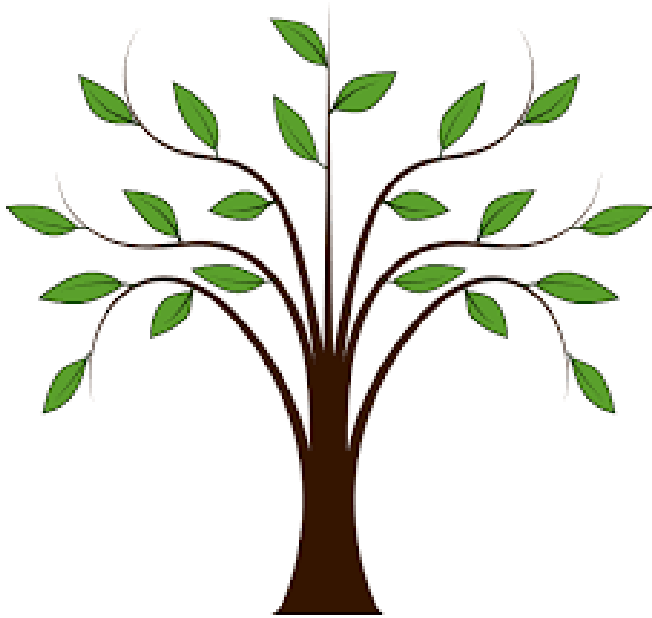
YEAR 11

BHA's Knowledge Quest

Spring 1
(Jan - Feb)
2025-2026



Bristnall Hall Academy

How to use your

Knowledge Quest Booklet

To support you in making progress in each of your lessons, your teachers have produced Knowledge Organisers which contain all of the main facts, knowledge and information that you need to know to be successful and make progress this half term. There are lots of ways to use these Knowledge Organisers, but the most important thing is that you are revising the knowledge and you are able to recall it in your lessons. Please see below details of how to use this booklet; what your half termly homework looks like and how to secure lots of positive Class Charts points!

English: 30 minutes of Sparx Reader, every week.
Maths: 30 minutes of Sparx Maths, every week.
Science: 30 minutes of Seneca homework, every week.
MFL: 1 list of vocabulary to learn for a test in lesson AND 1 quiz to complete on Language Nut, MFL platform every fortnight.
History: 30 minutes of Seneca revision, every week. Additional revision provided for assessments.
Geography: 1 hour of Seneca per fortnight.
RE: Holistic quiz using Knowledge Organiser and lesson on teams, every 4 weeks.
PSHE: Independent self quizzing from Knowledge Organiser.
DT: Food Studies- Seneca assignment set as part of each 9-week rotation. Engineering Seneca assignment to prepare for BBB assessment set as part of the rotation. Independent self-quizzing from Knowledge Organiser.
Art: To research/find and create resource images for projects when required.
All other subjects: Revise the information in this booklet using the revision sheets included with each subject.

Timetable

Use this page to copy out your lessons and room numbers

	W1 Mon	W1 Tues	W1 Wed	W1 Thurs	W1 Fri	W2 Mon	W2 Tues	W2 Wed	W2 Thurs	W2 Fri
1										
2										
3										
4										
5										
6										

Enrichment and Intervention 2025-26 Term Two

Spring Term

	Monday	Tuesday	Wednesday	Thursday	Friday
Breakfast 7.45am – 8.30am	Start Right Club Library open	Start Right Club Library open	Start Right Club Library open	Start Right Club Library open	Start Right Club Library open
Lunch 12.45pm – 1.15pm	MUGA Year 9 Library Year 11 Yr 7 Basketball LG Yr 7, 8, 9 Keyboard club- Room 36 SW	MUGA Year 11 Library Year 10 Yr 8 Basketball LG	MUGA Year 10 Library Year 9 Yr 9 Basketball LG All Years Vocal Group /Choir Room 36 SW	MUGA Year 8 Library Year 8 Yr 10 Basketball LG	MUGA Year 7 Library Year 7 Yr 11 Basketball LG
Period 7 Monday Tuesday Thursday 3.30pm – 4.30pm Wednesday Friday 2.35pm – 3.35pm	Year 11 Open / MFL Subject Intervention Week 1: **B Block** Week 2: **C Block** Year 9 football (Field) WT All years Chess Club – Room 9 MAG All Years Debate Mate Room 23 BED Sparx Maths Club – Room 15 DHY / RMI	Year 11 Science Intervention All years Netball (MUGA) GH New All years Basketball (Large Gym) WT Year 7 and other beginners Latin Club Room 60 AA Year 8 football (Field) JS All years Dance Club (Dance studio) CG	Year 11 English and Maths Intervention DJO / AWI / KCA / LSI / LHA Year 7/8 Trampolining (Small Gym) KHA All years Dodgeball (Large Gym) WT New Year 10 Football (Field) NK Year 7,8,9 Girls football WBA- Invite only MUGA All years Dance Club (Dance studio) JR	Year 11 Geography /History Intervention Year 7 Football (Field) NK All years Legacy cohort Latin Club Room 60 AA All years Handball (MUGA) JS New Year 9/10 Trampolining (Small Gym) GH All years *The hook and pen society* Room 53 JW/LOM	All years Dungeons and Dragons (MB) Room 5 **Yr 10/11 Engineering** coursework catch up intervention- By invitation only LN **Yr 10/11 Textiles** coursework Catch up intervention- By invitation only NB/KWK
	All years Basketball (Large Gym) NK New All years Girl's Football (MUGA) JS/NW All years Task Master Room 28 GEG All years Science Club Lab 49 SAM/BHO/RHA Year 7 – 9 Masterchef Room 45 (limited to 15 pupils only) CCR/MSH/PCR **SEND** Y7 Reading Intervention ADI/LOM Room 2	All years *Hooked on Bristnall* Room 53 JW All years Beyond the Books (Reading Club) Room 24 FH All years Digital skills Room 30 MCA Year 10 Rock Band- Room 36 SW Basketfields Booster for Year 10 English Room 23 FBA Masterchef **(SEND)** Room 45 CCR/MSH/MCS **SEND** Y8 Reading Intervention ADI/LOM 33	All years Board Game Club Room 55 AK All years The Rep Theatre – Performing Arts Club Room 16 All years Geography Club Room 2 SBW All years Ultimate Uno Club Room 23 QSM All years Scene Stealers Filmmaker Club Room 22 DLA All years Act Up! Drama Club Room 24 SBS Yr 10 GCSE Computer Science and I Media students only: Room 62 JM / Room 10 HA **SEND** Social Society CCR/CST Room 1 **SEND** WBA Multisports/Football LK **SEND** Homework Club – JRE/MPA Room 31 **SEND** Y10 Direct Instruction Lit – JPG Room 3	All Years Graphics club KWK 43 Year 7,8,9 Music Rock Band- Room 36 TW Russian Language Club for beginners Room 58 RMI	

Academic	**Creative**	**Physical**
☐ Task Master (will meet all parts of the diploma) ☐ Latin Club (new and legacy co horts) ☐ Chess Club ☐ Sparx Maths Club ☐ Geography Club ☐ Science Club Lab 49 ☐ Debate Mate ☐ 'Beyond the Books' Reading Club ☐ Russian Language Club for Beginners ☐ Any other subject intervention	☐ Task Master (will meet all parts of the diploma) ☐ Scene stealers film maker club ☐ Act up! Drama Club ☐ Ultimate Uno ☐ Hooked on Bristnall - Crochet club ☐ The hook and pen society ☐ The REP Theatre Performing Arts Club ☐ Board Game Club ☐ Dungeons and Dragons ☐ Graphics Club ☐ Digital Skills ☐ Rock Band ☐ Lunchtime keyboard cub ☐ Lunchtime vocal choir ☐ Masterchef ☐ The Articulators	☐ Task Master (will meet all parts of the diploma) ☐ Football ☐ Basketball ☐ Netball ☐ Trampolining ☐ Dance ☐ Handball ☐ Dodgeball

Dates to remember this half term:

January

February

Attendance record

Week	Attendance %
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	

Sparx Check!

Remember to click: 'Login with Microsoft' using your academy email address and password!

In the boxes below, write the XRP score that you achieved for each subject. Your form tutor will award you additional CC points for the more XRP points you achieve in addition to the set points for each weekly homework.

	Sparx Reader Points:	Sparx Maths Points:
Week 1		
Week 2		
Week 3		
Week 4		
Week 5		
Week 6		
Total this half term:		

Seneca Check!

Remember to click: 'Login with Microsoft' using your academy email address and password!

In the boxes below, write the titles of the assignments that you complete for each subject and your overall percentage scores. Your form tutor will award you additional CC points for the highest percentages you achieve in addition to the set points for each weekly homework.

	English Assignments:	Science Assignments:	History Assignments:	Geography Assignments:
Week 1				
Week 2				
Week 3				
Week 4				
Week 5				
Week 6				
Total assignments completed this half term:				

Language Nut Check!

Remember to click: 'Login with Microsoft' using your academy email address and password!

In the boxes below, write out what % you have achieved from your weekly homework. Your form tutor will award you additional CC points for the highest scores you achieve in addition to the set points for each weekly homework.

	MFL Homework:
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Total assignments completed this half term:	

Independent Study Check!

Your form tutor and your parent/carer will also check that you are completing your independent study within this booklet. Additional positive CC points will be awarded for beautiful presentation and your ability to demonstrate a strong recall of the knowledge within this booklet.

	End of Half term Form Tutor Check:	Parent/Carer Check:
Independent Study Completed?		
Beautiful Presentation?		
Recall of Knowledge?		

Personal Reflection: What are you most proud of within your Independent Study Booklet?

_____

_____

_____

_____

_____

Homework Log

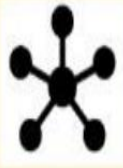
Use this page to record any homework this half term

Subject	Date Due:	Additional Notes:

Homework Log

Use this page to record any homework this half term

Subject	Date Due:	Additional Notes:

	Look, Cover, Write, Check	Definitions to Key Words	Flash Cards	Self Quizzing	Mind Maps	Paired Retrieval
Step 1	Look at and study a specific area of your knowledge organiser. 	Write down the key words and definitions. 	Use your knowledge organiser to condense and write down key facts and or information on your flash cards. 	Use your knowledge organiser to create a mini quiz. Write down questions using your knowledge organiser. 	Create a mini map with all the information you can remember from your knowledge organiser. 	Ask a partner or family member to have the knowledge organiser or flash cards in their hands. 
Step 2	Cover or flip the knowledge organiser over and write down everything you remember. 	Try not to use your knowledge organiser to help you 	Add pictures to help support. Then self quiz yourself using the flash cards.. You can write questions on one side and answers on the other. 	Answer the questions and remember to use full sentences. 	Check your knowledge organiser to see if there were any mistakes with the information you have made. 	They can test you by asking you questions on different sections of your knowledge organiser. 
Step 3	Check what you have written down. Correct any mistakes in green pen and add anything you missed. Repeat. 	Use your green pen to check your work. 	Use a parent/carer or friend to help quiz you on the knowledge. 	You can also use family to help quiz you. Keep self quizzing until you get all questions correct. 	Try to make connections that links information together. 	Write down your answers. 


WORLD MAP
1. Netherlands
2. Belgium
3. Luxembourg
4. Switzerland
5. Slovenia
6. Croatia
7. Bosnia and Herzegovina
8. Czechia
9. Slovakia
10. Austria
11. Hungary
12. Serbia
13. Moldova
14. North Macedonia
15. Albania
16. Cyprus
17. Lebanon
18. Guinea-Bissau
19. Guinea
20. Ghana
21. Togo
22. Benin
23. Cameroon
24. Equatorial Guinea
25. Rwanda
26. Cambodia
27. Panama
28. Malawi
29. Liechtenstein
30. Montenegro
31. Kosovo
32. Palestinian Territories
33. St. Vincent & the Grenadines
0 2,000 4,000 Miles
0 2,000 4,000 6,000 8,000 Kilometers
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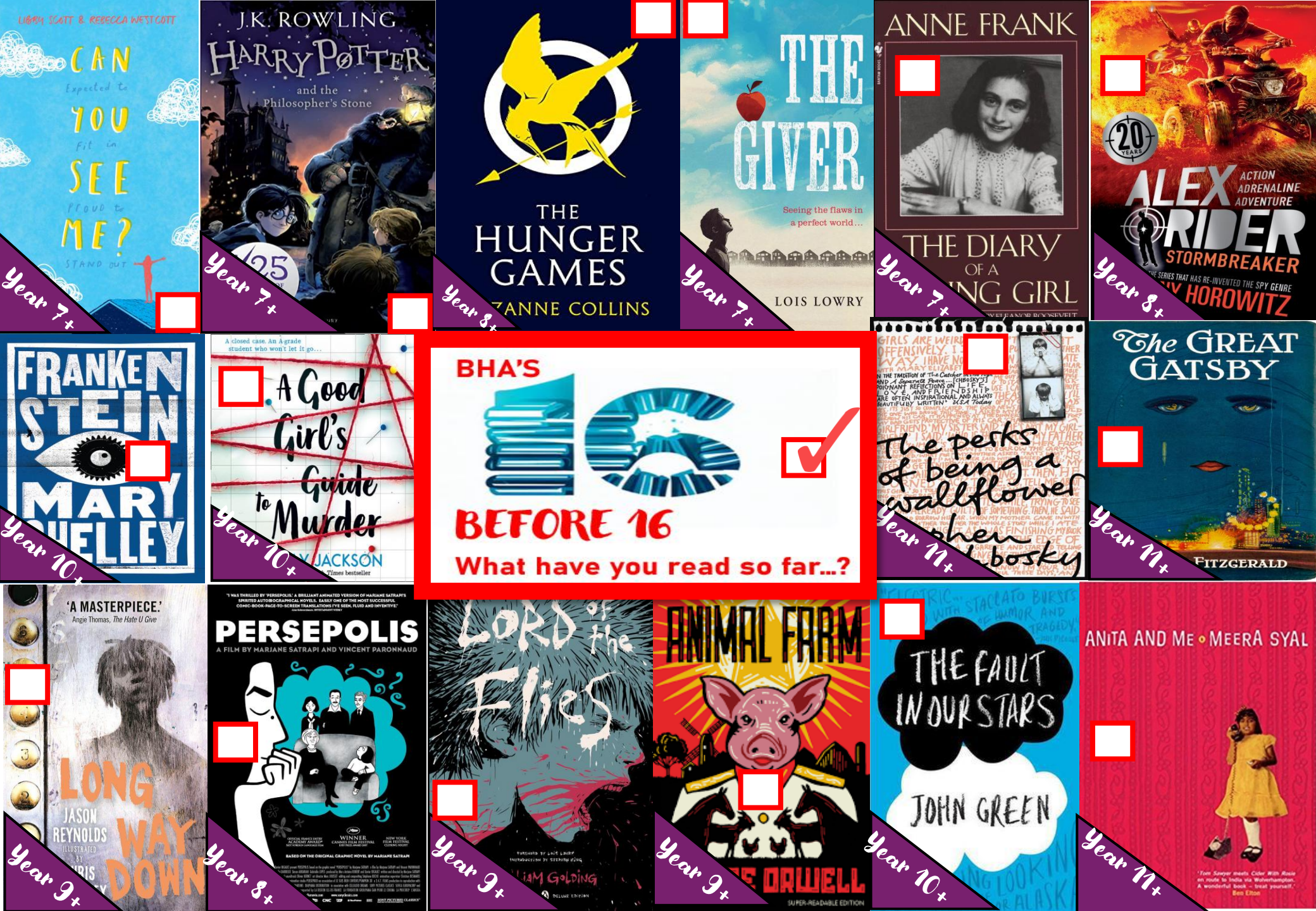
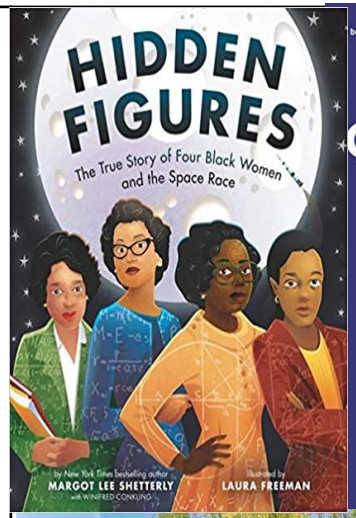

LIBBY SCOTT & REBECCA WESTCOTT
CAN YOU SEE ME?
Expected to Fit in
Proud to
STAND OUT
Year 7+
J.K. ROWLING
HARRY POTTER
and the Philosopher's Stone
Year 7+
THE HUNGER GAMES
ZANNE COLLINS
Year 8+
THE GIVER
Seeing the flaws in a perfect world...
LOIS LOWRY
Year 7+
ANNE FRANK
THE DIARY OF A
NG GIRL
Year 7+
20 YEARS
ALEX RIDER
ACTION ADRENALINE ADVENTURE
STORMBREAKER
THE SERIES THAT HAS RE-INVENTED THE SPY GENRE
HOROWITZ
Year 8+
FRANKEN STEIN
MARY
UELLEY
Year 10+
A closed case. An A grade student who won't let it go...
A Good Girl's Guide to Murder
JACKSON
Times bestseller
Year 10+
BHA'S
BEFORE 16
What have you read so far...?
The perks of being a wallflower
Year 11+
The GREAT GATSBY
FITZGERALD
Year 11+
'A MASTERPIECE.'
Angie Thomas, The Hate U Give
LONG WAY DOWN
JASON REYNOLDS
ILLUSTRATED BY
Year 9+
PERSEPOLIS
A FILM BY MARJANE SATRAPI AND VINCENT PARONNAUD
WINNER
CANNES FILM FESTIVAL
NEW YORK FILM FESTIVAL
BASED ON THE ORIGINAL GRAPHIC NOVEL BY MARJANE SATRAPI
Year 8+
LORD of the Flies
LIAM GOLDING
Year 9+
ANIMAL FARM
S ORWELL
Year 9+
THE FAULT IN OUR STARS
JOHN GREEN
Year 10+
ANITA AND ME • MEERA SYAL
Tom Sawyer meets Cider With Rosie en route to India via Wolverhampton. A wonderful book – treat yourself.
Ben Elton
Year 11+

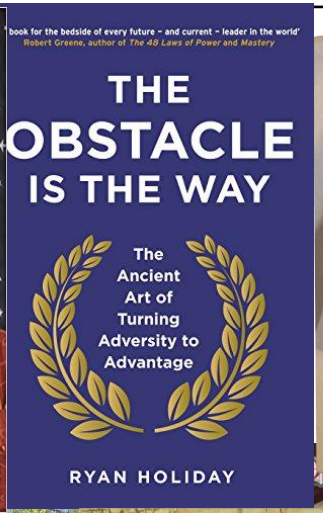
Contents page

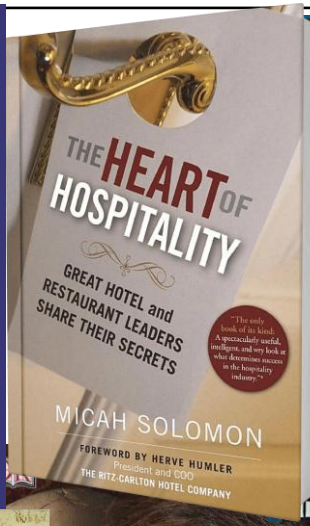
Further Reading List

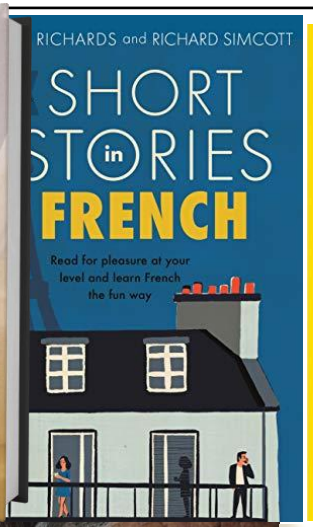
Challenge yourself by reading these topic-related books!

