS
LINK ARTISTS WORK TO
IDEAS AND ARTWORK
ARTISTS
RESEARCH

AO1- In a nutshell

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

AO3 IDEAS
IDEAS LINKING TO
ARTISTS WORK
ALL ARTWORK
LINKING TOGETHER
PLANS, DESIGNS
IN A RANGE OF
DIFFERENT MEDIA
OBSERVATIONAL
DRAWINGS
PLANS
EXPLANATIONS
ANNOTATION

AO3- In a nutshell

- Drawing, annotations
- Showing in annotation or drawings your ideas/conclusions/thoughts
- Creating plans, reviewing, evaluating experiments/ideas/thoughts

How to show ideas:

- Contact sheet
- Annotations
- Drawings
- Photographs - clear

AO2- In a nutshell

- Try different photography techniques
- Experiment with camera settings, composition, lighting, and angles
- Edit and manipulate photos
- Explore different artists' influences in your own work
- Select the most successful outcomes
- Explain what worked, what didn't, and how you improved your ideas

How to refine:

- 5x edits
- Practice
- Trial
- Multiple

Photoshoots

AO2 EXPERIMENT
WITH A
LINKING TECHNIQUES
TO ARTISTS RANGE
AND THEMES OF MEDIA
TEXTILES WATERCOLOUR
CLAY MIXED MEDIA
OIL PASTEL PEN AND INK

AO4- In a nutshell

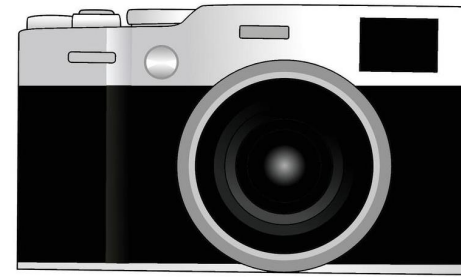
- Creating a final piece
- Combining your research/artist/experiments together to create a final outcome
- Making visual links between your artists to come to a conclusion



AO4 FINAL
MEANINGFUL PIECE OF WORK
INFORMED SHOW UNDERSTANDING
RESPONSE LINKS
LINK BETWEEN TO ARTISTS WORK
VISUALS AND ARTISTS PRESENTATION
RELEVANT



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



Photographer Research Page

- Who is the photographer/artist?
- What themes or subjects do they explore?
- What inspired their work?
- What is the first thing you notice about their images?
- How do they use composition?
- How do they use lighting?
- What camera angles or viewpoints do they use?
- How do they use colour, tone, or contrast?
- Are there any patterns, textures, shapes, or lines in their work?
- What mood or atmosphere do their photographs create?

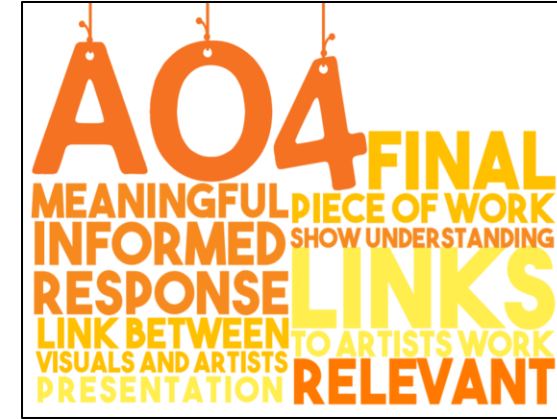
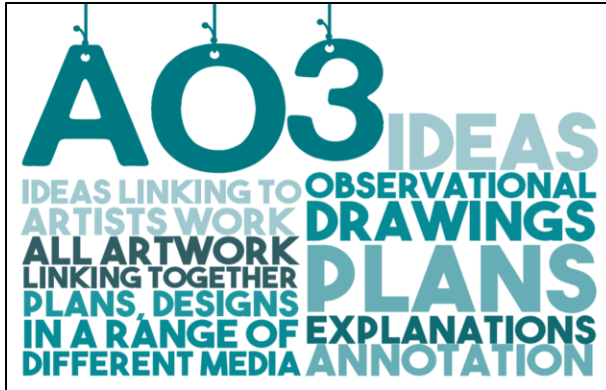
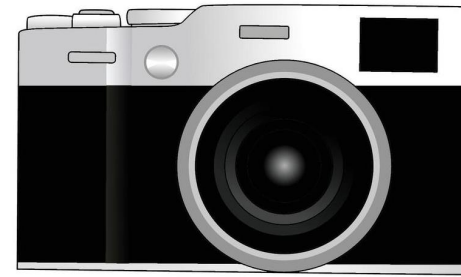


Experimenting.

- Have you taken 20-25 photographs per shoot?
- Have you taken two photoshoots per photographer?
- Are your edits and photoshoots inspired by the photographer or theme you are exploring?
- Have you edited 5 images from each photoshoot?
- Have you digitally edited your images?
- Do you need to physically edit your images? (draw, burn, collage, rip, tear)
- Do you have photographs or screenshots of your process?