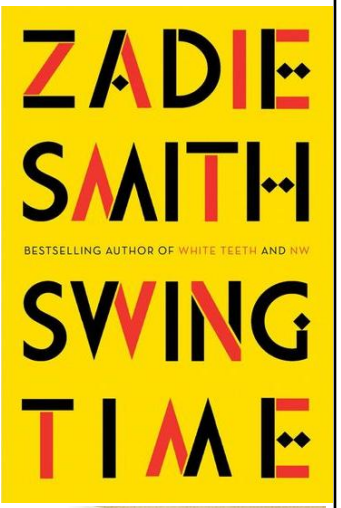
Year 11

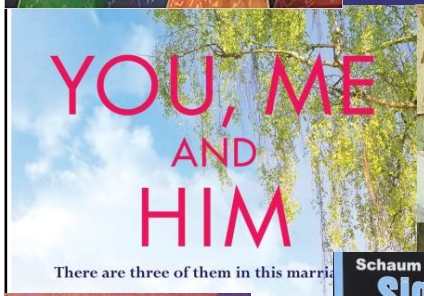


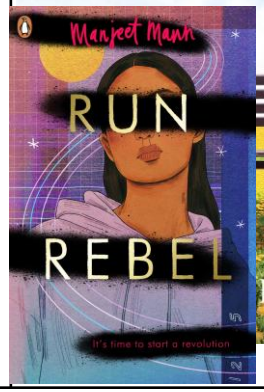


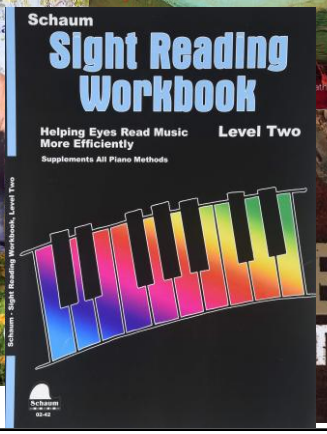


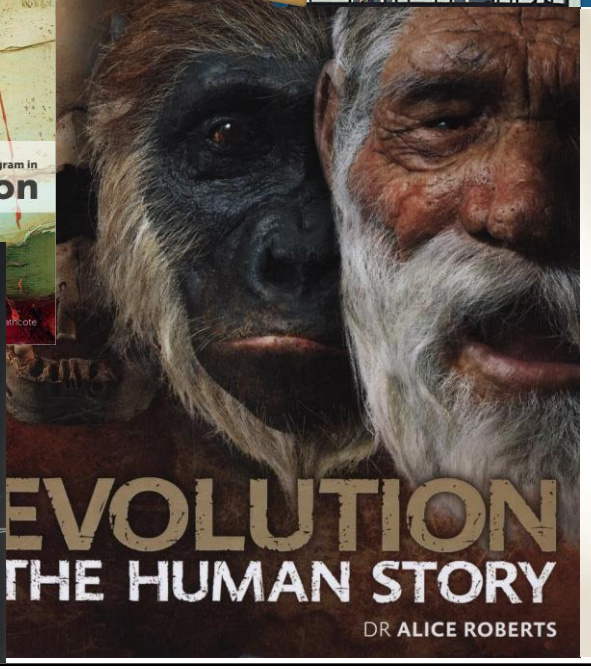


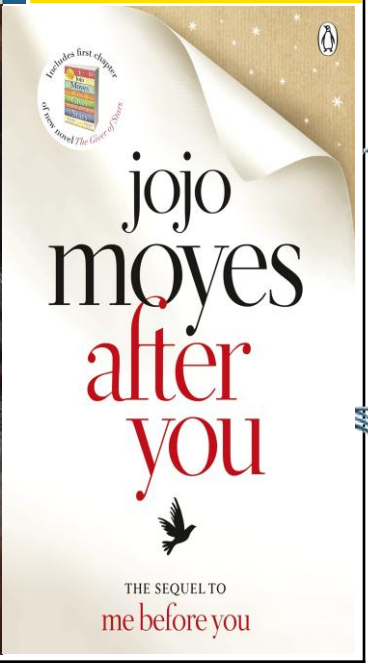












1 hour

GCSE Language Paper 1 Section A – Reading
Explorations in creative reading and writing

This paper has five questions to answer and you will need to complete all of them to achieve your target grade. Questions 1-4 are based on a fiction text and are worth 25% of your overall GCSE English Language grade (40 marks). Question 5 is a writing task where you will be instructed to write a fiction text. Again, it is worth 25% of your overall grade (40 marks).

15 Minutes Reading Time

- Start by **reading the blurb** for of the text.
- Read the source.
- Identify the GAP of the source.
- **Read and highlight** the key information in the questions.

Question 1 (5 | 4)

Four multiple choice questions

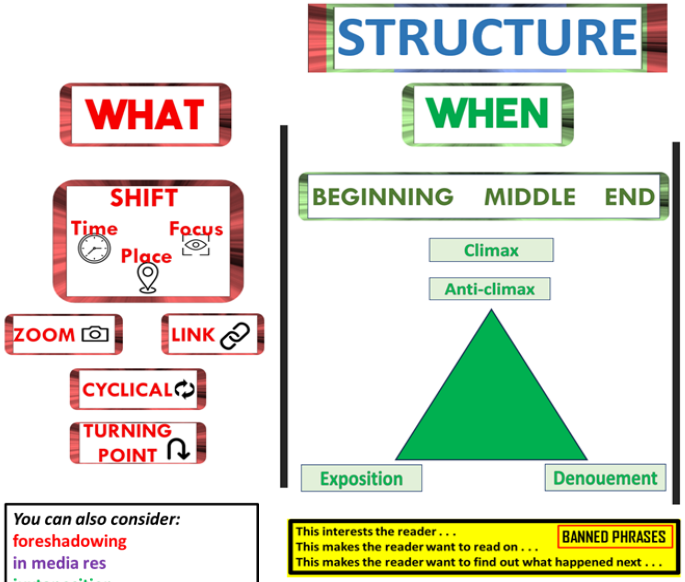
- Make sure you're selecting from the right lines.
- Do not choose more than one answer
- Retrieve explicit or implicit information directly from the text

Question 2 (12 | 8)

Analyse the language that the writer has used and the impact that it has on the reader in the given extract.

- Identify the key focus of the question and refer to it throughout.
- Use short, embedded quotes.
- Identify the method used and why it has been used. What is the effect?
- World level rainbow analysis of key word. Why did the writer choose that word?
- Method: PEZEL X3
- Challenge: can you spot a pattern?

Tools to Plan and Analyse

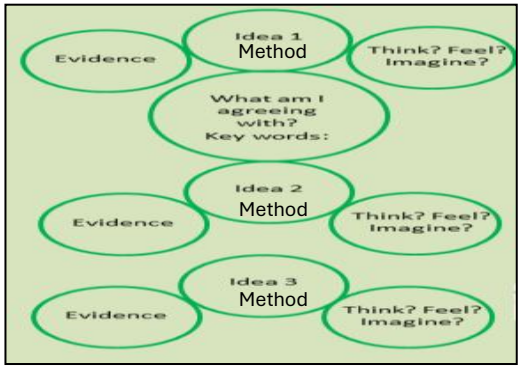


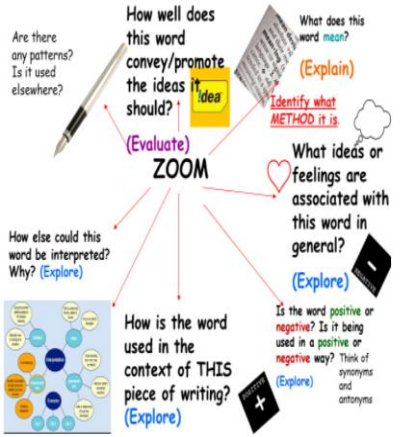
Question 3

- At this point in the source . . .
- Then the writer moves to . . .
- As the source develops . . .
- There is a change in tension/atmosphere when . .
- The focus then shifts to . . .
- Readers are left questioning . . .

- This reveals to the reader...
- The reader is left feeling...
- This helps the reader understand...

Q4 Planning and sentence starters





Question 3 (12 | 8)

This requires you to analyse the writer's use of structure to create specific effects:

- ***Spot and highlight the question focus*** (this could be **tone, atmosphere, setting or character)**
- Embed a short, brief quotation.
- Identify the structural method used and why it has been used. What do we learn/understand by placing it there?
- There will always be a **shift in** mood/tone/atmosphere – aim to spot that and discuss why it happens.

Method: **What** - Where/**When** - **Why?**

Question 4 (25 | 20)

An opinion/statement about the text and you will be asked **to what extent** you agree with it.

- Unpick the **key words** in the statement. 5 minutes to plan.
- Use ***SYNONYM***S of the key opinions in the statement.
- **Method: PEZEL X3.** Look at both sides of the argument but have a final response that explicitly states how far you agree/disagree.
- You can focus on **language** AND **structural** methods.
- **Embedded evidence** to support.
- Link every paragraph back to the statement in the question.

45 minutes

GCSE Language Paper 1 Section B - Writing
Explorations in creative reading and writing

OPTION: Describe a picture OR write a STORY (it could be the start or ending of one). You are marked on **SPAG** (16 marks) and Content and Organisation (24 marks).

Question 5

- Identify the GAP of the writing task. ☐
- Plan your response using one of the planning methods. ☐
- Use a range of language devices. ☐
- Link your start and end. ☐
- Use a range of punctuation. ☐
- Use a range of sentence types. ☐
- Use structural devices from Q3 in your own writing.

Writing Checklist

- One sentence paragraph. ☐
- One word sentence. ☐
- Varied paragraph lengths. ☐
- Ten different types of punctuation ☐
- Start sentences with present continuous tense ('ing' verbs). ☐
- Start sentences with adverbs (ly). ☐
- Start sentences with prepositions (e.g. *over time*). ☐

Tools to Plan

Planning Method	
Drop	Begin by dropping the narrative voice into the text. Establish the setting and weather.
Shift 	Shift to another time, contrasting mood or alternative place based on the stimulus.
Zoom 	Return to the original point in time or location and mood and/or zoom in on a tiny detail in a way that illuminates the character's feelings.
Link	Zooming out and leaving the location (like a bird's eye view).

Tips

Try to use a **motif** (a recurring element that has symbolic significance in a story) at least twice. It could be at the start of the end.

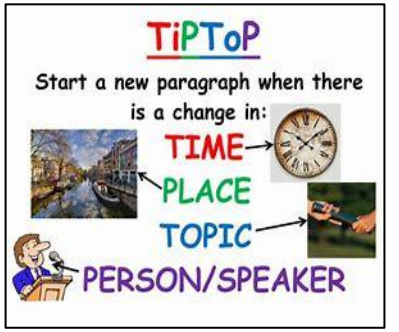
Try to **link** your start and end together.

Create contrast by having a different atmosphere at the start and end.

Ambitious Vocabulary	
Sanguine: optimistic, especially in an apparently bad situation.	**Amplify:** to make larger, greater, louder.
Repugnant: ugly.	**Discombobulate:** confuse someone.
Formidable: inspiring fear or respect.	**Conceal:** keep from sight/hide.
Euphoric: intense excitement or happiness.	**Warp:** to become twisted bent, out of shape.
Crestfallen: sad and disappointed.	**Epitomise:** perfect example of/ give a summary of.
Incensed: very angry/enraged.	**Bolster**: to support or strengthen.
Monochromatic: containing/using one colour.	**Explicate:** develop a problem/explain.

ISPACED to help you vary sentence openers (Q5)

Try starting with:
I – an **'ing' word** such as 'Screaming . . . '
S – a **SIMILE** such as 'Like a thunderstorm, the issue . . '
P – a **PREPOSITION** such as 'Behind the eyes of onlookers . . .'
A – an **ADVERB** ('ly' word) such as 'Savagely'
C – a **CONNECTIVE** such as 'Meanwhile . . . '
E – an **'ed' word** such as 'Panicked, I . . .'
D – **DIALOGUE** such as " 'Listen!' I screamed."



Have you used ten types of punctuation?

? , ! ' " " … - ( ) : ;

1 hour

GCSE Language Paper 2 Section A - Reading
Writers' viewpoints and perspectives

English

This paper has five questions to answer and you will need to complete all of them to achieve your target grade. Questions 1-4 are based on two non-fiction texts and are worth 25% of your overall GCSE English Language grade (40 marks). Question 5 is a writing task where you will be instructed to write a non-fiction text. Again, it is worth 25% of your overall grade (40 marks).

15 Minutes Reading Time

- ❑ Start by **reading the blurb** for each text.
- ❑ **BUG** each question.
- ❑ **Read** each source.
- ❑ **Read and highlight** the key information in the questions.

Question 1 — 5 — 4

- ❑ Identify **the four** pieces of information, which are TRUE from the list.
- ❑ Read the statements carefully – it might not be obvious.
- ❑ Only shade in 4 answers.

Question 2 — 10 — 8

Compare and summarise what you learn from two texts about a particular topic.

- ❑ Highlight similarities/ differences
- ❑ Point, Evidence, Inference, Development (of inferences) - COMPARE
- ❑ **Method: PEID-C-PEID x2**

Tools to Plan and Analyse

Q3 and 4 LAYERED ANALYSIS
What are the connotations of the word?
What does it reveal about the writer's thoughts and feelings?

USE CONNECTIVES to compare

Contrasting	Adding
However	Furthermore
Whereas	In addition
On the other hand	Similarly
In contrast	Both

Acronym	
Q1	
Q2	PEID-C-PEID
Q3	PEZE
Q4	VEZE-C-VEZE
Q5	Intro Reason 1 ISPACE Reason 2 Shutdown Resolution

In Source A we are told _____: '_____ Q2 _____'. This suggests that the _____ (try to include a triple inference). However, in Source B we are told as it says '_____'. This suggests that the _____ (try to include a triple inference).

Adjectives to describe the writer's tone of voice	
Authoritative	Nostalgic
Bored	Objective
Calm	Proud
Desperate	Questioning
Excited	Romantic
Friendly	Sombre
Grateful	Tired
Humorous	Uneasy
Indignant	Vehement
Joyful	Wistful
Kindly	Yearning
Light-hearted	Xenophobic
Mocking	Zealous

Both writers _____. **However**, Q4 Source A the writer feels_____ about _____ as they say '_____'. The writer uses (method) in order to _____. The word '____' has connotations of _____. Therefore, implying _____. **Whereas**, in Source B the writer is not as _____ as it says '_____'. The writer uses (method) in order to _____. The word '____' has connotations of _____. Therefore, implying _____.

Question 3 — 15 — 12

Analyse the language that the writer has used.

- ❑ Spot and highlight the question focus.
- ❑ Embed a short, brief quotation.
- ❑ Identify the method used and why it has been used. What is the effect?
- ❑ World level rainbow analysis of key word. Why did the writer choose that word?
- ❑ **Method: PEZE x3**
- ❑ Challenge: can you spot a pattern?

Question 4 — 20 — 16

Compare the writers' viewpoints or attitudes AND the **language**/ structural **methods.**

- ❑ Identify what both writers think about the subject.
- ❑ 3 quotations from each source that display the writers' viewpoints.
- ❑ **Method: VEZE – C – VEZE x2**
- ❑ Comparative connectives

45 minutes

GCSE Language Paper 2 Section B - Writing
Writers' viewpoints and perspectives

English

You will be asked to write either a **letter**, **speech, leaflet** or **article.** You are marked on **SPAG** (16 marks) and Content and Organisation (24 marks).

Question 5

- ❑ Identify the **TAPS** of the writing task.
- ❑ Plan five-six points. Use the writing frame to help.
- ❑ Write five-six paragraphs.
- ❑ Use **DAFORREST.**
- ❑ Link your start and end.
- ❑ Use a range of punctuation.
- ❑ Use a range of sentence types.

Have you used DAFORREST?

D irect address
A lliteration/ anecdote
F act/ figurative language
O pinion
R hetorical question
R epetition
E motive language
S tatistic/simile/satire
T riple

Tools to Plan

Introduction: State whether you agree or disagree with the statement and why you believe the issue is important one in the 21st century.
Include:
Triple adjective colon
Rhetorical question
Statistic
X2 ambitious vocabulary
State why it's an issue.

Reason 1: Explain your FIRST reason why you AGREE or DIAGREE with the statement.
Include:
Metaphor
Anecdote (personal story)
X2 ambitious vocabulary
State why it's an issue and why you agree or disagree.

Reason 2: Explain your SECOND reason why you AGREE or DIAGREE with the statement.
Include:
Pick another reason.
Expert at the door (a person linking to the topic)
X2 ambitious vocabulary
Direct address
Emotive language

SHUTDOWN: Acknowledge what the **OPPOSING** point of view to yours and **SHUT IT DOWN** to show why it might be **WRONG.**
Include:
Mention the opposing view.
X2 ambitious vocabulary
Simile
Semi-colon

Solution: How could this issue by solved? Give clear examples and decide on at least ONE action that could be taken to help solve the problem.
Include:
The solution
Rhetorical question
Alliteration
X2 ambitious vocabulary

Conclusion: End your argument strongly and refer to what you wrote at the start of your piece.
Include:
Link back to beginning.
Use a dash (-)
X2 ambitious vocabulary
Triple
Imperative sentence (command)

Argue/Persuade/Explain/Advise/Inform | Lang Paper 2 Section B: Writing to express an opinion | Letter/Speech/Article/Leaflet/Essay

Imperative phrases

Action must be taken.
It is undeniably time for a change.
We can no longer ignore this issue.
Stand up and make your voice heard.
Don't tolerate this any longer.
Let's put a stop to this issue, once and for all.
It is time to pay attention.

Experts to quote

Prime Minister – **Keir Starmer**
Health Secretary – **Wes Streeting**
Education secretary – **Bridget Phillipson**
Ofsted Chef Inspector – **Sir Martyn Oliver**
A former USA President – **Barack Obama**
Current USA President – **Joe Biden**
Footballer and campaigner – **Marcus Rashford**
Police Commissioner – **Sir Mark Rowley**
Broadcaster, biologist and activist – **David Attenborough**
Activist – **Greta Thunberg**

Structure for writing

1. Spell out your point of view clearly
I firmly believe that...
2. Give an anecdote that explains your feelings
I feel like this because...
3. Give at least three other reasons
There are other good reasons for my point of view.
4. Quote an expert
Don't just take my word for it.
5. Facts/statistics to support your point of view
It's the truth.
6. Relate the issue to the reader
It could affect you too.
7. Describe what needs to happen
So, we need to...
8. One-sentence paragraph, repeating your 1.
I firmly believe that...

45 minutes – 5 minutes to plan, 35 minutes to write, 5 minutes to proof-read

Instead of 'important', say...	Instead of 'good', say...	Instead of 'bad', say...
Crucial	Outstanding	Disastrous
Essential	Beneficial	Dire
Vital	Superb	Unacceptable
Significant	Exceptional	Inadequate
Urgent	Worthy	Harmful
Critical	Magnificent	Invalid
Momentous	Faultless	Shocking

Rhetorical questions

How much longer can we sit back and ignore this issue?
Ask yourself this: how would you feel?
Do you want your children to grow up in a world where this continues to happen?
Have we not tolerated this for long enough?
If not you, then who? If not now, then when?
Are you ready to change the world?

ISPACED to help you vary sentence openers (Q5)

Try starting with:
I – an **'ing' word** such as 'Screaming . . . '
S – a **SIMILE** such as 'Like a thunderstorm, the issue . . '
P – a **PREPOSITION** such as 'Behind the eyes of onlookers . . .'
A – an **ADVERB** ('ly' word) such as 'Savagely'
C – a **CONNECTIVE** such as 'Meanwhile . . . '
E – an **'ed' word** such as 'Panicked, I . . .'
D – **DIALOGUE** such as " 'Listen!' I screamed."

Vocabulary Bank 1: **Disgusting**	Vocabulary Bank 2: **Wrong**	Vocabulary Bank 3: **Unfair**
revolting	erroneous	Biased
repulsive	immoral	Prejudiced
ghastly	depraved	Imbalanced
nauseating	corrupt	One-sided
horrendous	unethical	Misleading
Atrocious	flawed	

Have you used ten types of punctuation?

? , ! ' " " ... - ( ) : ;

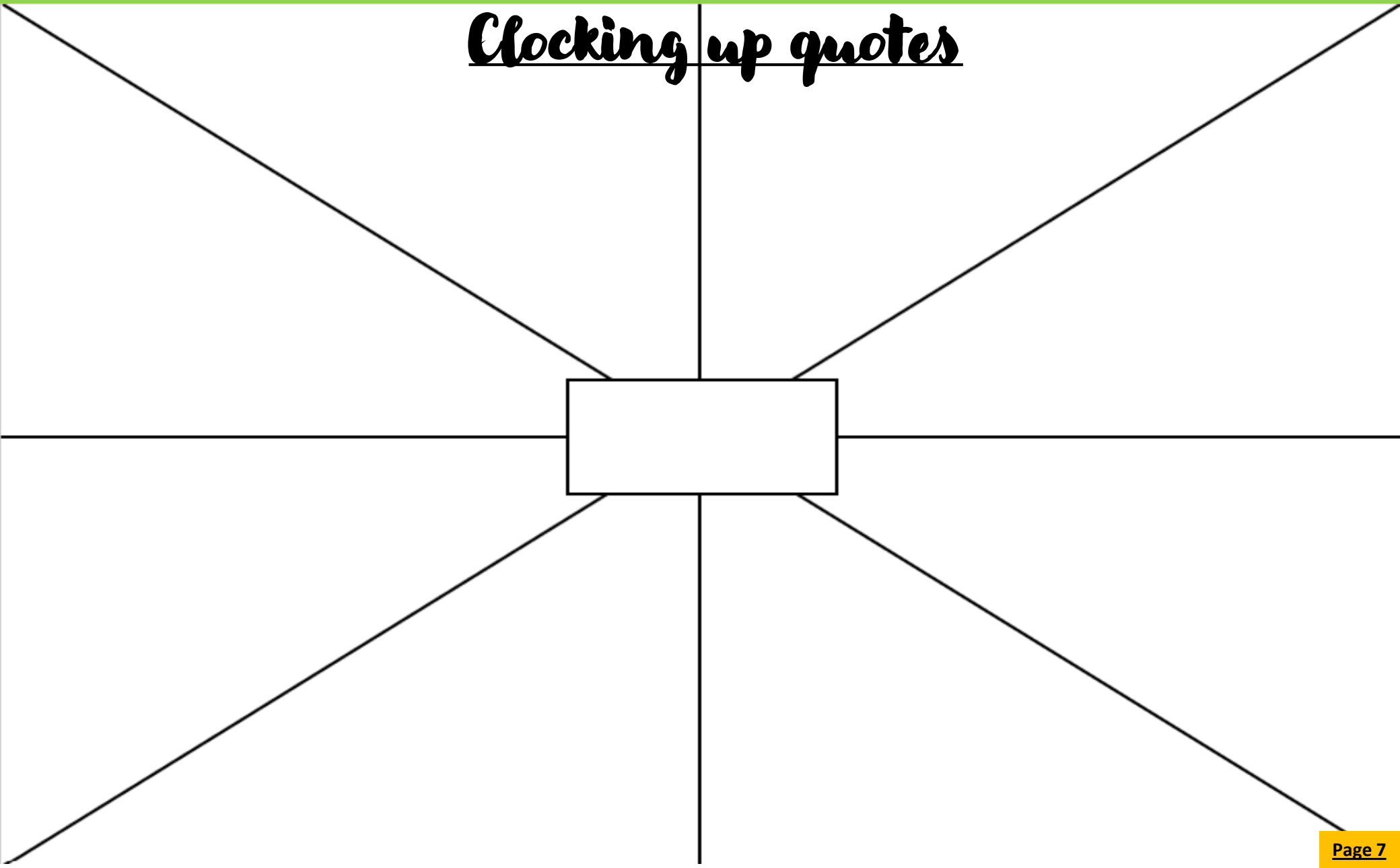
Hexagon thinking

Write an idea in each Hexagon.
For each Hexagon side that touches another hexagon, the idea must connect in some way.

Ask your parent or carer to quiz you on some of the knowledge and ideas from ***English.*** See if you can make links with events, themes or characters

English. Choose what text you would like to revise and write that in the middle (e.g. Poetry/An Inspector Calls/Macbeth/A Christmas Carol). Each section on the clock can either be a theme/character focus/key quote. Once you have decided on the focus, make notes including key quotes/ quote explosions/contextual links that you could use in an exam about that question.

Clocking up quotes



DECIMALS

Maths

What do I need to be able to do?

You should be able to:

- Understand place value and the number system
- Read and write decimal numbers
- Order decimals of any size
- Use inequality symbols
- Add and subtract decimals
- Multiply and divide decimals
- Use related calculations to find the answers to questions

Key Words

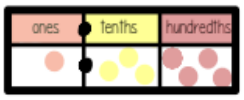
- Place Value: the value of a digit depending on its place in a number
- Place Holder: we use 0 as a place holder to show there are none of a particular place in a number
- Integer: a whole number that is positive or negative
- Decimal: a number with a decimal point used to separate ones, tenths, hundredths etc...
- Inequality: compares two values and indicates which is larger

Place Value

3 2 4 7 3 5 1 • 1 4 5

"Three million, two hundred and forty seven thousand, three hundred and fifty one point one four five"

Decimal Place Value



1 one, 3 tenths and 4 hundredths

1 • 0.1 • 0.1 • 0.1 • 0.01 • 0.01 • 0.01 • 0.01

= 1 + 0.3 + 0.04

= 1.34

We say "one point three four"

Inequalities

> greater than

< less than

≥ greater than or equal to

≤ less than or equal to

= equal to

≠ not equal to

Examples

5 > 3 — 5 is greater than 3

2 + 2 = 4 — 2+2 is equal to 4

5 - 3 x 2 ≠ 4 — 5-3x2 is not equal to 4

x ≤ 3 — x is less than or equal to 3

Ordering Decimals

Example

WHICH IS BIGGER, 1.6 OR 1.66?

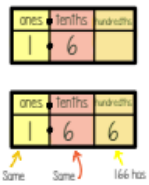
Method 1:

Compare both numbers with the same number of decimal places

1.60
1.66

We can clearly see that 1.66>1.6

Method 2:



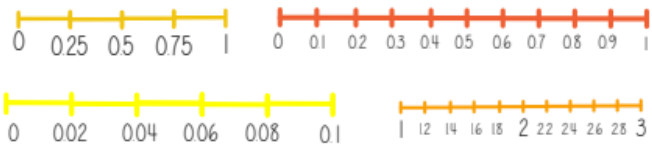
Therefore 1.66>1.6

Example WHICH IS BIGGER, 0.304 or 0.034?

We call this 0 a place holder

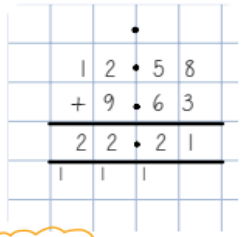
By looking, we can see that 0.304 > 0.034 as it has 3 tenths compared to 0

Decimal intervals on a number line



Adding Decimals

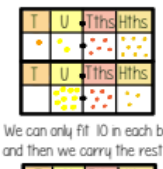
Formal written method:



Tths = tenths
Hths = hundredths

Visual Prompt

12.58+9.63



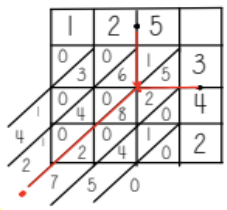
We can only fit 10 in each box and then we carry the rest

22.21

Multiplying Decimals

12.5 x 3.42

You can use any method to multiply but this way is very clear and fun!



= 42.75

Related Calculations

Example 1

If I know that 5 x 2 = 10, what is 0.5 x 2?

÷10: 5 x 2 = 10 :÷10

0.5 x 2 = 1

Example 2

19 x 900 = 17 100

19 x 90 = 1710

90 ÷ 10 = 9 therefore we need to divide 1710 by 10!

19 x 9 = 171

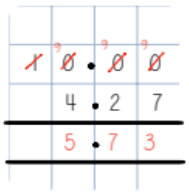
19 x 0.09 = 171 ÷100

19 x 0.0009 = 0.171

Subtracting Decimals

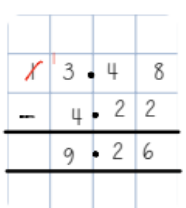
Worded Problem

I have a £10 note and spent £4.27 on sweets. How much do I have left?



£5.73 left

Formal Written Method



Dividing Decimals

The place holder is very important in division.

All of these give the same solution:

1.5 ÷ 0.05 → 15 ÷ 0.5 → 150 ÷ 5

Multiply both values until the divisor becomes an integer

Method 1

0.12 ÷ 0.003 (x10)
12 ÷ 0.03 (x10)
12 ÷ 0.3 (x10)
120 ÷ 3
= 40

Method 2

Remember that a divide sign is just an empty fraction!

0.12 ÷ 0.003 becomes 0.12 / 0.003

Which we can rewrite as 120/3 = 40

EXAMPLES

Related calculations to 6 x 8 = 48

0.6 x 8 = 4.8
0.6 x 0.8 = 0.48
48 ÷ 8 = 6
4.8 ÷ 0.6 = 8

Key Points

- Keep the values in proportion
- If you are stuck with a division, write it as a fraction and simplify that

PERCENTAGES

What do I need to be able to do?

You should be able to:

- Find percentages of amounts
- Increase or decrease by a percentage
- Find percentage change
- Find the original amount.
- Express one number as a fraction of another
- Increase or decrease using multipliers
- Work with simple interest
- Work with compound interest

Key Words

- Percent: parts per hundred
- Simple Interest: interest calculated as a percent of the original amount
- Compound Interest: interest calculated on the amount borrowed plus the previous interest
- Multiplier: the number that you are multiplying by
- Increase: make bigger
- Decrease: make smaller

Percentage of an Amount

Find 10% of 300

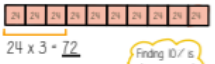
300 shared into 10 equal parts (300 ÷ 10)

100% of 300 = 300
10% of 300 = 30

Find 30% of 240

100% of 240 = 240
10% of 240 = 24
30% of 240 = 72

A bar model to help visualise it:



24 x 3 = 72

Finding 10% is always a good place to start!

Find 81% of 480

100% of 480 = 480
10% of 480 = 48
1% of 480 = 4.8

100% of 480 = 480
10% of 480 = 48
80% of 480 = 384

80% + 1% = 81% so we need to add 4.8 and 384

81% of 480 = 388.8

Percentage Increase/Decrease

An antique clock has increased in value by 12%. If it's original price was £400, what is the new price?

Method 1

12% increase means we have 112% of the original price. So we are now finding 112% of £400

100% of £400 = £400
10% of £400 = £40
2% of £400 = £8

112% of £400 = £448

Method 2

We need to find 12% of £400

100% of £400 = £400
10% of £400 = £40
2% of £400 = £8

12% of £400 = £48

We are increasing by 12%, so adding 12% on. £400 + £48 = £448

Helpful Percentages

It is helpful to remember the relationships between some percentages to help speed up the process!

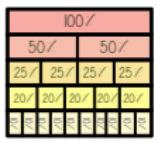
50% is half of 100% To find 50% of something, we can divide it by 2.

25% is a quarter of 100% To find 25% of something, we can divide it by 4.

10% is one tenth of 100% To find 10% of something, we can divide it by 10.

20% is one fifth of 100% To find 20% of something, we can divide it by 5.

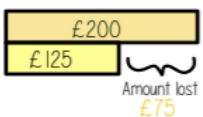
A useful one to remember: 12.5% is one eighth of 100% (as it is half of 25%)



Percentage Change

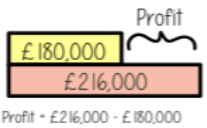
Difference in value / Original value x 100

I bought a phone for £200. A year later it sold for £125. What was the % loss?



75/200 x 100 = 37.5%

I bought a house for £180,000. I sold it for £216,000. What was the % profit?



Profit = £216,000 - £180,000 = £36,000

36,000/180,000 x 100 = 20%

Expressing One Number as a Percentage of Another

Express 12 as a percentage of 20

12/20 = 60/100 = 60%

Equivalent fractions

37 out of 50 people in a class are Manchester United fans. What percentage of the class support Manchester United?

37/50 = 74/100 = 74%

Equivalent fractions

Multipliers

What multiplier would represent an increase of 15%?

We are finding 100% + 15%, so 115%.

As a decimal this is 1.15

What multiplier would represent an decrease of 15%?

We are finding 100% - 15%, so 85%.

As a decimal this is 0.85

Compound Interest

I put £1000 in a bank account. It earns compound interest of 10% per year. How much will be in the account after 5 years?

INTEREST:

Compound interest means we work out the interest each year and the original amount plus any interest in the account.

- 10% of £1000 = £100.

So after year 1, the account will have £1100.

- 10% of £1100 = £110

So after year 2, the amount is £1210 etc..

If we are increasing by 10% each time, this is the same as finding 110% of the amount, or multiplying by 1.1 (see multipliers). So another way we can work this out is:

£1000 x 1.1 x 1.1 x 1.1 x 1.1 x 1.1

Or £1000 x 1.1^5 = £1610.51 (5 years)

I know which account I'd go for!

Finding the Original

60% of a number is 48. What is the number?

60% of x = 48
10% of x = 8
100% of x = 80

A bar model to help visualise it:

As a quick sense check, our answer should be BIGGER than 48. Always make sure you look back at your answer and make sure it makes sense.

A pair of shoes are on sale for 87.5% off. The sale price is £49.50, how much did they cost originally?

87.5% off means we are left with 12.5%. So 12.5% = £49.50.

12.5% of x = £49.50
25% of x = £99
100% of x = £396

Simple Interest

I put £1000 in a bank account. It earns simple interest of 10% per year. How much will be in the account after 5 years?

INTEREST:

Simple interest means we calculate the interest the initial amount will earn and add that amount on each year

10% of £1000 = £100.

So each year, the account will gain £100 interest.

£1000 + (£100 x 5) (5 years)

= £1500

FDP EQUIVALENCE

Maths

What do I need to be able to do?

You should be able to:

- Convert fluently between fractions, decimals and percentages
- Order fractions, decimals and percentages
- Know the key FDP equivalences

HIGHER TIER ONLY

- Covert recurring decimals into fractions

Key Words

- Percent: parts per hundred
- Fraction: how many parts out of a whole
- Decimal: a number with a decimal point used to separate ones, tenths, hundredths etc..
- Tenth: one whole split into 10 parts
- Equivalent: of equal value
- Recurring decimal: a decimal number with a digit that repeats forever

Percentages to Decimals

Convert 37% to a decimal

Remember this means 37 out of 100 or 37 hundredths. If 1 hundredth is 0.01, 37 hundredths would be 0.37

12% = 0.12 123% = 1.25

85% = 0.85 0.1% = 0.001

Percentage → Decimal, ÷100

Percentages to Fractions

Convert 37% to a fraction

Remember this means 37 out of 100. We can write this as $\frac{37}{100}$ ← This is fully simplified

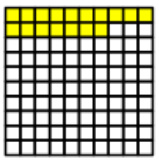
$12\% = \frac{12}{100} = \frac{3}{25}$ $123\% = \frac{123}{100} = 1\frac{23}{100}$

$85\% = \frac{85}{100} = \frac{17}{20}$

Percentage → Fraction, write over 100 and then simplify

Visual aids

Sometimes, it can be helpful to draw a diagram to help understand what is happening



Here are 100 squares. I have 17 yellow squares.

The fraction of yellow squares is $\frac{17}{100}$

The percentage of yellow squares is 17%

I want to make 0.53 of this big square orange.

So I want to make 53 hundredths orange. This is the same as 53% or $\frac{53}{100}$

Decimals to Percentages

Convert 0.63 to a percentage

0.63 is equal to 6 tenths plus 3 hundredths or 63 hundredths. So 0.63 = 63%

0.23 = 23% 0.535 = 53.5%

0.02 = 2% 2.13 = 213%

Decimal → Percentage, x100

Decimals to Fractions

Always make sure that you fully simplify your fraction!

Convert 0.63 to a fraction

0.63 is equal to 6 tenths plus 3 hundredths or 63 hundredths. We can write this as $\frac{63}{100}$

$0.23 = \frac{23}{100}$ $0.535 = \frac{535}{1000} = \frac{107}{200}$

$0.02 = \frac{2}{100} = \frac{1}{50}$

Here we have 5 tenths, 3 hundredths and 5 thousandths or 535 thousandths

Recurring Decimals to Fractions

HIGHER TIER ONLY

Example (ONE RECURRING DIGIT)

Convert $0.\dot{3}$ to a fraction

$x = 0.3333...$

$10x = 3.3333...$ (3333... - 0.333... = 3)

$10x - x = 9x$

$9x = 3 \rightarrow x = \frac{3}{9} = \frac{1}{3}$

Example (TWO RECURRING DIGITS)

Convert $0.\dot{3}\dot{5}$ to a fraction

$x = 0.353535...$

$100x = 35.353535...$

Because we have two digits that are repeating, we need to multiply it by 100

$99x = 35 \rightarrow x = \frac{35}{99}$

Fractions to Decimals

Page 8

Convert $\frac{2}{5}$ to a decimal

Remember a divide symbol is an empty fraction, so this is the same as 2 ÷ 5

= 0.4

	0 . 4
5	2 . 0

Remember

$\frac{1}{10} = 0.1$ $\frac{1}{4} = 0.25$ $\frac{1}{2} = 0.5$

Fractions to Percentages

Convert $\frac{2}{5}$ to a percentage

Here we need to be confident with equivalent fractions. We know percent means out of 100 so we need to find an equivalent fraction with a denominator of 100.

$\frac{2}{5} = \frac{40}{100} = 40\%$

Ordering FDP

Remember ascending means from smallest to largest

Put in ascending order

$0.3, \frac{1}{3}, 0.303, 35\%, \frac{31}{100}$

1. Choose a form to compare them in, here let's choose to compare them as decimals

   $0.3, 0.\dot{3}, 0.303, 0.35, 0.31$

2. Put them in ascending order: $0.3, 0.303, 0.31, 0.\dot{3}, 0.35$

3. Convert them back to their original form

   $0.3, 0.303, \frac{31}{100}, \frac{1}{3}, 35\%$

Key FDP Equivalences

www.cazoommaths.com

You are expected to know some of the key FDP equivalences without working them out

Decimal	Percentage	Fraction
0.5	50%	$\frac{1}{2}$
0.25	25%	$\frac{1}{4}$
0.75	75%	$\frac{3}{4}$
0.2	20%	$\frac{1}{5}$
0.1	10%	$\frac{1}{10}$
$0.\dot{3}$	$33.\dot{3}\%$	$\frac{1}{3}$

Example

Convert $0.2\dot{5}$ to a fraction

$x = 0.255555...$

$10x = 2.5555555...$ (25.555 - 2.55 = 23)

$100x = 25.55555$

Here, we cannot just take 2.555 away from 0.255 as we will not reduce it to an integer

$100x - 10x = 90x$

$90x = 23 \rightarrow x = \frac{23}{90}$

Page 10

Maths. Based on the number KO page, please fill in the key vocabulary and have a go at using the methods to answer the questions.