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



Recording

- Are your photographs clear?
- Have you taken 25-20 photographs per shoot?
- Have you created a contact sheet? (Which are successful? Which are not successful? Why not? What are your next steps? How do they link to your photographer/theme?)
- Are your final edits clear?
- Have you drawn out your final ideas? (you need too as this is worth 4 marks)
- Have you included screenshots of your editing process?
- Have you annotated your screenshots? (What have you done? Why? What effect has it had? How does it link to your photographer/theme?)
- Have you analysed the photographers work using the annotation support sheet?
- Have you communicated your ideas visually but also through notes/annotations?

Final Ideas

- Have you mind mapped out your final ideas?
- Have you included influences from the photographers you have explored?
- Have you drawn out your final ideas? (you need too as this is worth 4 marks)
- Have you analysed your final edits using the annotation support sheet?
- Have you realised your intentions which you set out?
- Have you clearly shown and annotated how you have used the photographers you have explored to inform your final ideas?
- Have you clearly represented the theme you chose?

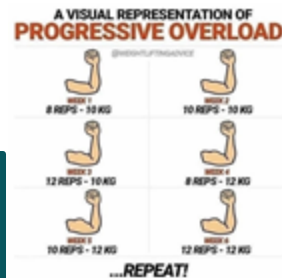
Additional Principles of Training

These principles are to further engage in the training to improve performance and fitness.

They ensure that the training is completely relevant and specific to the individual. It challenges them appropriately ensuring they are building on their weakness.

Progressive Overload

- Progressive overload is when you gradually increase the weight, frequency, or number of repetitions in your strength training routine. This challenges your body and allows your musculoskeletal system to get stronger.



Adaptations

- The principle of adaptation refers to the process of the body getting used to a particular exercise or training program through repeated exposure.



Additional Principles

- Progressive Overload
- Specificity
- Individual differences
- Adaptations
- Reversibility
- Variation
- Rest and recovery

Specificity

- The training must be relevant to the individual and their sport.
- This can be achieved by tailoring training specifically for the sport or even the position that the individual plays, the muscle groups that they use the most or the dominant energy system of the athlete.

Reversibility

- Systems reverse if training stops or is significantly reduced or injury prevents training from training place.
- It is essential to avoid breaks in training and to maintain the motivation of the athlete.



How to Remember:

Pleased **R**unners **S**mile **V**ery **I**ntensely **A**fter **R**acing

Individual Differences

- Everyone is different.
- Training must be related to the athlete's age and gender, their injury status and fitness levels.
- Any training that fails to be relevant to the individual will fail to motivate the athlete and will prove to be unsuccessful in the long term.



Variation

- Training must be varied, this will help with progression.
- Variance tends to focus on different training sessions and activities still work on the specific component of fitness.

Rest and Recovery

- Physical adaptations occur during the recovery and non-active period of the training cycle.

KNOWLEDGE ORGANISER

Exercise Intensity

Exercise Intensity

This term is used to describe how hard an individual is training; for example the relative speed, rate or level of an individual's exertion.



Measuring Heart Rate

- Measured in BPM.
- Count the beats for full 60 seconds
- Neck (Carotid Artery)
- Wrist (Radial Artery)



Maximum Heart Rate

You measure your working heart rate during exercise. It is important you keep an eye on your heart rate so that you are in the correct training zone.

$$220 - \text{Age} = \text{Maximum Heart Rate}$$

Training Zones

- We all have a personal resting heart rate, 'a minimum heart rate', and a maximum heart rate. And between these values are different HR zones that correspond to training intensity and training benefit.

	Target zone	% of max HR bpm range	Example duration	Training benefit
Maximize Performance	5 MAXIMUM	90-100% 171-190 bpm	Less than 5 minutes	Benefits: Increases maximum sprint race speed Feels like: Very exhausting for breathing and muscles Recommended for: Very fit persons with athletic training background
Improve Fitness	4 HARD	80-90% 152-171 bpm	2-10 minutes	Benefits: Increases maximum performance capacity Feels like: Muscular fatigue and heavy breathing Recommended for: Fit users and for short exercises
	3 MODERATE	70-80% 133-152 bpm	10-40 minutes	Benefits: Improves aerobic fitness Feels like: Light muscular fatigue, easy breathing, moderate sweating Recommended for: Everybody for typical, moderately long exercises
Lose Weight	2 LIGHT	60-70% 114-133 bpm	40-80 minutes	Benefits: Improves basic endurance and helps recovery Feels like: Comfortable, easy breathing, low muscle load, light sweating Recommended for: Everybody for longer and frequently repeated shorter exercises
	1 VERY LIGHT	50-60% 104-114 bpm	20-40 minutes	Benefits: Improves overall health and metabolism, helps recovery Feels like: Very easy for breathing and muscles Recommended for: Basic training for novice exercisers, weight management and active recovery



Calculating Training Zones

- Find your maximum heart rate (MHR).
- MHR X it by 0. of the percentage
- 60% = MHR x 0.6
- 80% = MHR x 0.8
- 90% = MHR x 0.9



RPE and HR

- Instead of using a HR monitor, you can use the RPE scale to predict the exercise HR of an individual using the relationship:
- $\text{RPE} \times 10 = \text{HR (bpm)}$



Strength Intensity

- Muscular Strength – 1RM
- Muscular Endurance – 15 reps max



Technology

- Heart Rate Monitors
- Smart Watches
- Apps



ALL-OUT SPRINT The maximum possible effort, sustainable for just 20-30 seconds.	20
VERY HARD INTENSITY Hard to speak, breathing labored after a few seconds, requires focus: good for 1-min intervals.	19
HARD INTENSITY Requires focus to maintain; hard to say more than 2-3 words: good for Cooper Tests, 5k PRs.	18
VIGOROUS ACTIVITY Can speak in short sentences; becomes uncomfortable quickly. Requires constant effort.	17
HARD ACTIVITY Labored breathing, challenging and uncomfortable but sustainable for 30-60 mins.	16
PROGRESSIVE PACE A pace that requires some pushing and effort to maintain; still able to hold a conversation.	14-15
COMFORTABLE WITH SOME EFFORT Slight 'push' but still at a pace which you could speak a few sentences without struggling.	13
COMFORTABLE PACE Able to maintain a conversation without getting out of breath while running.	11-12
LIGHT AND EASY Non-tiring, very gentle and easy to maintain a conversation – could continue for hours.	10
MINIMUM EFFORT Bare minimum exertion; a gentle stroll through the woods. Could continue all day.	6-9

The BORG Scale

- Rate of Perceived Exertion Scale (RPE)
- Used to rate an individual's level of physical exertion during PA or exercise.
- Scale starts at 6 and goes up to 20.
- 6 – No exertion at all (at rest)
- 20 – Maximal exertion
- When giving a reading consider: physical stress, effort, fatigue.

Reasons for fitness testing

- Gives baseline data for monitoring/improving performance.
- Can design training programmes based on test results.
- Determine if training programmes are working.
- Results can give a performer something to aim for.
- Provide goal setting aims.



Appropriate tests

Select the appropriate fitness tests that they can complete. You need to take into consideration age, disability, medical conditions (asthma) etc.

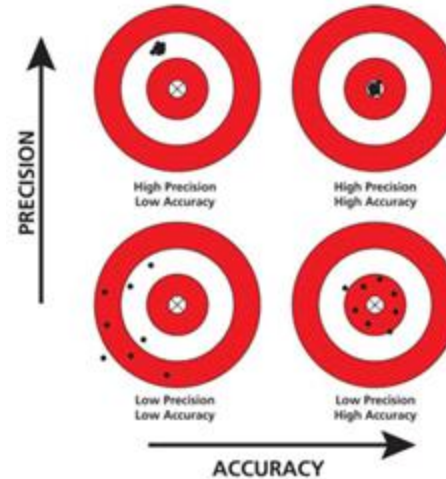


What pre-test procedures should you carry out?

- Calibration of equipment
- Complete informed consent.
- Complete Physical Activity Readiness Questionnaire (PAR-Q).
- Participant pre fitness test check e.g. prior exercise participation

What is a standardised test?

Set rules and regulations on how to carry them out that must be followed. This means they are carried out the exact same every time. This is so that they can be compared to the normative data.



Interpretation of results

- What does interpretation mean?
 - The action of explaining the meaning of something.
- Normative data
 - Data that establishes a baseline based on the general population of results for that test.
- What is the point in interpreting results?
 - To be able to identify the different strengths and weaknesses.
- What can you then do after interpreting them?
 - Create goals and targets in order to improve your weakest areas to improve your overall performance.

What happens if the results of a test are not accurate?

- Not truly reflective of your strengths and weaknesses.
- Can't compare to normative data.
- Can result in setting targets that are too easy or too hard.



KNOWLEDGE ORGANISER

Physical Components of Fitness

Physical related components of fitness

Body Composition

Aerobic Endurance

Speed

Strength

Flexibility

Muscular Endurance

BASS FM

Speed

Distance divided by time to reduce time taken to move the body or a body part in an event or game.



Flexibility

The range of motion possible at a joint to allow improvements in technique.



Muscular Strength

The maximum force that can be generated by a muscle or muscle group to improve forceful movements within an activity.



Muscular Endurance

The ability of the muscular system to continue to contract at a light to moderate intensity to allow repetitive movements throughout a long event or game.

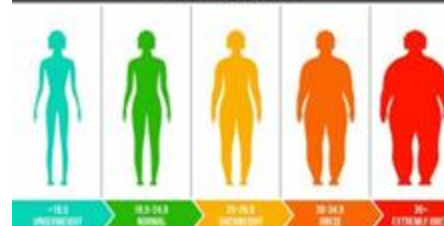


Body Composition

The relative ratio of fat mass to fat-free mass in the body allowing variation in body composition dependent on the sport.



BODY MASS INDEX



Aerobic Endurance

The ability of the cardiorespiratory system to supply oxygen and nutrients to the muscles to sustain low to medium intensity work to delay fatigue.