Key Vocabulary (fill the gaps):

Place Value: the _____ of a digit depending on its _____ in a number.

Place Holder: we use _____ as a place holder to show there are _____ of a particular place in a number.

Integer: a _____ number that is positive or negative.

Decimal: a number with a _____ _____ used to separate ones, tenths, hundredths etc...

Inequality: _____ two values and indicates which is _____.

Retrieval Questions:

1. Match the correct sign from below to the statement:

- greater than
- less than
- greater than or equal to
- less than or equal to
- equal to
- not equal to

≠ ≤ ≥ < > =

2. Which is bigger, 0.304 or 0.31?

3. 0.5 x 7 =

4. 0.5 x 0.7 =

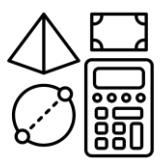
5. 0.1 x 0.2 =

6. I spend £13.76 on stationary. I pay with a £20 note. How much change do I receive?

Maths. Based on the Percentages KO page, please fill in the key vocabulary and have a go at using the methods to answer the questions.

Key Vocabulary (fill the gaps):

Percentage : Is out of _____



To find 10%: divide by _____

To find 5%: divide by _____

To find any % : Divide by the _____ amount

To find a % increase: _____ the % amount to the original amount

To find a % decrease: _____ the % amount from the original amount

The formula to find a multiplier: _____ +/- _____ ÷ _____

1. Find 10%, 5% and 1% of £100

2. Increase and decrease £100 by 10%, 5% and 1%

3. What is the multiplier decimal of a 20% increase and decrease

4.

a) Find a 10% decrease of £200 over 2 years

b) Find a 20% increase of £200 over 5 years

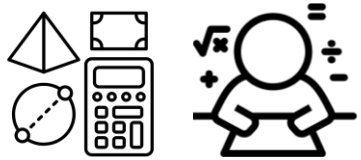
Maths. Based on the geometric notation KO page, please fill in the key vocabulary and have a go at using the methods to answer the questions.

Key Vocabulary (fill the gaps):

Fraction: Parts of a _____ value.

Decimal: number that uses a decimal _____ followed by digits that show a value smaller than _____.

Percentage: part of a whole value written out of _____.



Write the following as fractions:	Write the following as a decimal:	Write the following as a percentage:
a) 45%	a) 78%	a) 0.79
b) 67%	b) 3%	b) 0.08
c) 0.67	c) $\frac{1}{4}$	c) $\frac{1}{8}$
d) 0.03	d) $\frac{4}{5}$	*d)* $\frac{2}{3}$

Put the following in order from smallest to largest:

$$42\% \quad \frac{4}{9} \quad 0.5 \quad 3/7$$

Poles of a Magnet

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

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

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

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

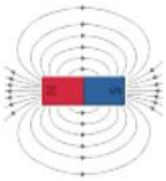
Remember that only **iron**, **cobalt** and **nickel** (or alloys containing these metals) are magnetic.

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

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

Magnetic Fields

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



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

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

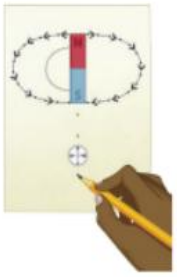
The earth produces a magnetic field and a magnetic compass uses this to help aid navigation. The core of the earth is made of iron (a magnetic material). A compass contains a small bar magnet shaped as a needle, which points in the direction of the earth's magnetic field.

Plotting Magnetic Field Lines

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

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

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



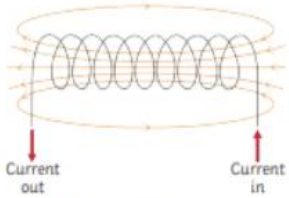
Electromagnetism

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

Switching off the current causes the magnetism to be lost.

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

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



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

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

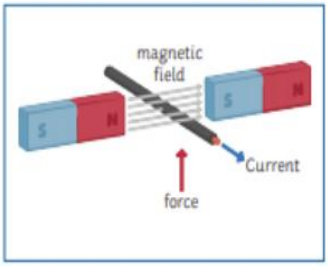
An **electromagnet** is a solenoid with an iron core. Electromagnets are **induced magnets** and can be turned on and off.

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

Higher Tier

The Motor Effect and Flemings Left-Hand Rule

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



This is called the **motor effect**.

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

force (N) = magnetic flux density (T) × current (A) × length (m)

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

$F = B \times I \times l$

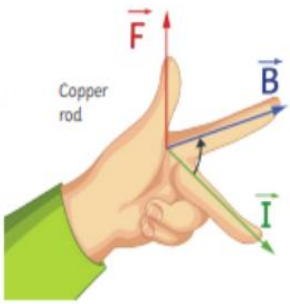
Remember: the equation uses length measured in m. The question gives you the length in cm so you need to convert it before you calculate your answer.

$F = 0.5 \times 8 \times 0.75$

$F = 3N$

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

You might be shown a diagram and asked to indicate the direction of the force produced. **Fleming's left-hand rule** can help you do this because it represents the **relative orientation** of the force produced by the motor effect.

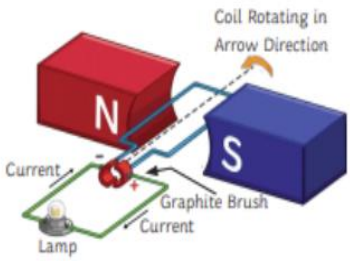


Remember:

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

Electric Motors

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



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

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

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

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

Calculating Rates of Reactions

Reactions happen at **varying rates**. For example, a firework exploding is a fast reaction whereas a piece of iron rusting would take place over a longer period of time.

The **rate of a chemical reaction** tells us how quickly a **product is formed** or how quickly a **reactant is used up**.

For a chemical reaction to occur, the reactant particles must collide with enough energy. Those collisions that produce a chemical reaction are called successful collisions.

$$\text{mean rate of reaction} = \frac{\text{quantity of reactant used}}{\text{time taken}}$$

$$\text{mean rate of reaction} = \frac{\text{quantity of product formed}}{\text{time taken}}$$

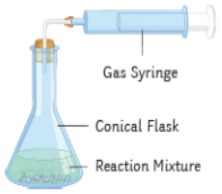
Measuring the Mass of a Reaction Mixture

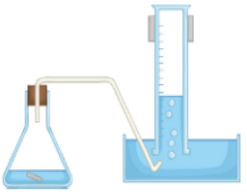
The changing mass of a reaction mixture can be measured during a reaction. This method is particularly useful when gases, such as carbon dioxide, are given off. **Gas escapes during the reaction and the mass of the reaction mixture decreases.** The mass can be measured at regular time intervals.

units = g/s or g/min

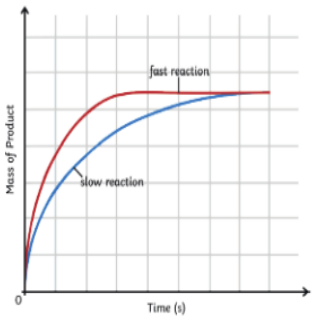
Measuring the Volume of a Reaction Mixture

The changing volume of a reaction mixture can be measured during a reaction. This method is particularly useful when gases, such as carbon dioxide, are given off. The gas can be collected and its volume measured at regular time intervals. Different types of measuring equipment can be used to collect the gas such as a gas syringe, measuring cylinder or upside-down burette.





units = cm^3/s or cm^3/min



Graphs are a useful way to **analyse** the results from a rate of reaction investigation. The graph above shows two lines, one red and one blue.

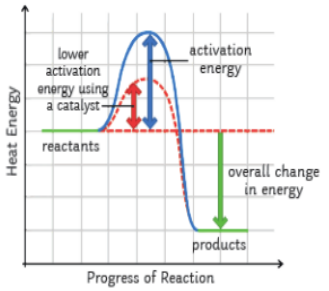
The red line represents a fast reaction and the blue line a slow reaction. We know the fast reaction occurs at a much faster rate as the line is steep. The fast reaction finishes before the slow reaction as the line plateaus sooner.

Factors Affecting the Rate of a Chemical Reaction

- concentration and pressure
- catalyst
- surface area
- temperature

The rate of a chemical reaction will be increased if there are more frequent successful collisions between reactant particles.

Catalyst



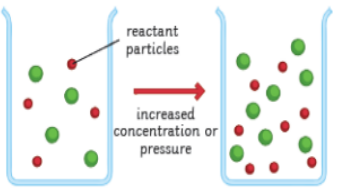
A catalyst is a **substance** that speeds up a chemical reaction without getting used up itself. Catalysts are able to offer an **alternative pathway** at a **lower activation energy**.

Biological catalysts are called **enzymes**.

When a catalyst is used in a chemical reaction (not all reactions have a catalyst that is suitable to use), the **frequency of collisions** is **unchanged**. More **particles** are able to react. The particles have **energy greater** than that of the **activation energy**. Consequently, there is in an **increase** in the **rate successful of collisions**.

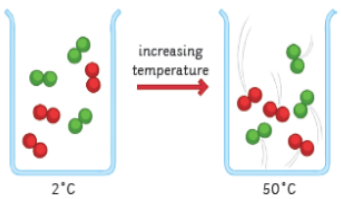
Concentration and Pressure

If the **number of reactant particles** in a given space is **doubled**, there will be **more frequent successful collisions** between reactant particles, therefore, **increasing** the **rate of reaction**.



Temperature

When the temperature of the reaction mixture is increased, the reactant particles **gain kinetic energy** and move much more quickly. This results in **more frequent successful collisions** between the reactant particles, therefore, **increasing the rate of the reaction**.



Method

Sodium thiosulfate from three different temperatures may be used, for example, ice cold, room temperature and hot.

Step 1 – Place a black cross on a white tile.

Step 2 – Using the first temperature, measure out 35cm^3 of sodium thiosulfate using a measuring cylinder. Place the liquid in a conical flask and position over the black cross on the white tile.

Step 3 – Measure out 5cm^3 of water and 10cm^3 of hydrochloric acid in separate measuring cylinders.

Step 4 – Pour the water and acid into the conical flask.

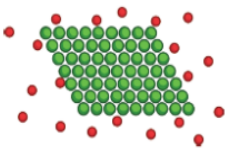
Step 5 – Pour the measured amount of sodium thiosulfate into the conical flask and immediately start the stopwatch.

Step 6 – Look down through the conical flask to the black cross below. When the black cross is no longer visible, stop the stopwatch and record the results in a table.

Step 7 – Repeat the steps with the remaining temperatures of sodium thiosulfate.

Surface Area

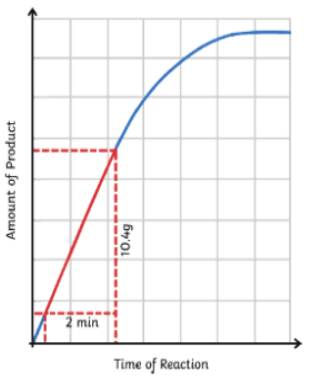
Large lumps of a solid have a **small surface area to volume ratio**. If the solid is broken up into smaller lumps or crushed into a powder, this will increase the surface area to volume ratio.



A larger area of the solid is now exposed to other reactant particles. This increases the frequency of successful collisions thus increasing the rate of reaction.

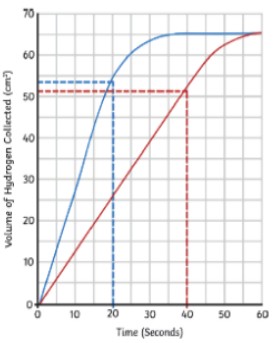
Calculating Gradient (Higher Tier Only) gradient = $\frac{y}{x}$

On the graph, draw construction lines on the part of the graph that has a straight line. Measure the values of x and y.



In the graph below, the gradient of the first line is much steeper than the second line. This indicates that a faster reaction is taking place. Remember, the steeper the line, the faster the reaction.

To calculate the reaction rate at a specific time period, construction lines must first be drawn on the straightest part of the graph.



For the first line, what is the rate of reaction at 20 seconds?

54 ÷ 20 = 2.7cm^3/s

For the second line, what is the rate of reaction at 40 seconds?

52 ÷ 40 = 1.3cm^3/s

Dynamic Equilibrium

In a **closed system** (this means nothing can get in or out), a reversible reaction can reach **dynamic equilibrium**. This is where the **forward** and **reverse reactions** are occurring at the **same rate** and the **concentrations** of all the substances that are reacting remain constant.

Changing Conditions and the Effect on the Position of Equilibrium (Higher Tier Only)

The reaction between nitrogen and hydrogen to make ammonia is an industrial process called the Haber process. It requires a high temperature, high pressure and an iron catalyst.

The symbol equation for the reaction is as follows:

$N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$

According to **Le Chatelier's Principle**, the position of equilibrium can be altered by changing the conditions of the reaction i.e. the pressure, concentration and/or the temperature. The **position** of the **equilibrium** will shift to **counteract** any changes made.

Increasing the **temperature** of the reaction in the forward direction (exothermic) will result in the equilibrium shifting in favour of the reverse direction (endothermic) to reduce the temperature.

From the equation, it is clear that on the **left-hand side**, there are **four molecules** and on the **right-hand side**, there are **two molecules**. If the **pressure** in the system were **increased**, the equilibrium **position would shift to the right** as there are fewer molecules. If the pressure in the system were **decreased**, the equilibrium **position would shift to the left** as there are a larger number of molecules.

If the **concentration** of one of the **reactants were increased**, then the equilibrium position would move in **favour of the products**. This would result in more product being produced. If the concentration of the **products were decreased**, equilibrium would shift to **favour the products**. More reactants would react until equilibrium is reached.

Reversible Reactions

A reversible reaction is one in which the **reactants form products**. The products are then able to react together to **reform the reactants**.

For example:
A reacts with B to form C and D.
C and D are able to react to form A and B.

The equation would be as follows (where the **double arrow symbol** represents a **reversible reaction** is taking place):

$A + B \rightleftharpoons C + D$

The **forward reaction** goes to the **left** and the **backwards reaction** goes to the **right**. For example, if the forward reaction is exothermic then the backward reaction will be endothermic. The amount of energy that is transferred is the same for both the forward and reverse reaction.

Hydrated copper sulfate is a blue substance. We say that the copper sulfate is hydrated as it **contains water**. The copper sulfate is heated and the water evaporates leaving a white substance known as **anhydrous** copper sulfate. Anhydrous meaning **no water**.

The word equation for the reaction is as follows:

hydrated copper sulfate ⇌ anhydrous copper sulfate + water

$CuSO_4.5H_2O(s) \rightleftharpoons CuSO_4(s) + H_2O(l)$

The reaction can be reversed when water is added to the anhydrous copper sulfate.

Required Practical 5: Measuring the Production of a Gas

This method outlines one way to carry out an investigation to collect a gas from a chemical reaction.

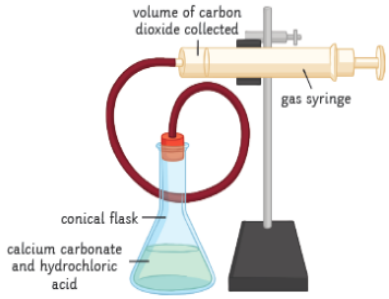
The practical involves changing the concentration of hydrochloric acid and measuring the volume of carbon dioxide gas produced when the acid reacts with calcium carbonate.

The word equation for the reaction is as follows:

calcium carbonate + hydrochloric acid → calcium chloride + water + carbon dioxide

The symbol equation for the reaction is:

$CaCO_3 + 2HCl \rightarrow CaCl_2 + H_2O + CO_2$



Method

Step 1 – Clamp a gas syringe to a retort stand using a boss and clamp. Ensure the syringe is a quarter of the way from the top of the stand. Place the delivery tube to the end of the gas syringe.

Step 2 – Measure out 50ml of hydrochloric acid using a measuring cylinder and pour into a conical flask.

Step 3 – Using a top pan balance, measure out 0.5g of powdered calcium carbonate and place in the conical flask.

Step 4 – Immediately connect the bung and delivery tube to the conical flask. Start the stopwatch.

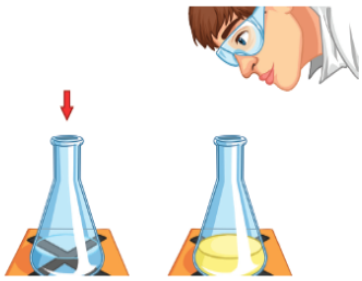
Step 5 – Record the volume of carbon dioxide gas produced every 10 seconds.

Step 6 – When the reaction has finished and there are no more bubbles of gas being produced, clean the equipment and repeat using four other different concentrations of hydrochloric acid.

When analysing the results from the practical investigation, plot a graph of Time (s) against Volume of Gas Produced (cm^3). Draw a curve of best fit through the points. A graph should be plotted for each concentration of acid.

Calculate the mean rate of reaction (cm^3/s) for each concentration of acid used. This can be calculated by dividing the total mass of gas produced (cm^3) by the reaction time (s).

Required Practical 5: Investigating a Change in Colour



This method outlines one way to carry out an investigation into the effect of increased temperature on the rate of a reaction.

The word equation for this reaction is as follows:

sodium thiosulfate + hydrochloric acid → sodium chloride + water + sulfur dioxide + sulfur

The symbol equation for this reaction is:

$Na_2S_2O_3 + 2HCl \rightarrow 2NaCl + H_2O + SO_2 + S$

The reaction between sodium thiosulfate and hydrochloric acid produces a **precipitate**. **Sulfur** is responsible for the formation of the precipitate. A precipitate is a **solid** that is formed in a solution. It is the formation of this precipitate that causes the reaction mixture to become **cloudy**; the cloudiness is a way to measure the **reaction time**.

Method

Sodium thiosulfate from three different temperatures may be used, for example, ice cold, room temperature and hot.

Step 1 – Place a black cross on a white tile.

Step 2 – Using the first temperature, measure out $35cm^3$ of sodium thiosulfate using a measuring cylinder. Place the liquid in a conical flask and position over the black cross on the white tile.

Step 3 – Measure out $5cm^3$ of water and $10cm^3$ of hydrochloric acid in separate measuring cylinders.

Step 4 – Pour the water and acid into the conical flask.

Step 5 – Pour the measured amount of sodium thiosulfate into the conical flask and immediately start the stopwatch.

Step 6 – Look down through the conical flask to the black cross below. When the black cross is no longer visible, stop the stopwatch and record the results in a table.

Step 7 – Repeat the steps with the remaining temperatures of sodium thiosulfate.

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

The Early Atmosphere

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

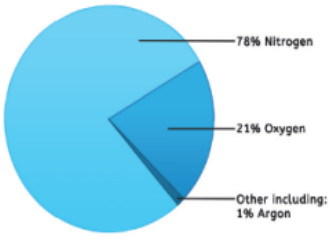
One theory suggested that **intense volcanic activity** released gases that made **Earth's early atmosphere** very similar to that of Mars and Venus. These planet's atmospheres mainly consist of carbon dioxide with little oxygen.

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

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

Percentage of Gases in the Atmosphere

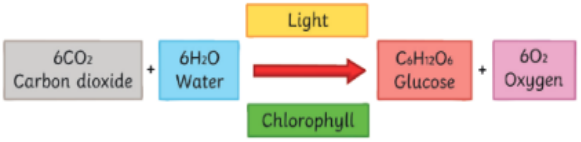
The pie chart below shows the abundance of each gas in our atmosphere.



How Did the Levels of Oxygen Increase?