Aerobic Endurance

- Multi-stage fitness test – Continually run from cone to cone 20m apart to the beep. Miss the beep twice your out – record the score.
- Yo-Yo Intermittent Recovery Test – Run between the cones 20m apart but then add on an extra 5m for recovery. Follow the sound on the audio.
- Harvard Step Test - Step up and down off a platform at a rate of 30 steps per minute for 5 minutes or until exhaustion. Immediately after finishing you sit down and record your heart rate every 1, 2 and 3 minutes.
- 12 minute cooper run - You have to run around a 400m track or pitch for 12 minutes. Note down the distance.



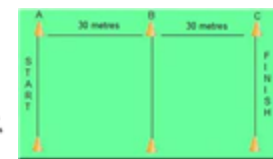
Muscular Endurance

- 1 minute press up test _ complete as many press up's as you can in 1 minute.
- 1 minute sit-up test – complete as many sit-ups as you can in 1 minute.
- Timed plank test – Complete the plank for as long as you can.



Speed

- 30m Sprint Test – Sprint 30m as quick as possible.
- 30m Flying Sprint – 30m getting up to speed and then record the last 30m sprint.



Flexibility

- Sit and reach test – Sit with your legs out in front flat on the floor, soles flat against the box. Reach down as far as you can and hold for 2 seconds.
- Calf muscle flexibility test – Stand in a lunge position and you need to get your front foot to reach the wall. Record the biggest distance away.
- Shoulder flexibility test – Put your right arm straight up and bend your elbow so it bends behind then use your other hand to try and touch it.



Body Composition

- The relative ratio of fat mass to fat-free mass in the body allowing variation in body composition dependent on the sport.
- BMI - is a measure of whether you're a healthy weight for your height.
- Bioelectrical Impedance Analysis - measures body composition based on the rate at which an electrical current travels through the body.
- Waist to hip ratio - determines the possibility of health risks and is an indication of whether you have an apple or pear shaped figure.



Muscular Strength

- Hand grip dynamometer - You use your dominated hand to squeeze the hand grip dynamometer machine as hard as you can. You complete this test 3 times and take the best result.
- 1 rep max - It is simply defined as the maximal weight an individual can lift for only one repetition with correct technique.



Fitness Training

A tailored training programme will help you achieve your fitness goals. The FITT acronym and calculating target zones make training more efficient.

By using the principles of training as a framework we can plan a personal **training programme** that uses scientific principles to improve performance, skill, game ability and physical fitness.

Basic principles of training

FITT Principles

- Frequency
- Intensity
- Time
- Type



Frequency	Intensity	Time	Type
The number of training sessions completed over a period of time, usually per week. You need to ensure that this is manageable and that you are able to achieve this. Can you still complete this with the demands of work/school/family etc.	How hard an individual will train. You need to ensure that this is not too challenging or too easy. If it is too hard then the individual might get disheartened because they can't do it. If it is too easy then they may get bored.	How long an individual will train for. How long have you got time for? Do not make the sessions too long else the individual might be too tired to carry on. Also they might ache too much to be able to carry out the next session.	How long an individual will train for. How long have you got time for? Do not make the sessions too long else the individual might be too tired to carry on. Also they might ache too much to be able to carry out the next session.



Reliability

The quality of being trustworthy or of performing consistently well.

You need to be able to trust the data that you have collected in order to be able to compare it to normative data and identify strengths and areas for improvement.



Factors that can affect reliability?

- Calibration of equipment
- Motivation of the participant
- Conditions of the testing environment (inside versus outside conditions)
- Experience of the person administering the test
- Compliance with standardised test procedure.



Consistency of results

The quality of always behaving or performing in a similar way, or of always happening in a similar way.

You need to ensure that the tests are always completed under the same conditions, same equipment, same everything. This is to ensure that you can truly compare results.

Validity of Results

It is the accuracy of the fitness test results i.e. whether the results you have recorded are a true reflection of what you are actually trying to measure.

For instance, if I wanted to measure aerobic running performance then a measure of someone's fifty metre swim time would have poor validity, whereas a measure of the time it took for them to run five kilometres would be much more valid.



Practicality

- How easy it is to carry out the test in terms of the costs involved, time available and equipment required.
- What things could affect the practicality of fitness testing?
 - Cost
 - Time taken to perform the test
 - Time taken to set up the test
 - Time taken to analyse data
 - Number of participants that can take part in the test at any time.

Reliability and Validity



Reliable
Not valid



Low validity
Low reliability



Not reliable
Not valid



Both reliable
and valid



Skill related components of fitness

Co-ordination

Reaction Time

Agility

Balance

Power

CRAB P

Agility

The ability to change direction quickly to allow performers to out-manoeuvre an opponent.



Balance

The ability to maintain centre of mass over a base of support, useful to maintain positions in performance sports (static balance) or when on the move in any other sporting situation (dynamic balance).



Co-ordination

The ability to move two or more body parts at the same time smoothly and efficiently, to allow effective application of technique.



Power

The product of speed and strength to allow for explosive movements in sport.



Reaction Time

The time taken between a stimulus and the start of a response, useful in fast-paced sports to make quick decisions about what to do.