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

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



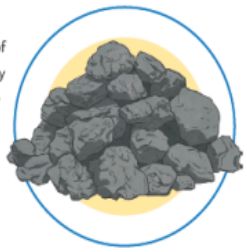
How Did the Levels of Carbon Dioxide Decrease?

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

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

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

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



The Human Impact and the Greenhouse Effect

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

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

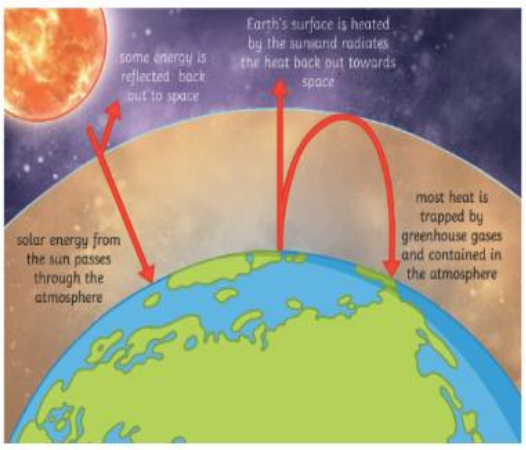
However, not everyone believes that humans are causing the rise in greenhouse gases. Some believe that the rise in global temperatures is associated with cycles of climate change and natural factors.

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

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

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

The Greenhouse Effect



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

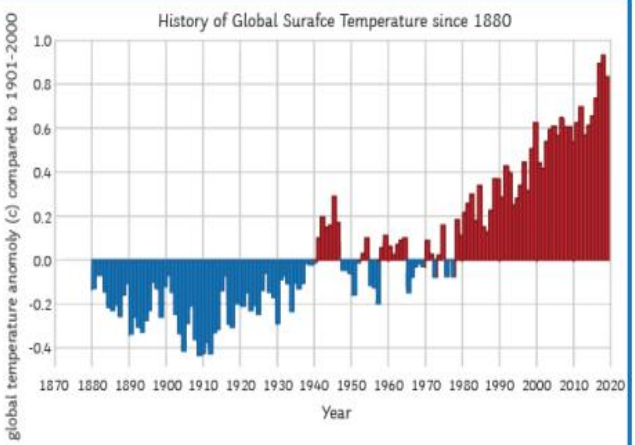
The earth and its atmosphere are very similar to that of a greenhouse. The greenhouse gases in the atmosphere trap the heat and keep the earth warm. The main greenhouse gases are **carbon dioxide, water vapour and methane**. During the daylight, the sun warms up the earth's surface. During the night,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

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

What is the Difference Between Climate Change and Global Warming?

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

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



Carbon Footprint

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

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

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

Nitrogen

Nitrogen and oxygen react together to make oxides of nitrogen. This occurs inside a **car engine** where there is a high temperature and pressure. Many compounds can be formed when nitrogen reacts with oxygen. The two that are formed inside a car engine are NO and NO_2.

Nitrogen compounds are grouped together with the general formula NO_x. Nitrogen compounds, along with sulfur dioxide, are also responsible for acid rain.

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

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

Desalination of Sea Water

If fresh water supplies are limited, sea water can undergo a process called **desalination**. This process requires **large amounts of energy**, but can be done by distillation or the use of membranes such as **reverse osmosis**.

Distillation involves **heating** the sea water until it reaches **boiling point**. Once the water is boiling, it will begin to **evaporate**. The steam then rises up where it cools and condenses in a condensing tube. The salt is left behind. The **downside** to this process is the **energy cost** of boiling the water and cooling down the steam sufficiently in the condensing tube. Not all of the water evaporates which leaves behind a **salty wastewater** that can be **difficult to sustainably dispose of** without harming aquatic organisms.

Reverse Osmosis of Salt Water

Osmosis, as you will have learnt in biology, is the **movement of particles** from an area of **high** concentration to an area of **low** concentration through a **semi-permeable membrane**.

Reverse osmosis involves **forcing water** through a **membrane** at **high pressure**. Each membrane has tiny holes within it that only allow water molecules to pass through. Ions and other molecules are prevented from passing through the membrane as they are too large to fit through the holes.

The **disadvantage** of this method is that it produces **large amounts of wastewater** and requires the use of **expensive membranes**. Due to a large amount of wastewater produced, the efficiency of this method is very small.

Water Treatment

Before the **wastewater** from industry, agriculture and peoples' homes can be released back into the environment, it must be **treated**.

Pollutants such as human waste contain **high levels of harmful bacteria** and **nitrogen compounds** which can be a **danger to aquatic organisms**.

Industrial and agricultural waste may contain **high levels** of **toxic metal compounds** and **fertilisers and pesticides** which may also damage the ecosystem.

Cleaning sewage requires several steps:

Step 1 – The water must be **screened**. This is where material such as branches, twigs and grit is removed.

Step 2 – The water undergoes **sedimentation**; wastewater is placed in a settlement tank. The heavier solids sink to the bottom and form a sludge whilst the lighter effluent floats on the surface above the sludge.

Step 3 - The effluent is then transferred to another tank where the organic matter undergoes **aerobic digestion**. Although not pure, this water can be safely released back into the environment. The sludge is placed in another tank where the organic matter undergoes **anaerobic digestion**. It is broken down to produce fertiliser and methane gas which can be used as an energy resource (fuel).

Required Practical 8 – Analysis and Purification of Water Samples from Different Sources

Analysing the pH of Water Samples

Test the pH of each water sample using a pH meter or universal indicator. If using universal indicator, use a pH colour chart so that you are able to identify the pH of the sample against the colour produced by the indicator.

Analysing the Mass of Dissolved Solids

To measure the mass of dissolved solids in a water sample, measure out 50cm^3 of the sample using a measuring cylinder. Take the mass of an evaporating basin before heating and record the mass in a table. Place the measured amount of water into an evaporating basin and gently heat over a Bunsen burner until all the liquid has evaporated. Once the evaporating basin has cooled, place it on a top pan balance and record its mass. Calculate the mass of the solid left behind.

Distillation of the Water Sample

To distil a water sample, set up your equipment as per the diagram.

Heat the water sample gently using a Bunsen burner. After a short period of time, distilled water should be produced.

Life-Cycle Assessment (LCA)

Life-Cycle Assessments follow the four main stages of the life cycle of a product.

Stage 1 – Extracting the raw materials needed to make the products and then processing them.

At this stage, the energy and environmental costs need to be considered. For example, if the raw material being used is a finite or renewable resource, the energy to extract and transport the raw material should be considered. Environmental factors also play a large part in stage 1 as the extraction of the raw material can leave scars on the landscape and waste products may be produced that could damage local ecosystems.

Life-Cycle Assessment (LCA) (continued)

Stage 2 – Manufacturing and packaging of the product.

The main consideration is how much energy and resources are needed to manufacture the product. Energy may be used in the form of fuel, electricity or chemicals used in the production of the product. In the manufacturing process, there may be pollution and waste products that need to be considered. Transportation of the goods from the factory to the user will have an environmental impact.

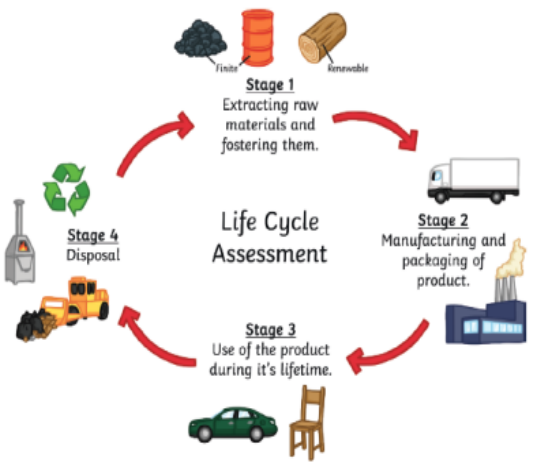
Stage 3 – Use of the product during its lifetime.

The environmental impact of a product during its life depends on the type of product. For example, a car will have a significant impact i.e. it needs to be filled with petrol or diesel, a finite resource, to get to where you are going. A car's engine releases harmful emissions into the atmosphere. On the other hand, a wooden chair may only need minor repairs and is made from a renewable resource.

Stage 4 – Disposal at the end of a product's life.

There are different methods of disposal:

1. Landfill – the product is put in a hole in the ground – high environmental impact.
2. Incineration (organic matter) – burning of the product – low environmental impact.
3. Recycling – for example, batteries contain metal compounds that are not good for the environment. By recycling, it means that no new compounds have to be taken out of the ground.



Comparative LCAs

Comparative LCAs are used to evaluate products and to find which one will have a lower environmental impact.

Stage of Life Cycle	Plastic Bag	Paper Bag
Stage 1 – raw material	Uses a finite resource (crude oil). The processes of fractional distillation, cracking and polymerisation all require energy to make crude oil useful.	Made from trees/recycled paper. Making paper from trees requires more energy than recycled paper because trees have to be chopped down. Still uses less energy than making plastics from crude oil.
Stage 2 – manufacture	Cheap to make.	More expensive to make.
Stage 3 – use	Plastic bags have a low environmental impact as they can be used a number of times. In comparison to paper bags, they are much stronger.	Paper bags can only be reused a limited number of times and so have a short lifetime.
Stage 4 – disposal	The downside to plastic bags is that they do not biodegrade easily in landfill. Recycling options are available. If they are not disposed of correctly, plastic bags can have a detrimental impact on the environment and animal habitats.	Paper bags biodegrade easily in landfill sites.

Disadvantages of Comparative LCAs

The disadvantage of **comparative LCAs** is that some parts of it require certain judgements to be made.

Different people have different opinions and this is dependent on who completes the LCA and whether a certain level of bias is added. For example, if the LCA is completed by a company that is manufacturing a specific product, they may only discuss **some** of the environmental impact of their product in the LCA. Accurate numerical values, for example, show a company how much energy has been used in the **manufacturing process** or how much **carbon dioxide** was produced when the goods were transported.

Recycling

Many materials are made from **natural resources** that have **limited supplies**. Reusing items such as glass bottles that only need washing and sterilising saves energy and reduces the environmental impact. Not all products can be reused, some need to be recycled before reuse.

There are both advantages and disadvantages to recycling materials.

Advantages

- Fewer resources such as **mines** and **quarries** are needed to remove raw, finite materials from the ground. For example, copper.
- Crude oil, the raw material used in the production of plastics, does not need to be extracted. This, in turn, **avoids** high energy cost processes such as fractional distillation and cracking. If more items are recycled, less would end up in landfill sites.
- The amount of greenhouse gases would reduce as the energy cost of recycling is a lot **less** than making a new product.

Disadvantages

- Recycling items require collection and transport of the goods to the organisation. This involves using staff, vehicles and the use of fuel.
- Some materials, such as **metals**, can be **difficult to sort**; the amount of sorting is dependent on the purity of the materials or metals and the level of purity required for the final product. For example, copper used in electrical appliances must have a high purity. To achieve this, the copper needs to be processed and then melted down again to make copper wiring.
- Steel that is used in the construction industry does not require such high purity. Often scrap iron is added to the furnace when steel is made. This reduces the need for as much iron ore and reduces the cost of making steel.

Biological Extraction Methods (Higher Tier Only)

Biological methods of extraction are needed as the resources of **metal ores** on earth are in **short supply**. Large scale **copper mining** leaves **scars on the landscape** and produces significant amounts of waste rock that must be disposed of. Biological methods have a lower impact on the environment and make use of waste containing small amounts of copper. The disadvantages of **biological extraction methods** are that they are **slow**, but they do reduce the need to obtain new ore through mining and conserve limited supplies of high-grade ore.

Phytomining

Phytomining involves the use of **plants**. Plants absorb the metal compounds found in the soil. The plants cannot get rid of the copper ions and it builds up in the leaves. The plants are then **harvested, dried** and then placed in a furnace. The ash that is produced from the burning process contains soluble metal compounds that can be extracted. The ash is dissolved in an acid such as hydrochloric or sulfuric and the copper is then extracted by electrolysis or through a **displacement reaction** with iron.

Bioleaching

Bioleaching uses **bacteria** to produce an acidic solution called **leachate** which contains **copper ions**. The disadvantage of bioleaching is that it produces **toxic substances** that are **harmful to the environment**. To process the copper, the copper undergoes a displacement reaction with iron. Iron is cheaper and a **more cost-effective** way of producing copper from the leachate.

Corrosion

Metals can corrode when **exposed** to **oxygen**; they oxidise and can form metal oxides. Some metals oxidise more quickly than others, like sodium, and some such as gold are very unreactive and do not oxidise at all.

Corrosion occurs when a metal continues to oxidise and the metal becomes weaker over time until it eventually becomes a metal oxide.

Rusting occurs when **iron or steel** reacts with **oxygen** in the **air or water**. Rusting is an example of corrosion.

iron + oxygen + water ⟶ hydrated iron(III) oxide

$4Fe + 3O_2 + 6H_2O \longrightarrow 4Fe(OH)_3$

How Can Rusting Be Prevented?

To prevent rusting, oxygen and water must be kept away from the iron or steel.

Storing the metal in an atmosphere containing unreactive argon prevents it from reacting with oxygen.

A substance such as calcium chloride can be used to absorb water vapour and keep the metal dry.

Keywords

Biodiversity - the variety of living organisms.

Carrion - decaying flesh and tissue of dead animals.

Community - made up of the populations of different species living in a habitat.

Competition - the negative interaction between two or more organisms which require the same limited resource.

Consumers - feed on other organisms for their energy. Can be primary, secondary or tertiary.

Decomposers - organisms which feed on dead and decaying organisms. They break down the biomass and release nutrients into the soil.

Deforestation - the removal and destruction of trees in forest and woodland.

Ecosystem - the interaction between the living organisms and the different factors of the environment.

Global warming - the increase of the average global temperature.

Habitat - where a living organism lives.

Interdependence - the interaction between two or more organisms, where it is mutually beneficial.

Population - the number of individual organisms of a single species living in a habitat.

Predators - organisms which kill for food.

Prey - the animals which are eaten by the predators.

Producers - convert the sun's energy into useful compounds through photosynthesis. They are green plants or algae.

Scavengers - organisms which feed on dead animals (carrion).

Species - organisms of similar morphology which can interbreed to produce fertile offspring.

Abiotic and Biotic Factors

Abiotic factors are the non-living factors of an environment. E.g. moisture, light, temperature, CO_2, wind, O_2 or pH.

Biotic factors are the living factors of an environment. E.g. predators, competition, pathogens, availability of food.

Adaptations

Adaptations are specific features of an organism which enable them to survive in the conditions of their habitat.

Adaptations can be structural, behavioural or functional.

- **Structural adaptations** are features of the organism's body e.g. colour for camouflage.
- **Behavioural adaptations** are how the organism behaves e.g. migration to a warmer climate during colder seasons.
- **Functional adaptations** are the ways the physiological processes work in the organism e.g. lower metabolism during hibernation to preserve energy.

A plant or animal will not physically change to adapt to its environment in its lifetime. Instead, there is natural variation within the species and only organisms whose features are more advantageous in the environment survive. The survivors then go on to reproduce and pass on their features to some of their offspring. The offspring who inherit these advantageous features are better equipped to survive. Charles Darwin described this process as 'survival of the fittest'.

Food Chains

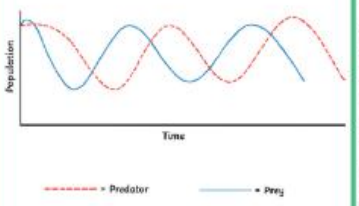
The source of all energy in a food chain is the sun's radiation. It is made useful by plants and algae which produce organic compounds through photosynthesis.

The living organisms use the energy to produce biomass and grow.

When a living organism is consumed, some of the biomass and energy is transferred. Some of the energy is lost.

Remember: the arrow in a food chain indicates the direction of the flow of energy.

Populations of predators and prey increase and decrease in cycles. The size of the predator population depends on the size of the prey population and vice versa. Overall, there is a stable community.



Competition

Species will compete with one another and also within their own species to survive and to reproduce.

Mutualism occurs when both species benefit from a relationship.

Parasitism occurs when a parasite only benefits from living on the host.

Animals compete for resources such as food, water and space/shelter. They may also compete within their own species for mates.

Plants compete for resources including light, water, space and minerals. All these resources are needed for photosynthesis so the plant can make its own food. Plants do not need to compete for food.

Deforestation and Land Use

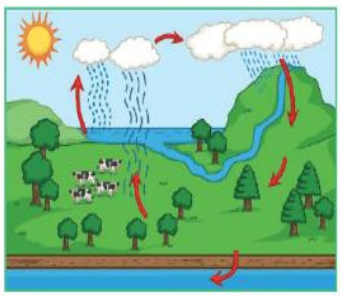
Humans use land for buildings, quarrying, mining, agriculture and landfill. As the human population increases and we take more land, there is less space for other organisms to live.

Deforestation (to use wood as a fuel/material or to clear space for other uses) destroys habitats where other organisms live.

Peat bogs are produced when decomposition occurs over a very long time. Peat stores a lot of carbon and can be extracted for use by gardeners or as an energy source. Burning peat releases a lot of carbon dioxide into the atmosphere which contributes to the greenhouse effect.

Trees absorb carbon dioxide for photosynthesis, so as they are cut down and removed, less carbon dioxide is taken from the atmosphere. Furthermore, when the trees are burned, they release carbon dioxide back into the atmosphere. The excess carbon dioxide can lead to global warming and the changes to the ecosystem cause reduced biodiversity.

Water Cycle



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

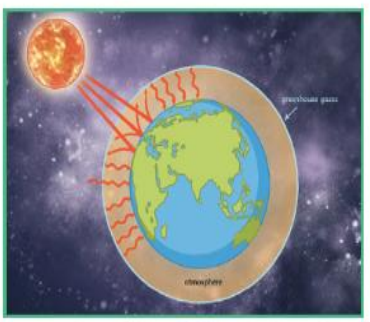
Evaporation occurs when heat energy from the surroundings (or a heat source) is transferred to water particles as kinetic energy. The particles begin to move more rapidly and can turn from a liquid into a gas.

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

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

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

Global Warming



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

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

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

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

RP1: Field Techniques Quadrats and Transects

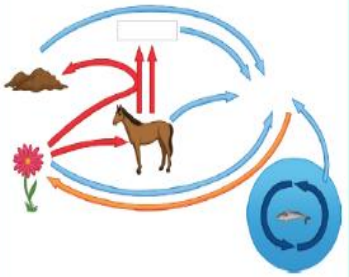
The distribution of an organism is affected by the environment and abiotic factors.

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

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

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

Carbon Cycle



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

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

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

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

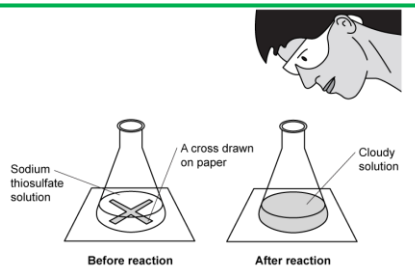
Science. Recall your knowledge on Rates of Reaction :

GCSE Required Practical – Precipitation Reaction (Disappearing Cross)

What's the point of the practical?
To investigate how the concentration of an acid effects the rate of reaction.

Risk assessment
How do you carry it out safely?
What can you do to minimise hazards?

Method:
How do you carry out a safe and accurate experiment?



Results
What should your results look like?

Example Apparatus

What apparatus do you need for your practical? (Use diagram to help you).

MFL

Grade 7-9 Spanish WOW phrases

Spice up your 150 word and your speaking.

Go through this booklet and pick out between 3-5 phrases in each section that you are going to use in your 150-word piece of writing no matter what the bullets are asking you. Learn them off by heart. In your writing examination write them down when you are planning to make sure you include them in your answers.

Opinion phrases.

me chifla/me mola – I like
me parece que – It seems that
a mi modo de ver – from my point of view
desde mi punto de vista – from my point of view.
según mi madre – according to my mum
diría que – I would say that
es importante decir que – it's important to say that
debo admitir que – I have to admit that
que vale la pena – it is worth it
ser un sueño hecho realidad – a dream come true
tengo la impresión de – I get the impression
habría creído – I would have believed
para mi parte – as for me
lo que me molesta – what annoys me
lo que me preocupa – what worries me

A range of adjectives.

irritante – irritating
decepcionante – disappointing (not deceptive)
emotivo/a – moving (emotional)
exitoso/a – successful
original – original
confundido/a – confused
flipante - owesome
enfadado/a – angry
delicioso/a – delicious
agotado/a – exhausted
ridículo/a – ridiculous
inolvidable – unforgettable
encantado/a - delighted

A range of grammatical structures.

- Tener structures.

tener suerte – to be lucky (Ian tiene suerte porque va a Barcelona)
tener éxito – to be successful (Tengo éxito porque…)
tener miedo de – to be scared of (Tengo miedo de viajar en avion)
tener prisa – to be in a hurry (siempre tengo prisa por la mañana)

- Sin + infinitive (without)

sin perder un momento (without wasting a moment)
es mejor vivir sin fumar (it's better to live without smoking)
sin aprender los verbos irregulares el español resultará más dificil (without learning irregular verbs, Spanish would be more difficult)

- Antes de (before)

antes de coger el avion – before catching the plane.

antes de volver a casa – before going home

- Al + infinitive (on doing something)

al llegar al colegio, voy al club de tenis – on arriving at school I go to tennis club.
al volver a casa siempre meriendo algo – on arriving home, I always have a snack.

- Después de (after doing something)

después de hacer mis deberes – after doing my homework.
después de charlar con mis amigos – after chatting to my friend.

- A pesar de – in spite of doing something

a pesar de hacer mis deberes, recibí un castigo ayer – despite doing my homework, I got a dention yesterday.
a pesar de trabajar bien en matemáticas, siempre saco malas notas – in spite of working hard in maths, I always get bad grades.

- Acabar de + infinitive (to have just done something)

acabo de hacer mis deberes – I have just done my homework.
acabo de llegar de Barcelona – I have just arrived from Barcelona.
acaban de ganar cinco partidos – they have just won 5 matches.

- Estar a punto de – to be about to do something

estoy a punto de ir al cine con mis amigos ¡Qué guay! – I'm about to go to the cinema with my friends – how cool.
estaban en punto de salir cuando llegaron sus abuelos – they were just about to leave when their grandparents arrived.

- Desde hace/hace + time

estudio el Español desde hace 5 años – I have been studying Spanish for 5 years.
hace 5 años, fui a España por la primera vez – 5 years ago I went to Spain for the first time.

Use idiomatic expressions.

- Aburrirse como una ostra – to be bored to death
- Estar más perdido que un pulpo en un garaje – to not have a clue.
- Un pulpo en un garaje – a fish out of water.
- Ser la leche – to be amazing/the greatest
- Cuesta una oja de la cara – to cost an arm and a leg
- Tomar el pelo – to pull one's leg (me estás tomando el pelo – you're pulling my leg)
- Ser pan comido – to be a piece of cake.
- Estar como una cabra – to be a bit barmy
- No tener pelos en la lengua – to be straight-talking/direct (mi amigo no tienes pelos en la lengua – my friends tells it how it is)
- Tirar la casa por la ventana – to spare no expense. ("*Tiré la casa por la ventana cuando compré mi nuevo coche.*" (I spared no expense when I bought my new car.)
- Estar hecho un ají – to be hopping mad
- Estar más sano que una pera – to be as fit a fiddle.
- Ser uña y carne – to be bosom buddies.
- Tener un humor de peros – to be in a bad mood

Extending your sentences (fancy connectives)

- que – who/which/that (mi madre que se llama Sheila)
- lo que – use at the beginning of a sentence to express an opinion (lo que me molesta)
- cuando – when
- mientras – while
- por ejemplo – for example
- por un lado… por otro lado – on one hand… on the other hand.
- de hecho – in fact
- sin embargo/no obstante – nevertheless
- aparte de – besides
- no solo…sino también – not only…but also
- como – as
- solo el tiempo dirá – only time will tell
- no cabe duda de que – there is no doubt that

- Tener más lana que un Borrego – to be loaded/rolling in money
- Estar sin blanca – to be skint

The Subjunctive

- cuando tenga dieciocho años – when I'm 18
- si tuviera bastante dinero – if I had enough money
- ojalá ganemos la lotería – I hope we win the lottery
- ojalá haga buen tiempo mañana – I hope its nice weather tomorrow.
- quiero que me madre sea – I hope my mum will be
- espero que tenga buenas notas – I hope I get good grades
- sea como sea – no matter how/at any cost
- cuando sea – whenever
- aunque sea poco – although it's not a lot
- aunque sea pequeño – although it's small
- ojalá sea pronto – I hope it will be soon.
- ojalá que salga bien – I hope it turns out well.
- cuando sea necesario – when it is necessary
- quiero que sepas – I want you to know.

Introducing ideas

- trata de – this is about/ to do with
- con respecto a – as for
- para colmo – to cap it all
- dado que/puesto que – given that
- considerando que/dado que – considering that
- en vista de/visto que – in view of
- me parece que– it seems to me that
- sin duda – without doubt
- gracias a – thanks to
- a causa de – because of

- de hecho – indeed, in fact
- en primer lugar – First of all

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SPANISH GCSE ESSENTIALS (HIGHER)

OPINION STARTERS	
en mi opinión	a mi modo de ver
debo admitir que	*mi padre* opina que

SEQUENCERS
primero
para empezar
luego
despues
mas tarde
finalmente

CONDITIONALS	
si tuviera el dinero	+ CONDITIONAL
si fuera rico	
si tuviera la opción	
si pudiera	

JOINING
y por eso
igualmente
sin duda
por ejemplo
de manera que

OPPOSING
por otro lado
al contrario
en contraste
sino que
aún si

SUBJUNCTIVES	
quiero que haga	I want him to do
para que tenga	so that I have
cuando sea mayor	when I am older
a menos que pueda	unless I can
espero que haya	I hope that there are

	IMPERFECT I used to play	CONDITIONAL I would play	PERFECT/ PLUPERFECT I have/had played
jugar	jugaba	jugaría	he/había jugado
ser	era	sería	he/había sido
haber	había	habría	he/había habido
estar	estaba	estaría	he/había estado
tener	tenía	tendría	he/había tenido
hacer	hacía	haría	he/había hecho
ir	iba	iría	he/había ido
comer	comía	comería	he/había comido
llamarse	me llamaba	me llamaría	me he/había llamado

INFINITIVE EXPRESSIONS		
espero	I hope to	+INFINITIVE
suelo	I usually	
tengo ganas de	I want to	
voy a poder / podré	I will be able to	
estoy a punto de	I am about to	
acabo de	I have just	
tengo la intención de	I intend to	
en lugar de	instead of	
después de	after	
antes de	before	
es mejor	it is better to	
no se permite	it is forbidden to	

-ING		
estar + -ar = -ando -er = -iendo -er = -iendo	estoy hablando	I am talking
	estaba hablando	I was talking
	estaré hablando	I will be talking

RELATIVE CLAUSES		
que + verb	that, which, who	el libro que lee es mío
lo que	what (an abstract idea)	lo que no me gusta

COMPARATIVES			SUPERLATIVES		
más	ADJECTIVE	que	el la los las	más	ADJECTIVE
menos		que		menos	
tan		como			

ADJECTIVES	
POSTITIVE	NEGATIVE
increíble	desagradable
maravilloso/a	estresante
entretenido/a	decepcionante
emocionante	raro/a
impresionante	ridículo/a
generoso/a	perezoso/a
afortunado/a	furiosos/a
divertido/a	doloroso/a
precioso/a	loco/a

SPANISH GCSE ESSENTIALS (HIGHER)

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OPINION STARTERS
en mi opinión

SEQUENCERS

CONDITIONALS
si tuviera el dinero
si fuera rico
si tuviera la opción
si pudiera
+ CONDITIONAL

JOINING
por ejemplo
de manera que

OPPOSING
por otro lado
aún si

SUBJUNCTIVES
quiero que haga
para que tenga
cuando sea mayor
a menos que pueda
espero que haya

	IMPERFECT I used to play	CONDITIONAL I would play	PERFECT/ PLUPERFECT I have/had played
ser			
ir			
estar			
tener			

INFINITIVE EXPRESSIONS
espero
suelo
tengo ganas de
voy a poder / podré
estoy a punto de
acabo de
tengo la intención de
en lugar de
después de
antes de
es mejor
no se permite
+INFINITIVE

-ING
estar + -ar = -ando -er = -iendo -er = -iendo
I am talking
I was talking
I will be talking

RELATIVE CLAUSES
que + verb — that, which, who — el libro que lee es mío
lo que — what (an abstract idea) — lo que no me gusta

COMPARATIVES: más / menos / tan — ADJECTIVE — que / que / como
SUPERLATIVES: el la los las — más / menos — ADJECTIVE

ADJECTIVES
POSTITIVE | NEGATIVE

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SPANISH GCSE ESSENTIALS (FOUNDATION)

OPINIONS	
me encanta(n)	+ INFINITIVE OR + NOUN
me gusta(n)	
no me gusta(n)	
odio	
prefiero	

USEFUL EXPRESSIONS		
PRESENT	PAST	FUTURE
es	era	será
hace	hacía	hará
hay	había	habrá

INFINITIVE EXPRESSIONS	
tengo que - I have to	+ INFINITIVE
puedo - I can	
quiero - I want to	
voy a - I will	
me gustaría - I would like to	
se debe - you must	
se puede - you can	
hay que - you have to	

NEGATIVES		
no	VERB	- not
no		nunca - not ever
no		nadie - not anybody

	PRESENT I play I am playing	PRETERITE I played	FUTURE I will play
jugar	juego	jugué	jugaré
ser	soy	fui	seré
haber	he	hube	habré
estar	estoy	estuve	estaré
tener	tengo	tuve	tendré
hacer	hago	hice	haré
ir	voy	fui	iré
comer	como	comí	comeré
ver	veo	vi	veré

TIME MARKERS		
PRESENT	PAST	FUTURE
hoy	ayer	mañana
de momento	en el pasado	en el futuro
esta noche	anoche	mañana por la noche
este verano	el verano pasado	el próximo verano
el lunes	el lunes pasado	el lunes que viene
ahora	anteayer	pasado mañana

VERB ENDINGS	-AR	-ER	-IR	IR to go	HABER to have	ESTAR to be
yo	-o	-o	-o	voy	he	estoy
él/ella	-a	-e	-e	va	ha	está
ellos/ellas	-an	-en	-en	van	han	están

INTENSIFIERS
mucho - a lot
muy - very
tan - so
demasiado - too much
bastante - quite
un poco - a little

FREQUENCY
todos los días
a menudo
a veces
algunas veces
de vez en cuando
raramente

JOINING IDEAS
y - and
además - also
así que - therefore
porque- because
por lo tanto- therefore

OPPOSING IDEAS
pero - but
sin embargo - however
mientras - whereas
no obstante - however
aunque - although

OPINION STARTERS	
para mí	creo que
me parece que	pienso que

ADJECTIVES			
POSTITIVE		NEGATIVE	
barato/a	agradable	aburrido/a	terrible
fácil	bonito/a	fatal	feo/a
útil	tonto/a	difícil	inútil
genial	relajante	egoísta	malo/a
amable	fascinante	caro/a	duro

SPANISH GCSE ESSENTIALS (FOUNDATION)

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OPINIONS	
	+ INFINITIVE OR + NOUN

USEFUL EXPRESSIONS		
PRESENT	PAST	FUTURE
es		
hace		
hay		

INFINITIVE EXPRESSIONS	
I can	+ INFINITIVE
I want to	
You can	
You must	

NEGATIVES		
no	VERB	
no		
no		

	PRESENT I play I am playing	PRETERITE I played	FUTURE I will play
ser			
estar			
ir			
tener			
haber			
hacer			

TIME MARKERS		
PRESENT	PAST	FUTURE
hoy	ayer	mañana
de momento		
esta noche		
este verano		
el lunes		
ahora		

VERB ENDINGS	-AR	-ER	-IR	IR to go	HABER to have	ESTAR to be
yo						
él/ella						
ellos/ellas						

INTENSIFIERS
mucho

FREQUENCY
todos los días

JOINING IDEAS
y - and

OPPOSING IDEAS
pero - but

OPINION STARTERS	
para mí	

ADJECTIVES			
POSTITIVE		NEGATIVE	

Spanish Writing Mat (F)

MFL

Time markers

present	past	future
hoy – today	ayer – yesterday	mañana – tomorrow
de momento – at the moment	en el pasado – in the past	en el futuro – in the future
esta noche – tonight	anoche – last night	mañana por la noche- tomorrow night
este verano – this summer	el verano pasado – last summer	el próximo verano – next summer
ahora – now	anteayer – the day before yesterday	pasado mañana – the day after tomorrow

Adjectives

Positive				Negative			
barato/a	cheap	agradable	pleasant	aburrido/a	boring	terrible	terrible
fácil	easy	bonito/a	pretty	fatal	awful	feo/a	ugly
útil	useful	genial	great	difícil	hard	inútil	useless
relajante	relaxing	amable	nice	egoísta	selfish	malo/a	bad
facinante	fascinating	divertido/a	fun	caro/a	expensive	duro/a	hard

JOINING IDEAS
y - and
además - also
así que - therefore
porque- because
por lo tanto- therefore

OPPOSING IDEAS
pero – but
sin embargo - however
mientras - whereas
no obstante – however
aunque - although

Negatives		
no	VERB	- not
no		nunca – not ever
no		nadie – not anybody

INFINITIVE EXPRESSIONS	
tengo que – I have to	+ INFINITIVE
puedo – I can	
quiero – I want to	
voy a – I will	
me gustaría – I would like to	
se debe – you must	
se puede – you can	
hay que – you have to	

OPINION STARTERS	
para mí	creo que
me parece que	pienso que

Opinions

me encanta(n)	+ infinitive or + noun
me gusta(n)	
no me gusta(n)	
odio	
prefiero	

justifying opinions	
porque	because
es	it is
era	it was
será	it will be

INTENSIFIERS
mucho – a lot
muy - very
tan - so
demasiado – too much
bastante - quite
un poco – a little

FREQUENCY
todos los días
a menudo
a veces
algunas veces
de vez en cuando
raramente

VERB ENDINGS	-AR	-ER	-IR	IR to go	HABER to have	ESTAR to be
yo	-o	-o	-o	voy	he	estoy
él/ella	-a	-e	-e	va	ha	está
ellos/ellas	-an	-en	-en	van	han	están

Week 1: Verbs

Spanish	First guess	Checked in a dictionary	After learning	Reviewed
acabar de	To have just			
bastar	To be enough			
comenzar	To start			
continuar	To continue			
dar	To give			
darse cuenta de	To realise			
deber	must			
decidir	To decide			
dejar de	To stop (doing something)			
Echar Echar de menos	To remove To miss someone			
empezar	To start			
embarazarse	To get pregnant			
hace(n) falta	To need			
durar	To last			
emboracharse	To get drunk			
hay	There is /there are			
hay que	You must			
escoger	To pick			
elegir	To chose			
coger	To catch			

Self-test score:..... /20

Teacher test score: ..... /20

Re-test score: ..... /20

Week 2: More verbs

Spanish	First guess	Checked in a dictionary	After learning	Reviewed
medir	To measure			
mentir	To lie			
necesitar	To need			
ocurrir	To happen			
pasar	To spend (time)			
pesar	To weigh			
poder	To be able to			
poner	To put			
gastar	To spend (money			
querer	To want			
Ganar	To earn			
saber	To know			
seguir	To follow			
aprobar	To pass			
suspender	To fail			
confiar	To trust			
tener lugar	To take place			
tener que	To have to			
Tener ganas de	To look forward to / to fancy			
casarse	To get married			

Self-test score:..... /20

Teacher test score: ..... /20

Re-test score: ..... /20

Week 3: Verbs in opinions

Spanish	First guess	Checked in a dictionary	After learning	Reviewed
aburrirse	To ger bored			
Aguantar	To stand (something)			
alegrar	To be happy			
alegrarse (de)	To be pleased			
apreciar	To appreciate			
aprovechar	To take advantage of			
aprovecharse (de)	Yo take advantege of someone			
creer	To belive			
dar igual	I am not bothered			
decepcionar	To			
decir	To say			
molestar	To bother			
detestar	To hate			
disfrutar	To enjoy			
divertirse	To rnjoy yourself			
dudar	To doubt			
encantar	To love			
encontrar (+*adj.*) que	To find			
esperar	To wait/hope			
estar de acuerdo	To agree			

Self-test score:..... /20

Teacher test score: ..... /20

Re-test score: ..... /20

Week 4: More verbs in opinions

Spanish	First guess	Checked in a dictionary	After learning	Reviewed
estar a favor de	To be in favour of			
estar en contra de	To be against			
estar equivocado	To be wrong			
estar harto de	To be fed up of			
fastidiar	To bother/wind up			
Soportar	To stand (something)			
interesar(se)	To be intereseted in			
odiar	To hate			
opinar	To have the opinion that			
parecer	To seem			
pasarlo bien/mal	To have a good/bad time			
pensar	To think			
ponerse de acuerdo	To agree with			
preferir	To prefer			
quedar	To stay			
querer decir	To want to say			
reconocer	To recognise			
sentir(se)	To feel			
tener razón	To be right			
valer la pena	To be worthwhile			

Self-test score:..... /20

Teacher test score: ..... /20

Re-test score: ..... /20

Spanish	First guess	Checked in a dictionary	After learning	Reviewed
aburrido	boring			
afortunado	fortunate			
agradable	pleasant			
antiguo	old			
barato	cheap			
bonito	pretty			
caro	expensive			
decepcionante	dissapointing			
desagradable	unpleasant			
divertido	fun			
duro	hard			
emocionante	exciting			
encantador	charming			
entretenido	entertaining			
espléndido	splendid			
estupendo	great			
fácil	easy			
fatal	awful			
fenomenal	fantastic			
feo	ugly			

Self-test score: ...../20

Teacher test score: ...../20

Re-test score: ...../20

Knowledge organiser: the end of the Cold War, 1970—1991

Key individuals:

Presidents of the United States of America (USA)

Capitalists **Western bloc.**

Richard Nixon (1969—1974)

President who begun détente with the USSR. Signed SALT 1 and the Anti-Ballistic Missile Treaty.

Gerald Ford (1974—1977)

Continued détente: signed The Helsinki Accords, allowed the Apollo-Soyuz mission.

Jimmy Carter (1977—1980)

Initially continued détente with SALT 2, but took a harsh line after the Soviet invasion of Afghanistan, including the 1980 Olympic boycott.

Ronald Reagan (1980—1988)

Instigated the Second Cold War, but changed strategy when Gorbachev took power. He sought to end the Cold War

George H. Bush (1988—1992)

President at the end of the Cold War. Famous for the Malta Summit.

Leaders of the Union of Soviet Socialist Republics (USSR)

PJB 2020

Communists **Eastern bloc.**

Leonid Brezhnev (1965—1982)

After the invasion of Czechoslovakia, Brezhnev pursued détente with the USA. He took the decision to invade Afghanistan in 1979, which ended détente and led the Second Cold War.

Yuri Andropov (1982—1984)

Continued Afghan War, but was gravely ill so didn't have much impact in developing relations with the USA.