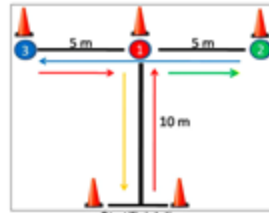
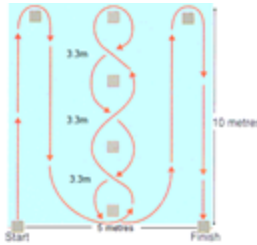
KNOWLEDGE ORGANISER

Skill Fitness Testing

Agility

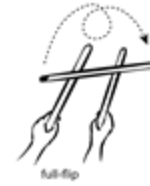
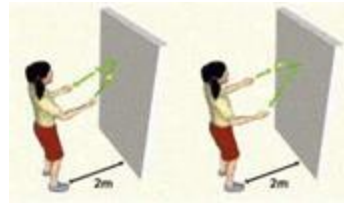
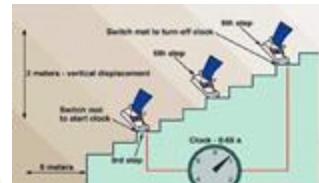
Illinois agility test – start lying down and then on go complete the course as quick as possible.

T test – Complete the course as quick as possible. Keep facing forwards.



Power

- Vertical Jump Test – Stand next to the wall, reach up as high as you can and mark the spot. Then jump as high as you can making another mark. Measure the difference.
- Standing Long Jump – Athletes stand behind a marker and have to complete a two footed jump as far as they can. Without falling backwards. 3 attempts – best value stands.
- Margaria-Kalamen Power Test -



Co-ordination

- Alternate hand wall toss test – Stand 2m from the wall. Throw the ball at the wall from one hand to the other. Complete this as many times as you can within 1 minute.
- Stick flip co-ordination test - Hold a stick in each hand and a 3rd across the top. Test 1 complete as many half flips as you can. Test 2 as many full flips as you can. Add the scores together.



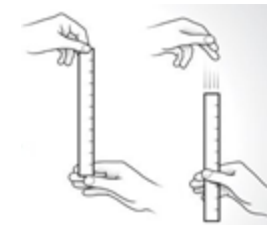
Balance

- Stork stand test – Stand in the position below for as long as possible.
- Y balance test – Standing on one leg try and reach as far as you possibly can. See picture.



Reaction Time

- Ruler drop test – An assistant holds the ruler between your finger and thumb so the top of the thumb is in line with the 0. The assistant then drops it without warning and you have to catch it as quick as possible.
- Online reaction time test – You have to click the buttons on the computer as quickly as possible.



<u>Economic Factors:</u> ➤ Recession/Boom ➤ Levels of employment ➤ Changing cost of fuel ➤ Fluctuations in currency exchange rates ➤ Level of disposable income	<u>Natural Factors:</u> Natural Disasters: Earthquakes, volcanic eruption, tsunami, landslides, avalanches. Severe Weather: Flooding, Drought, Wildfire, Hurricanes/Cyclones, Tornadoes, Blizzards	<u>Media Factors:</u> Types of media: ➤ Print (newspapers, magazines, books). ➤ Broadcast- (Tv, films, social platforms, websites).	<u>Safety and security factors:</u> Risks related to personal safety: theft, pickpocketing, physical attacks, accidents, bribery, getting lost, dangerous wildlife. Safety measures: CCTV, Transport/tourist police, body and luggage scanner, emergency phone number, safety deposit box, security staff.		
<u>Political Factors:</u> Types of legislation: Health and safety, Equality, Employment Law, Planning laws. Reasons for legislation: visitor security, customer financial protection, controlling development. Political Factors: -Airport, trade taxes -Passports and visas -Government promotion/ marketing campaigns -Tax incentives -Political instability/civil unrest	<u>Health risk factors:</u> Endemic- A disease that is present permanently in a region or population. Epidemic/pandemic- an outbreak that affects many people at one time and can spread through one or several communities. <table><tr><td><u>Endemic</u> Malaria Yellow Fever Cholera Typhoid</td><td><u>Epidemic/Pandemic</u> -Norovirus -Avian/Bird Flu -Zika Virus -Coronavirus</td></tr></table> <u>Ways of transmission-</u> air, water, food, contact <u>Precautions against contracting-</u> vaccinations, protective clothing, medicines, equipment, appropriate insurance, hygiene, food and drink choices.			<u>Endemic</u> Malaria Yellow Fever Cholera Typhoid	<u>Epidemic/Pandemic</u> -Norovirus -Avian/Bird Flu -Zika Virus -Coronavirus
<u>Endemic</u> Malaria Yellow Fever Cholera Typhoid	<u>Epidemic/Pandemic</u> -Norovirus -Avian/Bird Flu -Zika Virus -Coronavirus				

<u>Travel and Tourism Organisation Responses to Factors:</u>	<u>Government (local, regional and national) Responses to Factors:</u>	<u>Voluntary Organisation Responses to Factors:</u>
T&T Organisation: Airlines, Hotels, Travel Companies (TUI).	Government: VisitBritain, South Tyneside Council.	Voluntary: Charity run organisations.
-Adapt and develop new products/services -Adapt operational procedures -Review destinations offered -Review Pricing Structures- adjusting prices to maintain visitor numbers/types of visitors. -Managing Public Relations	-Provide public with up-to-date information -Impose travel restrictions -Promote a positive image -Encourage employment -Improve infrastructure -Introduce or tighten security measures.	-Promote sustainability, conservation and protection -Campaign for governments to affect change -Raise awareness of issues- ethical and environmental -Raise funds