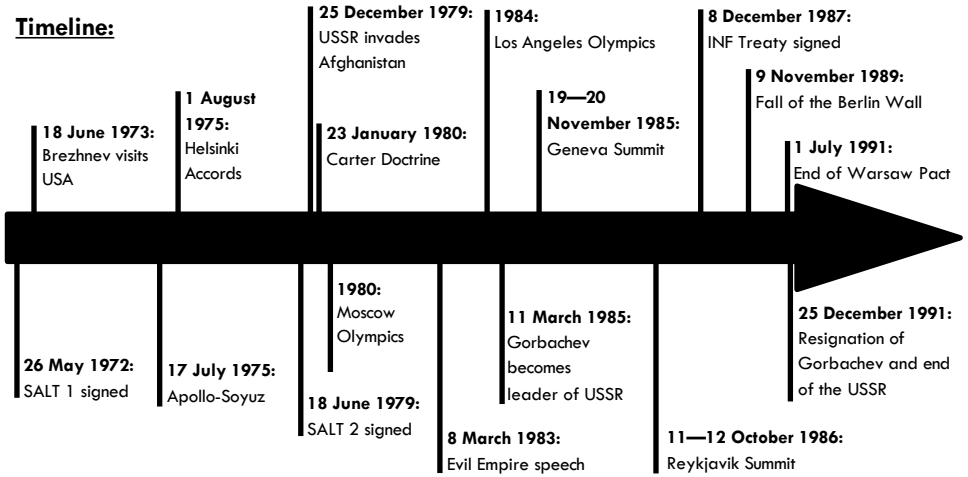
Konstantin Chernenko (1984—1985)

Severely ill, but did lead the boycott of the 1984 Olympics.

Mikhail Gorbachev (1985—1991)

Wanted to reform communism. He instigated the perestroika and glasnost reforms. He also allowed the satellite states to break free and ended the Cold War. The USSR collapsed in 1991.

Timeline:



Glossary of key terms:

ABM: Anti-Ballistic Missile. A missile designed to shoot down other missiles.	**Mujahideen:** were Muslim guerrilla fighters who fought against the Soviet supported government. They were financed and given weapons by the USA.
Afghanistan War, 1979: a war that lasted nearly a decade. The USSR invaded Afghanistan to keep a pro-Soviet government in place. It cost the Soviet Union dearly and escalated the Cold War.	**New Thinking:** Gorbachev's doctrine on how to reform the USSR. This consisted of economic and political reforms.
Apollo-Soyuz, 1975: the first international space mission between the USA and USSR. An Apollo (US) module docked with a Soyuz (Soviet) module in space. It ended the space race.	**Olympic boycotts:** as a consequence of the Soviet invasion of Afghanistan, the USA and 65 other countries refused to participate in the 1980 Moscow Olympics. Four years later, the USSR and 14 other countries boycotted the 1984 Los Angeles Olympics as an act of revenge.
Carter Doctrine, 1979: the US reaction to the Soviet invasion of Afghanistan. It stated the USA would use military force if the USSR attempted to gain control of the Persian Gulf.	**Ostpolitik:** German for 'eastern policy' was the name given to the policies followed by Willy Brandt of the FRG to establishing relations with the GDR.
Détente: a period of peace between two groups that were previously at war, or hostile to each other.	**Perestroika:** Russian for 'reconstruction'. It was used in the Gorbachev era to describe his programme for reorganising and restructuring the Soviet state.
Evil Empire speech, 1983: a speech by President Reagan. In the speech he defined the Cold War as a war between good and evil, stating that the USSR was 'a focus of evil in the modern world'.	**Reagan Doctrine:** was a policy announcement by Reagan, in which he stated the USA would support all anti-communist guerrilla and resistance movements trying to roll back communism.
Geneva Summit, 1985: a summit where Reagan and Gorbachev met for the first time. Whilst no agreement was made, it established a good working relationship between Gorbachev and Reagan.	**Reykjavik Summit, 1986:** a meeting, in which, Gorbachev offered to phase out all nuclear weapons if the USA would give up the SDI program. Reagan would not, and the meeting ended with no agreement.
Glasnost: Russian for 'openness'. In the 1980s and 1990s, it was used to describe Gorbachev's new, ore open, attitude to government and foreign relations.	**SALT 1, 1972:** a short-term treaty that limited ABMs and limited the number of ICBMs and SLBMs the USSR and USA could have.
Helsinki Accords, 1975: part of détente, the accords agreed three main points (baskets): first the post-WW2 borders were accepted. Secondly, it promised more trade between the communist and capitalist world. Finally, it stated that human rights would be respected.	**SALT 2, 1979:** a treaty that planned a restriction on missile launchers, strategic bombers and the development of new ICBMs. It failed due to the Soviet invasion of Afghanistan.
ICBM: short for Inter-continental Ballistic Missile. It can travel further than any other missile.	**Second Cold War:** a phrase given to the freezing of relations between the USA and USSR between 1980—1984.
Intermediate-Range Nuclear Force Treaty, 1987: (INF). An agreement signed by Gorbachev and Reagan that abolished all land-based missiles with a range of 500—5,500km.	**Sinatra Doctrine:** a joke phrase used by the USSR to describe its policy of letting the countries of eastern Europe decide their own futures. It links to the Sinatra song 'My Way'.
MAD: short for Mutually Assured Destruction. It speculated that if one country fired its nuclear weapons, the other side would counter-attack leading to the complete annihilation of both.	**SLBM:** short for Submarine-launched Ballistic Missile.
Malta Summit, 1989: a meeting between Gorbachev and President Bush. It was the meeting that marked the end of the Cold War.	**Solidarity:** the first independent trade union in an Eastern Bloc state. It was founded in Poland in 1980 and led to the end of communism in Poland in 1989.
Moscow Summit, 1988: a meeting in which Reagan and Gorbachev settled some complex details with the INF Treaty. It led to the Soviet announcement to withdraw from Afghanistan.	**Washington Summit, 1987:** this meeting led to the Intermediate-Range Nuclear Force (INF) Treaty that abolished all land-based missiles with a range of 500—5,500km.

Knowledge organiser: Cold War crises, 1958—1970

Key individuals:

Presidents of the United States of America (USA)

Capitalists

Western bloc.

Dwight Eisenhower (1953—1961)

President during the Berlin crises 1958—1960 and famously broke off relations with Cuba in 1961.

John F. Kennedy (1961—1963)

President during the Berlin crisis that led to the Berlin Wall being built. He also had to deal with the Cuban Missile Crisis. Assassinated in 1963.

Lyndon B. Johnson (1963—1969)

President during the Prague Spring and the Soviet invasion of Czechoslovakia.

Leaders of the Union of Soviet Socialist Republics (USSR)

Communists

Eastern bloc.

Nikita Khrushchev (1953—1965)

Leader of the USSR. He had violently put down the Hungarian Uprising in 1956. Khrushchev followed a policy of peaceful co-existence with the west. Khrushchev wanted allies out of West Berlin and precipitated a series of crises to force them out. When this failed he asked the GDR to build the Berlin Wall. He also backed Fidel Castro in Cuba leading to the Cuban Missile Crisis. He was removed from power by a group led by Brezhnev who thought he had failed as a leader.

Leonid Brezhnev (1965—1982)

As leader of the USSR he wanted to secure communism. He ordered the invasion of Czechoslovakia in 1968.

Timeline:

1 January 1959: Cuban Revolution

10 May 1959: Geneva Summit

May 1960: U2 incident and Paris Summit

4 June 1961: Vienna Summit

16—28 October 1962: Cuban Missile Crisis

June 1963: Kennedy visits West Berlin

10 October 1967: Outer Space treaty signed

1 July 1968: Nuclear Non-Proliferation Treaty signed

25 September 1959: Camp David Summit

27 November 1958: Khrushchev's Berlin Ultimatum

13 August 1961: Construction begins on the Berlin Wall

April 1961: Bay of Pigs

5 August 1963: Test Ban Treaty

20 June 1963: Hotline Agreement

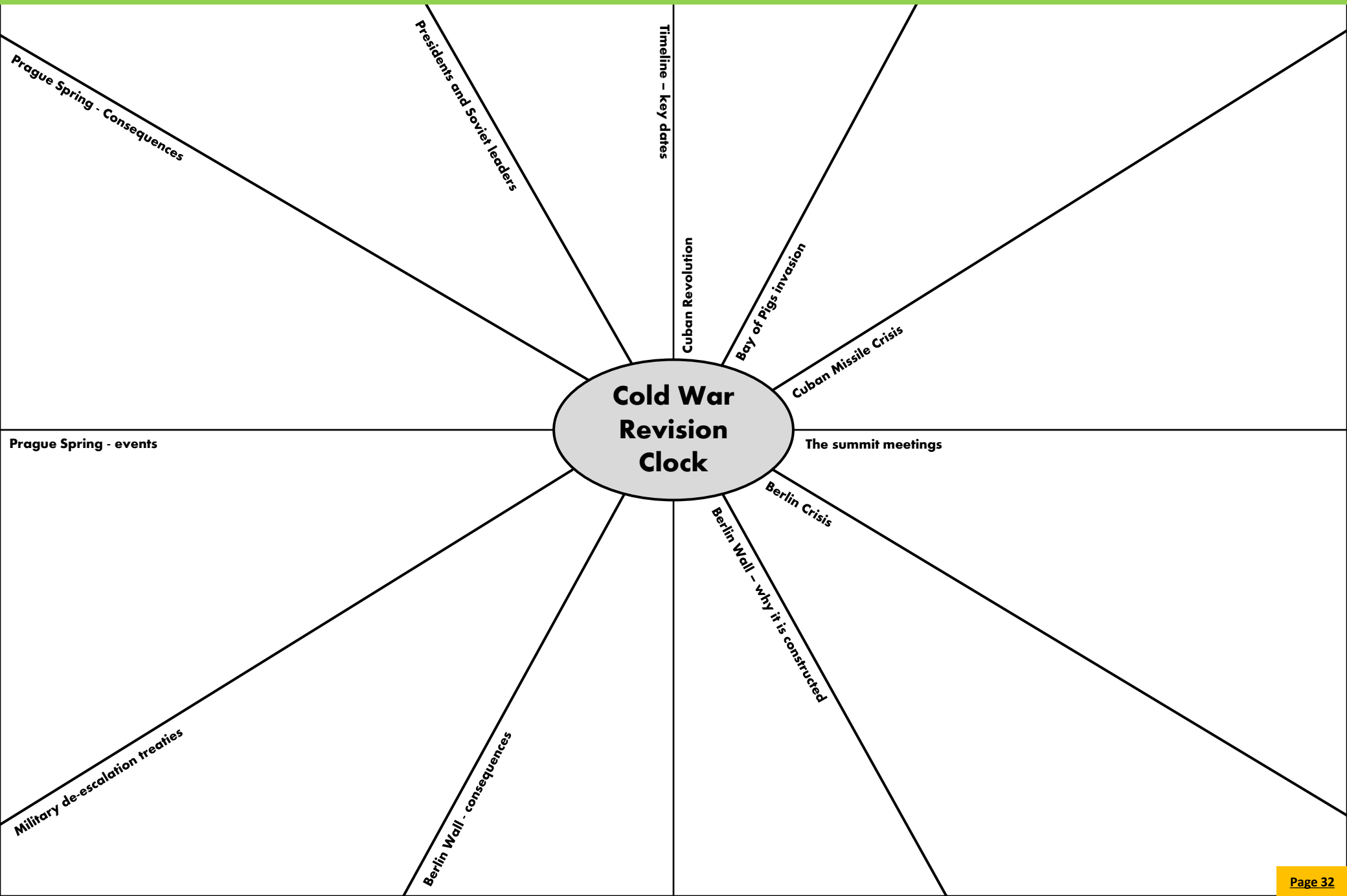
20 September 1968: Brezhnev Doctrine announced

20 August 1968: Warsaw Pact invade Czechoslovakia

Glossary of key terms:

Bay of Pigs: the location of a failed US-sponsored attack on Cuba to overthrow Castro, April 1961. Around 1,400 Cuban exiles armed with US weapons attached. It was a failure and humiliated Kennedy and the USA.	**No man's land:** land which is unoccupied or under dispute between two countries. The gap between the land between the Berlin Wall was called no man's land, although technically it was part of East Germany.
Berlin Ultimatum: in November 1958, Khrushchev demanded that Berlin should be demilitarised and Western troops withdrawn so it could become a free city. He withdrew it in 1959, but renewed it in 1961.	**Nuclear Non-Proliferation Treaty, 1968:** a treaty signed by the USA, USSR, France, UK and other countries that did not have nuclear weapons. The treaty forbade the sharing of nuclear technology.
Berlin Wall: a concrete and barbed wire wall that encircled West Berlin to prevent East Germans escaping to the west. The communists called it the 'Anti-Fascist Prevention barrier' and claimed it was to prevent the capitalist countries destroying socialism.	**Non-proliferation:** stopping the spread of something, usually weapons or armaments.
Brezhnev Doctrine: a belief announced by Brezhnev after the invasion of Czechoslovakia. It stated that the USSR and its allies had the right to invade another communist country if communism was threatened.	**Outer space treaty, 1967:** in this agreement the USA and USSR agreed to not use space for military purposes. The treaty specifically ruled out putting nuclear weapons into orbit.
Brinkmanship: pushing events as close to war/conflict as possible, with the aim of achieving an advantageous outcome.	**Paris, 1960:** a summit that failed due to the U2 incident. Eisenhower refused to apologise and Khrushchev left.
Camp David, 1959: Khrushchev was the first Soviet leader to visit the USA. He met Eisenhower for the first time at the Presidential retreat at Camp David. It led to better relations between the superpowers and led to the withdrawal of the Berlin ultimatum.	**Prague Spring:** the period in Czechoslovak history when Dubček's ideas of reforming socialism were implemented (April—August 1968). It ended with the Warsaw Pact invasion.
Cuban Missile Crisis, 1962: the closest the world has ever come to nuclear war. Soviet missiles were found on Cuba and the USA demanded they were withdrawn. After much brinkmanship, the USSR agreed to the removal of the missiles.	**Refugee:** a person who has been forced to leave their country.
Cuban Revolution, 1959: Fidel Castro and Che Guevara led a revolution that overthrew the US sponsored dictator, Batista. This created tension between the USA and Cuba.	**Socialism with a human face:** the idea of Dubček, which envisioned the reform of communism to allow more people to have greater freedoms.
Free-city: a city with its own independent government.	**Test BAN, 1963:** a consequence of the Cuban Missile Crisis. In August 1963, the USA, USSR and UK agreed to not test nuclear weapons in space, underwater or in the atmosphere.
Geneva, 1959: a summit between the foreign ministers, where they tried to sort out the issue of how Berlin would be governed. No agreement was made.	**The Thirteen Days:** another name for the peak of the Cuban Missile Crisis. Between 16—28 October 1962.
Hotline: a direct telephone line between the Whitehouse and the Kremlin. It allowed the leaders of USA and USSR to talk to each other quickly to avoid another event like the Cuban Missile Crisis.	**U2 Crisis, 1960:** On 1 May, an American U2 spy plane was shot down over the USSR. The USSR demanded an apology but the USA refused.
Ich bin ein Berliner: Kennedy made this speech to the people of West Berlin in June 1963. An urban legend is that he said 'I am a jam doughnut', but this is a misconception. You can say 'Ich bin Berliner' or 'Ich bin ein Berliner'.	**Ultimatum:** a final demand, often backed up with a threat to take action.
Kennedy's visit to West Berlin, 1963: Kennedy made the visit to West Berlin to raise morale after the building of the Berlin Wall. It demonstrated US commitment to West Berlin.	**Vienna, 1961:** a summit where Kennedy and Khrushchev met for the first time. Khrushchev thought he could bully Kennedy. He failed and it led to a strain in US-Soviet relations.
Nationalise: when a business is taken over by the government.	**Warsaw Pact:** the Eastern bloc's military alliance. They invaded Czechoslovakia together in 1968. This was a

History. Use the KO to recall key knowledge under each heading.



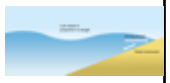
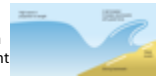
Geography

GCSE Physical landscapes in the UK – Coasts Knowledge Organiser

KI : The UK has a range of diverse landscapes

Key terms	Definitions
Chemical weathering	The decomposition of rock by a chemical change within the rock.
Deposition	Occurs when material transported by the sea is dropped due to the sea losing energy.
Erosion	The wearing away and removal of material by a moving force.
Longshore drift	Zig zag movement of sediment along the shore caused by swash and backwash.
Mass movement	The downhill movement of weathered material under the force of gravity.
Mechanical weathering	Weathering process that causes physical disintegration of rock without any change in the chemical composition of the rock.
Sliding	Loose material becomes saturated and flows downhill.
Slumping	A whole segment of the cliff moves down slope along a saturated shear-plane or line of weakness.
Transportation	The movement of eroded material.
Waves	Ripples in the sea caused by the transfer of energy from the wind blowing over the surface of the sea.

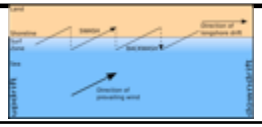
KI : The coast is shaped by a number of physical processes

Constructive waves	Destructive waves
Powerful swash Weaker backwash Long wave length Low wave height Gentle beach. 	Weak swash Strong backwash Short wave length Higher wave height Steep beach. 

Types of weathering	
Mechanical weathering	Disintegration / break up of rock e.g. freeze thaw.
Chemical weathering	Caused by chemical changes e.g. carbonation, oxidation.

Mass movement	Downward movement of material under the influence of gravity
Sliding	Blocks of rock slide downhill.
Slumping	Rotational slip of saturated soil and weak rock.
Rock falls	Fragments of rock break away from the cliff face.

Key terms	Definitions
Abrasion	The wearing away of cliffs by sediment flung by breaking waves.
Attrition	Erosion caused when rocks and boulders transported by waves bump into each other and break up into smaller pieces.
Hydraulic power	Waves breaking compress air in cracks in a cliff.