Retrieval:

- 1) State two economic factors
- 1) Give me two types of severe weather
- 2) State one media factor (type of media)
- 3) Give me two safety measures you would expect at an airport
- 4) Give me one risk to personal safety when travelling aboard
- 5) Explain the difference between epidemic and endemic diseases.
- 6) Give me two features of Malaria
- 7) Give me two types of legislation
- 8) State three political factors
- 9) How can diseases/viruses be spread?
- 10) Give me three ways tourists can prevent catching a virus/disease

Retrieval:

- 1) Give me two travel and tourism organisational responses to factors:
- 2) Give me two government responses to factors:
- 3) Which type of organisation is likely to impose travel restrictions?
- 4) Campaigning and raising funds would be the response of what type of organisation?
- 5) During an earthquake- what would a government response be?

<u>Socio-cultural impacts of tourism:</u>	<u>Economic Impacts of tourism:</u>	<u>Environmental Impacts of tourism:</u>
Socio-cultural impacts are the changes to the everyday lives of people living in global destinations. Negative impacts: Disruption to everyday life; loss of culture, resentment towards visitors, increased crime, staged authenticity, exploitation of locals, loss of traditional lifestyles. Positive impacts: Improved quality of life, access to facilities, improved transport, improved essential infrastructure, including healthcare, education and improved cultural awareness.	Definition: the effect of the actual amount spent by tourists and indirect effects on the local and wider economies and other sectors: Negative impacts – low-paid jobs, seasonal unemployment, leakage, increased cost of living Positive impacts – employment opportunities, training, multiplier effect, foreign currency earnings, contribution to taxes and gross domestic product.	Definition: the result of the strain tourism can place on local land use and resources as well as the natural and built environments of global destinations. Negative impacts – loss of habitats, loss of wildlife, threatened species; increased pollution, including noise, air, water; overcrowding, traffic congestion; reduced biodiversity, environmental degradation; erosion to footpaths, riverbanks, lakeshores Positive impacts – conservation, including protection of wildlife, protected areas, national parks; environmental education; creation of open spaces; improved street furniture; regeneration, including urban renewal and the reuse of traditional buildings for new activities.

Managing Economic Impacts:

Tourism can provide employment and training opportunities for local people and give them access to higher-paid jobs.

- Visitors can be encouraged to support local communities by buying local produce, crafts and food, and using local transport
- Governments **can restrict the involvement of foreign-owned companies**, all-inclusive resorts and foreign staff to benefit the local economy; **have tourist prices and local prices**
- **Visitor spend can be increased** and retained by encouraging overnight stays, longer breaks, local currency schemes.

Managing Environmental Impacts

The aim of sustainable tourism is to increase the benefits and to reduce the negative impacts caused by tourism for destinations.

Managing sustainable tourism:

- Protecting natural environments, wildlife and natural resources when developing and managing tourism activities
- **Providing authentic tourist experiences** that celebrate and conserve heritage and culture
- Creating economic benefits for communities through employment and income-earning opportunities.

Retrieval:

- 1) Socio-cultural impacts refer to...
- 2) Give me one positive and one negative economic impacts of tourism.
- 3) Give me one positive and one negative environmental impact of tourism.
- 4) Give me one positive and one negative socio-cultural impact of tourism.
- 5) Label the impacts (S, Ec, EN) and determine whether it is positive (+) or negative (-).

- Loss of wildlife
- Loss of culture
- Seasonal unemployment
- Leakage
- Improved quality of life
- Access to medical aid

Retrieval:

- 1) Give me one way that visitors can support local communities.
- 2) Give me one way that visitor spend can be increased.
- 3) Explain why the government might restrict foreign hotel ownership.
- 4) Providing tourists with authentic experiences helps to manage what?
- 5) What is the aim of sustainable tourism?

<u>Visitor Management:</u>	<u>Traffic Management:</u>	<u>Planning Control:</u>	<u>Visitor Education:</u>
➤ Restricting the number of visitors allowed into a destination ➤ Controlling movements ➤ Direction of flow ➤ Issuing visas and permits	➤ Restricting traffic/vehicle types allowed into a destination ➤ Providing frequent public transport ➤ Adequate parking and facilities ➤ Park and ride schemes ➤ Visitors are encouraged to use alternate types of transport – hybrids, green and electric-powered transport	➤ Building regulations ➤ Planning permission ➤ Size and location of developments ➤ Maintaining local style in scale and design • resources are controlled responsibly, including waste management, energy and water supplies – restricting fountains and water features that do not recycle water, limit the amount of pools • natural areas vulnerable to the high volume of visitors are protected by legislation/regulations; creating nature/marine reserves; limiting or preventing access.	➤ How they can reduce their impact on the local environment ➤ Ways to contribute towards looking after the local environment ➤ The wildlife, natural world and special qualities of the environment

Retrieval:

1) How can destinations manage visitors?

Give me three;

-
-
-

2) How can traffic be managed in built up areas?

Give me three:

-
-
-

3) How can planning be controlled?

Give me three:

-
-
-

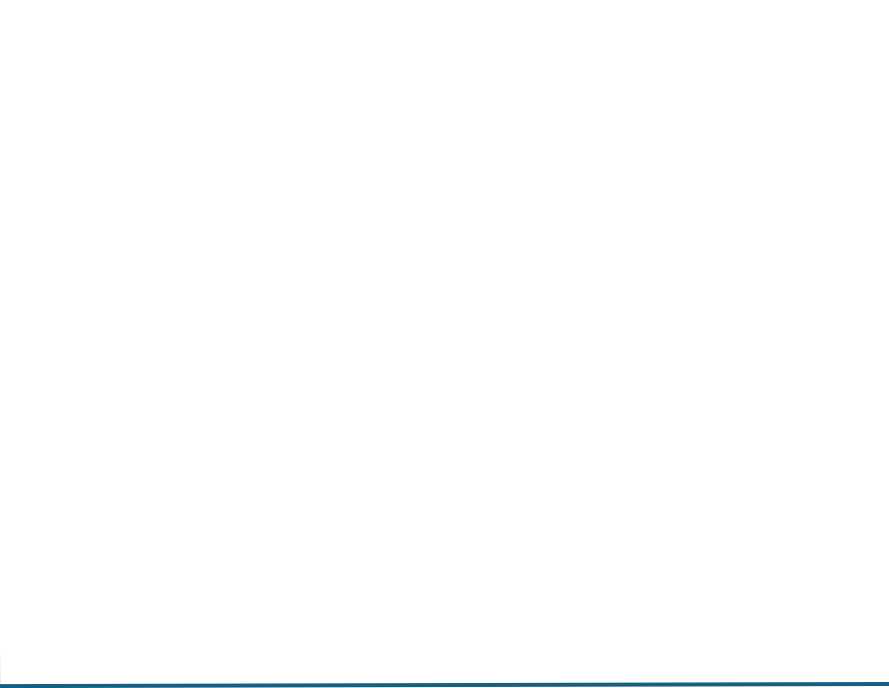
4) How can we educate visitors?

What does TALC stand for?	Tourist Area Life Cycle
Can you draw and label the TALC?	
What does each stage of Butlers Tourist Area Life Cycle Mean? Exploration, involvement development; consolidation; stagnation; decline/rejuvenation	Exploration – A secret spot is discovered, there are no amenities. Involvement – The number of people is increasing residents now see economic benefits Development – A well-defined tourism industry with advertising and promotion taking place Consolidation – Tourism becomes a dominant feature of the local economy Stagnation – Tourism growth slows and carrying capacity is reached, the area is no longer a hotspot, maybe it's over built Decline – holidaymakers replaced by weekend or day trippers, hotels may be converted into retirement homes or flats Rejuvenation – steps taken to bring the resort back to life, facilities such as a promenade updated, investment by government.

Retrieval:

CHECK: Do you have 7 stages?

Draw and label the TALC model below:



Stage:	What happens at this stage? Key points.
E	
I	Local people begin to offer services such as transport and accommodation.
D	
C	
S	
D	
Or R	

What is an Emerging destination?	Destinations that have recently (within the last ten years) grown in popularity and have a growth rate of visitor arrivals of over 4 per cent year on year.	What is a mature destination?	destinations that have been popular for over twenty years with growth rates of visitor arrivals around 2 per cent year on year.
What are the Characteristics of emerging destinations?	➤ visitors seek adventure, 'authentic' experience, culture or nature based ➤ may be difficult for overseas visitors to access ➤ transport links likely to be undeveloped ➤ basic infrastructure – energy, water, waste disposal ➤ local people may not have access to healthcare and unspoilt natural and cultural features are the main attraction ➤ local communities follow traditional lifestyles ➤ seek to develop tourism to boost economies, raise living standards ➤ low volume of visitors – may have to make own travel arrangements o limited awareness of the destination globally.	What are the Characteristics of mature destinations?	➤ high volume/mass tourism with organised package holidays ➤ fully integrated transport links ➤ fully developed infrastructure ➤ may be a strain on resources such as water ➤ natural and cultural features may be damaged, diluted, overwhelmed by tourism ➤ established season ➤ extensive advertising of the destination, which is well known globally ➤ standard of visitor facilities may become run-down ➤ local economy is reliant on tourism o may be some conflict between locals and visitors.

Magic Numbers:
10 years, 20 years, 4% per year, 2% per year.

Retrieval:

Recall the four magic numbers:

Emerging Destinations:

Define it:	
Key Characteristics:	- - - -
Magic numbers:	

Mature Destinations:

Define it:	
Key Characteristics:	- - - -
Magic numbers:	

C2 the role of local and national governments in tourism development

What are the Reasons governments may want to develop tourism include?	➤ maximise the economic benefits of tourism ➤ attract foreign currency ➤ diversify the economy ➤ raise funds to help reduce poverty, improve mobility, healthcare and education ➤ create employment opportunities ➤ attract funding from foreign investors, private sector ➤ improve the quality of life.
What are the government roles including controlling tourism development through legislation to reduce potential negative impacts and increase the benefits of tourism	➤ tax incentives/tax relief to encourage investment, raise funds ➤ considering travel restrictions, security measures and entry requirements, including passport and visa requirements ➤ improving transport infrastructure, links and networks – road, rail, air, sea, gateways and hubs ➤ improving/establishing essential infrastructure – energy supply, water supply, waste disposal ➤ supporting, approving and controlling tourism infrastructure – accommodation, food and drink outlets, communication links – accessibility to the internet, Wi-Fi providing funding for new initiatives in transport, events, training and infrastructure projects that support the local community and/or protect the environment ➤ managing destinations by implementing sustainable tourism policies.

C3 The importance of partnerships in destination management

You will understand that partnerships between organisations can help ensure destinations are managed effectively for the benefit of visitors, local communities and environments, and for the future. You will learn about partnerships between different organisations and sectors within travel and tourism, the reasons organisations form partnerships and the advantages and disadvantages of partnership working

What are the types of partnership and their purpose?	public and private sector – new tourism developments such as a hotel funded by private sector, local authority may require restrictions on design, size and scale of private sector and private sector
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	accommodation and transport providers for transfers from airport/train station to accommodation of voluntary and private sector private sector may assist with the costs of promoting or running an event and in return receive positive publicity public and voluntary sector – to promote good causes, raise awareness, educate and inform by sharing skills and resources destination management organisations – bring a range of different organisations together to work on a major project which may be short term or temporary, to raise profile; launch new products; advertise/promote; fund; sponsor – for the benefit of the destination.
What are the possible advantages of partnerships?	➤ shared resources/skills/expertise ➤ new ideas ➤ shared costs ➤ increased coverage/publicity/profile.
What are the possible disadvantages of partnerships?	➤ conflicting aims and priorities ➤ less flexibility ➤ slows down decision-making process ➤ difficulty in responding quickly to changes/events.

Retrieval:

1) Give me three reasons why the government might want to develop tourism?

1) What is the difference between local and national governments?

2) What are the government roles to reduce potential negative impacts and increase the benefits of tourism?

Give me three:

-
-
-

4) Give me an example of a partnership

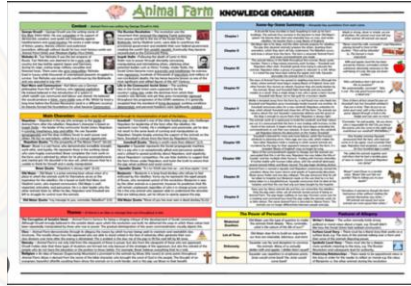
5) One advantage of a partnership is...

6) One disadvantage of a partnership is...

7) The government working with Jet2 Holidays is an example of what type of partnership?

REVISION STRATEGY ONE: LOOK, COVER, WRITE, CHECK

Make sure you have a copy of your knowledge organiser or your exercise book for the subject you are revising.



Step 1
Read the information carefully



Step 2
Cover the page



Step 3
Write down as much information as you can remember. Focus on ideas, key vocabulary, dates, events and people



Step 4
Check your notes against the knowledge organiser. Make any corrections and then add to your notes

REVISION STRATEGY TWO: FOLDING NOTES

Step 1

Write a page of notes on A4 paper. Focus on key ideas, vocabulary, dates, events or people.



Fold in half

Step 2

Create a mindmap summarising your notes and only including the most important information.



Fold in half

Step 3

Write a list of only the most important key words for this topic.



Fold in half

Step 4

Dual code- summarise the topic with **only** symbols, diagrams or pictures.



REVISION STRATEGY THREE: FLASHCARDS

Step 1

Read through a page of notes in your exercise book or a topic from your knowledge organiser. Write the title of this topic on one side of a card.



Step 2

On the other side of the card summarise the topic in short bullet points focusing on:

- Key words
- Dates
- Events
- People



Step 3

Use images or diagrams to summarise key ideas or concepts to help you remember.

Step 4

Revise using your flashcards!

REVISION STRATEGY FOUR: SELF QUIZZING

Research surrounding effective revision tells us that one of the most effective techniques for revision is to self-test.

Self- quizzing requires you to recall information from memory. This not only highlights what you do or don't know but also strengthens your ability to recall that information.

There are many ways to test your knowledge

- Turn over / cover the section of the knowledge organiser you are studying and write as much as you can down from memory as accurately as you can.
- Then flip over / uncover the knowledge organiser and check the accuracy of what you have written down.
- Use a different coloured pen to correct any errors and fill in any gaps.
- Make your own quizzes and tests and return to them after a few days to check how much you can remember.



Check: check your answer. Make any corrections in the final column in green pen.



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[illegible]

Look: Read the key information in the look column.

Look and write: write the key words, formulae or important information in the first column.

Cover and write: cover the look and write column. Try to repeat the information in the cover and write column.

Check: check your answer. Make any corrections in the final column in green pen.



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Look

**Look and
write**

Cover and write

Check

[illegible]