Transportation: Longshore Drift Swash: – the movement of material up the beach Backwash: the movement of material back down the beach	
Deposition: the dropping of material	• Where flow of water slows: e.g. sheltered bays • Where there are large flat beaches • Where there are engineered structures: e.g. groynes

KI : Distinctive coastal landforms are the result of rock type, structure and physical processes

Key terms	Definitions
Arch	A wave eroded passage through a headland.
Bar	When a spit grows across a bay to create a lagoon.
Beach	The zone of deposited material that extends from the low water line to the limit of storm waves.
Cave	Large hole in the cliff caused by waves forcing their way into cracks in the cliff.
Cliff	A steep high rock face formed by weathering and erosion along the coastline.
Headlands and bays	Headlands are promontories of resistant rock and bays lie in between where these have been eroded back.
Sand dunes	Coastal sand hill above the high tide mark.
Spit	A finger of sediment extending from the shore caused by deposition.
Stack	An isolated pillar of rock left when an arch has collapsed.
Wave cut platform	A rocky level shelf representing the base of retreated cliffs

Concordant coastline - Dorset	Discordant Coastline - Dorset
Durdle Door (arch) Lulworth Cove Kimmeridge (Wave Cut Platforms) Seacombe (cliffs)	Durlston Head (Headland) Swanage bay Old Harry (stack) Studland sand dunes Sandbanks (beach and spit)

KI : Different management strategies can be used to protect coastlines from the effects of physical processes

Soft engineering	Managing erosion by working with natural processes
Beach nourishment	The addition of new material to a beach artificially. Cheap (£500, 000 per 100 metres), easy to maintain, constant maintenance, sand from seabed destroys organisms
Beach reprofiling	Changing the profile or shape of the beach
Dune regeneration	Action taken to build up dunes and increase vegetation to strengthen the dunes and prevent excessive coastal retreat. Maintains natural environment, cheap, time consuming, areas off limit, limited area £200 – £2000 per 100 metres
Hard engineering	Use of concrete and large artificial structures to defend the coast
Gabion	Steel wire mesh filled with boulders. £50,000 pre 100 metres. Cheap, improves cliff management, unattractive, last 5 – 10 years
Groyne	Wooden barrier built out into the sea to stop longshore drift. £150,000 each, cheap, widen beach, unattractive, causes problems down the coast
Rock armour	Large boulders dumped on the beach as part of the coastal defences. £20,000 per 100 metres, quick to build, expensive to transport rock, rocks might not blend in
Sea wall	A concrete wall to reflect the energy of the sea and prevent erosion. £5000 - £10,000 a metre, effective barrier, promenade on top, expensive, high maintenance
Managed retreat	Allowing cliff erosion to occur as nature takes its course. Cheap, natural process, loss of land, relocation of people

Coastal Management Case Study: Lyme Regis in Dorset

Reasons for management	*Town has been built on unstable cliffs. Coastline is eroding more rapidly than any in Europe due to the powerful waves from the South West *Many properties have been destroyed or damaged *Considerable erosion of the foreshore *Sea walls have been breached many times
Management strategy	*Lyme Regis Environmental Improvement Scheme was set up in 90s *Long term coastal protection and reduce threat of landslips *Work completed in 2015 **Phase 1 (completed 1995):** - New sea wall east of Rver Lim; £1.4 million project to stabilise cliff **Phase 2 (Completed 2007):-** £22 million improvements – extensive sea wall and promenade, creation of wide sand and shingle beach, extension of rock armour at the Cobb **Phase 3 (not undertaken):-** Plan to prevent landslips to west of Cobb not undertaken as costs outweighed benefits **Phase 4 (completed 2015):** Focus on east of the town; £20 million and involved – constructing a new 390m sea wall, nailing, piling and draining to stabilise the cliff and protect 480 homes
Resulting effects and conflicts	✓ New beaches= increased visitor numbers=seafront businesses are thriving ✓ New defences have stood up to recent storms ✓ Harbour is now better protected, benefiting boat owners and fishermen ×increased visitor numbers – conflict with local people ×increased traffic and litter ×some people think new defences have spoilt the natural environment ×new sea wall may interfere with coastal processes – affecting neighbouring stretches of coastline ×stabilising cliff will prevent landslips that may reveal important fossils

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Geography

Paper 3 Section B
Unfamiliar Fieldwork (Paper

Deciding on Fieldwork Questions

Physical Fieldwork Questions

- How do river characteristics change downstream?
- How does longshore drift affect beach profiles?
- What impact is erosion having at _____?
- Is flood management effective at _____?
- Does tourism has a positive impact on _____?

Human Fieldwork Questions

- Has regeneration being successful in _____?
- How does environmental quality vary in _____?
- How is traffic managed in _____?
- Do science parks have a positive impact in _____?
- Is there economic inequality between _____ and _____?

Types of data

	Primary Data Data you collect yourself	**Secondary Data** Data collected by someone else
PHYS	• River depth / width / velocity / discharge • Pebble size / beach gradient / pebble roughness • Photographs	• Weather data • Erosion rates • OS maps – relief of the land / cliff locations
HUM	• Environmental quality survey • Questionnaires • Interviews • Traffic counts / Pedestrian counts • Photographs	• Census data • House price data • Crime statistics • OS map – locations of services / houses / roads / buildings

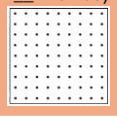
Types of data

	Quantitative Data Data that is statistical / numbers	**Qualitative Data** Data that is descriptive
PHYS	• River depth / width / velocity / discharge • Pebble size / beach gradient • Weather data • Erosion rates	• Photographs • Pebble roughness • OS maps
HUM	• Environmental quality survey • Traffic counts • Pedestrian counts • House price data • Crime statistics	• Interviews • Questionnaires • OS maps • Photographs

Risk assessment

River currents	Risk of powerful water and risk of slipping over.	All wore wellies and were told not to go in deep parks of the river. Stay in groups.
Uneven ground	Danger of falling over due to uneven footpaths.	All wearing sensible footwear. Not running and walking carefully over large rocks.
Weather	Wet weather is dangerous due to slippery groynes etc. Hot weather also poses the risk of dehydration.	Students advised to bring plenty of water and sun cream if the weather forecast is hot. If the weather forecast is wet, students are advised to bring appropriate clothing and footwear.
Unfamiliar areas	Getting lost in new environments.	Staying in groups. Carrying a phone and a map in case you do get lost.
Traffic	Getting ran over by vehicles.	Use pedestrian crossings only when crossing the road.

Sampling Strategies

	Advantages	**Disadvantages**
Random Sampling (Randomly choosing sites to collect data) 	• Not bias – each site has an equal chance of being picked. • Can easily be done with a large area.	• Sites can get clustered together meaning data collection isn't representative. • May lead to sites that are inaccessible.
Systematic Sampling (picking sites every __ metres) 	• Gives a good representation of an area. • Easier to do than random sampling.	• Can be time consuming. • Can be bias as not all sites have an equal chance of being selected. • May lead to sites that are inaccessible.
Stratified Sampling (picking sites by topic) 	• Flexible – fits with a lot of different enquiries. • Gives a good comparison of different areas. (E.g. Upper, middle and lower course).	• Not suitable for something like a questionnaire. • Could lead to bias from the person picking the sites.

Key Terms

Enquiry Question	The question we were trying to answer by doing the fieldwork.
Data collection methods	The way in which we collected the data. EG. Measuring width, depth and velocity.
Data presentation methods	The type of graphs we used to present the data. EG. Bar, scatter, maps etc.
Accurate conclusions	When data is collected in the correct way that make what we find to be trustworthy.
Reliable conclusions	When there is enough data collected in an accurate way so we can trust the results.

Evaluating data collection methods

	Advantages	**Disadvantages**
River Data	Data is easy to compare downstream.	Current can make collection inaccurate.
Pebble data	See impacts of erosion.	Bias in selecting pebbles to measure.
Questionnaire	Understand people's opinions	Timely to analyse People may lie.
Env Quality Survey	Gain info on a wide variety of factors. Number is easy to compare scores.	Subjective – based on your opinion so can be bias.
Counts (Traffic / pedestrian)	Understand how busy / popular an area is.	Can easily miscount by mistake if an area is really busy.

Improving data collection methods

Make it ACCURATE & RELIABLE (Enough data that we can trust what we find out)	**Make it REPRESENTATIVE** (Enquiry covers the whole area and not just a small part)
• Collect more data and generate an average – reduce the risk of anomalies. • Ask a wider variety of questions on a questionnaire. • If something is opinion based, consulting with other people to reduce bias. • Collect data at different times of day / year / weather conditions.	• Collect data at more sites to cover a larger area – reduces the risk of anomalies. • Ask a lots of different people for a questionnaire to cover all ages / genders / ethnicities etc. • Collect data at different times of day / year / weather conditions.

Geography

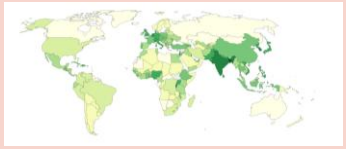
ANALYSING DATA

Mean	Add all data together and divide by the number of values.
Median	Put the data in numerical order and find the middle number.
Mode	Most common number.
Range	Highest number minus the smallest number.
Interquartile Range	Upper quartile value minus the lower quartile value. **More accurate than the range as it removes the extreme values.**

WHY?
+ Averages can remove the risk of anomalies skewing the data.
+ Easily see a general trend / what is most common in the data.
+ Easily compare changes between areas.

Choropleth Map

Uses different shades of colour / symbols to display different amounts.

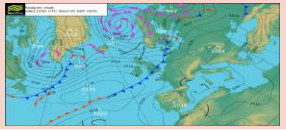


Advantages:
Easy to spot general

Disadvantages:
Not useful for showing total values

Isoline map

Lines that join up values of the same value. (EG. Contour lines)

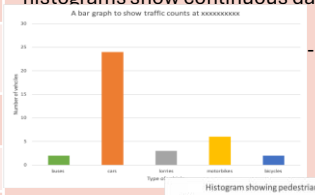


Advantages:
Can easily compare areas of equal value.

Disadvantages:
Can be difficult to read if lines are close together.

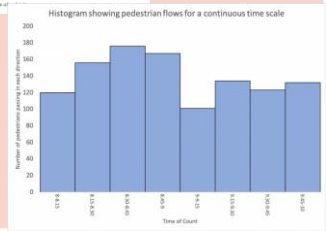
Bar Chart / Histograms

Bar charts show continuous data whereas histograms show continuous data.



- Bar chart

Histogram ->

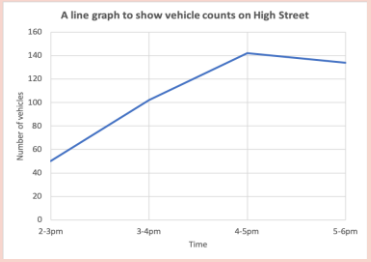


Advantages:
Can see a clear comparison / trend.

Disadvantages:
Does show the causes of trends.

Line Graph

Line graph shows continuous data to show changes over time. There is always a dependent (the variable that isn't changed by other variables EG. time) and an independent variable (the variable that is changed by other variables (EG. The number of cars on the road).



Advantages:
Can show multiple sets of data.

Disadvantages:
If too much data is plotted – hard to read.

Pictogram

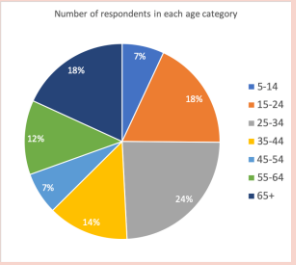
A way of presenting data using symbols.

Advantages:
Easy to interpret / see trends.

Disadvantages:
Not suitable for continuous data.

Pie Chart

Divided circle useful for presenting a quantity that can be divided in to parts.

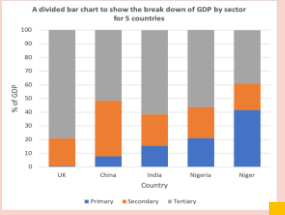


Advantages:
Good to display parts of a whole.

Disadvantages:
Can not be used to show trends.

Divided Bar Chart

Columns of bar charts are sub-divided based on the information being displayed.



Advantages:
Easy to see trends in large sets of data.

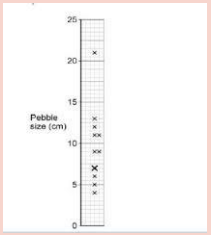
Disadvantages:
Requires additional explanation.

Paper 3 Section B
Unfamiliar Fieldwork (Paper 3)

AQA

Dispersion Graphs

Takes a set of data and allows you to see if the data is grouped together or very different.

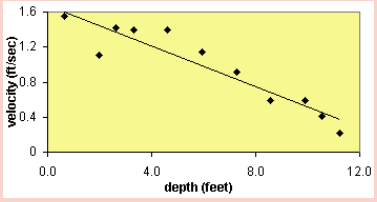


Advantages:
Can easily spot anomalies in data.

Disadvantages:
Can be time consuming to analyse.

Scatter Graphs

Investigated a link between 2 sets of data.

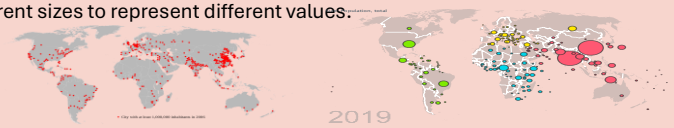


Advantages:
Can draw a LOBF to see if there is correlation.

Disadvantages:
Analysis of the correlation can be subjective.

Dot Maps / Proportional Symbol Maps

Dot maps show 1 dot per value. Proportional symbols are circles / symbols drawn at different sizes to represent different values.



Advantages:
Easy to interpret general trends.

Disadvantages:
Clustering can make them hard to read.

Flow Line / Desire Line Maps

Flow lines show movement of something from one place to another. Desire lines shows a line to show how places are connected.

Advantages:
Shows connections between places.

Disadvantages:
Overlapping makes it hard to read.

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One, two, three...Geography

Write down 3 points or responses to each of these questions/ topics

Question/ Topic	1	2	3

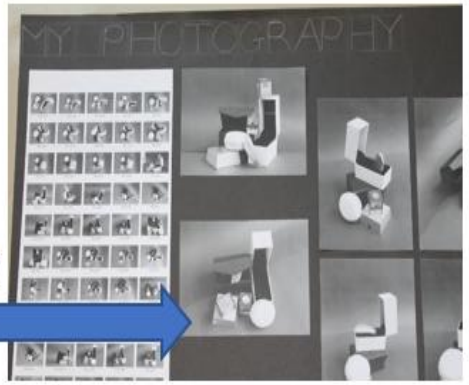
Art

Exam Project Breakdown

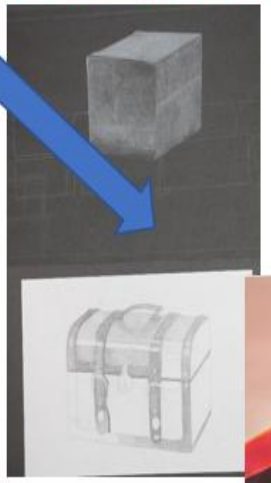
What do you need to include in your exam project?

1 – TITLE PAGE
Including key words related to selected title.

2 – RESOURCE IMAGES
Preferably your own photographs in black and white and colour.



3 – BLACK AND WHITE STUDIES
At least 4 pencil studies.
At least 1 white pencil on black paper study.
At least 1 pen and ink study.



4 – COLOUR STUDIES
At least 2 Water colour and pencil crayon studies
At least 2 acrylic studies

5 – ARTIST INFORMATION PAGE
To include information and a transcription (copy of an example of the artist's work).

6- DESIGN DEVELOPMENT
Page showing six line drawings of possible composition ideas. Annotations should explain connections to title and artist.

7 – FINAL DESIGN PAGE
Line pencil drawing of your final design idea for your 10 hour exam piece.

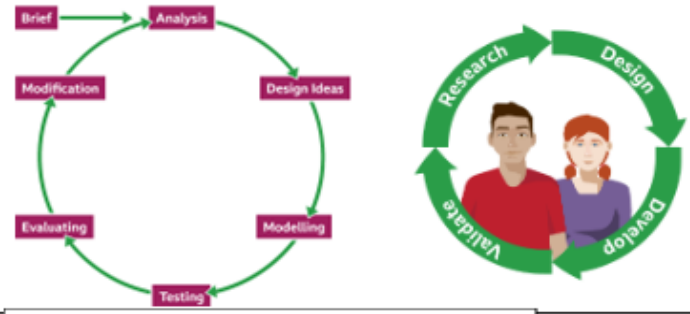
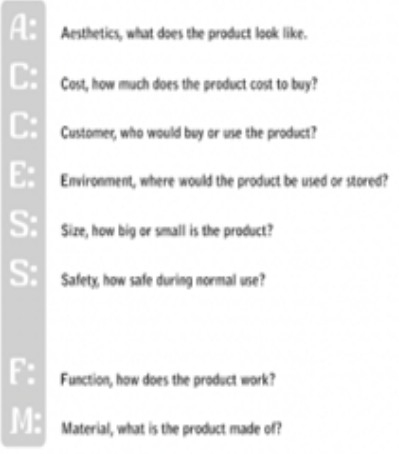
8 – MOCK UP
A practice run in colour of your final design. A chance to practice the composition using the materials, artist style and colour palette before your exam (half size).

9 – FINAL RESPONSE
A completed final piece of work – 10 hour exam to complete.

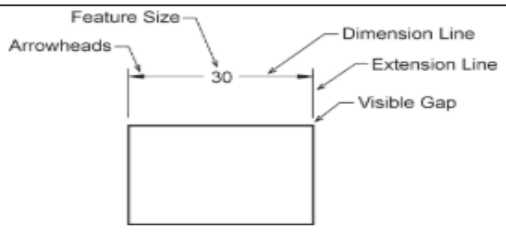
REMEMBER!

- All work needs to be of an equally high quality.
- All work needs to be well presented.
- All work needs to show strong links to your title and your selected artist.
- The artist you select needs to strongly link with your title.
- Final design needs to strongly link with your selected artist's style (composition, style colour palette).
- Final design should be planned to be achievable in 10 hour exam.

Engineering	Designing Processes	Year 10/11	R038

Designing Processes		
1	Linear design	**Linear design** is a process that follows a step-by-step process
2	Iterative design	**Iterative design** is a circular design process that models, evaluates and improves designs based on the results of testing.
3	Inclusive design	**Inclusive design** is a design process that aims to create products, services, and environments that are accessible and usable by the widest range of people, including those with disabilities, diverse cultural backgrounds, and varying needs.
4	User-centred design	**Use-centred design (UCD)** is a design philosophy and process that prioritizes the needs, goals, and feedback of the user throughout the entire design and development lifecycle.
5	Sustainable design	**Sustainable design is** an approach to creating products, buildings, and systems that minimize environmental impact and promote social and economic well-being throughout their entire life cycle.
6	Ergonomic design	**The ergonomic design** discipline focuses on designing products and environments that are comfortable, efficient, and safe for humans to use.
Diagram		
7	Iterative design process as a diagram.	
8	Ergonomics	A- Chair Height B- Back Rest Height C- Viewing distance/ angle D- Height of human to table E- Height of chair  When anthropometric data (measurements / statistics) is applied to a product, e.g. measurements of the hand are used to design the shape and size of a handle, this is ergonomics.
9	ACCESS FM	ACCESS FM is a design tool used for product analysis and evaluation. It stands for Aesthetics, Cost, Customer, Environment, Size, Safety, Function, and Materials. This framework helps designers and students consider various aspects of a product during the design process, from initial concept to 

DT: Engineering

Keywords Vocabulary			
10	**Anthropometrics**	The study of the human body and its movement, often involving research into measurements relating to people. It also involves collecting statistics or measurements relevant to the human body, called Anthropometric Data.	
11	**Design brief**	A set of instructions given to a designer by a client	
12	**Design specification**	Document containing details of a product's required characteristics, and all the processes, materials and other information needed to design the product.	
13	**Market Research**	Market research is the process of collecting, collating and analysing data about the market.	
14	**Primary Research** 1.Postal surveys – these have a high sample size but low response rate, relatively cheap 2. Telephone surveys – more expensive, higher response rate, can explain questions 3.Interviews – smaller sample size, higher response rate, may be interviewer bias 4. Focus groups – provide in-depth analysis, small sample size	Advantages • Fitness for purpose • Allows to target right segments • Can explain difficult problems / concepts	Disadvantages • Can be time consuming • Expensive • Some forms have low response rates
15	**Secondary Research** 1.Census – provides information on all the households in the UK, updated every 10 years 2. Internet – can provide a wealth of information however need to check validity of data 3. Government statistics 4. Books and journals Company reports 5. MINTEL reports – these are often a good source of market information	Advantages • Quick and easy • Relatively cheap	Disadvantages • May be out of date • May not be relevant
11	Dimensions		
12	CAD- Computer aided Design	Advantages • Competitively priced packages. • Drawings can be produced an amended quickly. • Most cad programs have online training to upskill. • Range of programs that are available internationally. Files can be shared easily. • CAD produces designs that can be rendered and viewed from a 360 degree.	Limitations • Requires high processing capacity so IT needs to be high quality- expensive. • Initial training in complex programs is necessary. • Can be time consuming to produce initial designs. • Computers using the software are susceptible to software changes.

Engineering	Evaluating Design Ideas	Year 10-11	R038

Evaluation Models		
1	ACCESS FM	**ACCESS FM** is a design and technology framework used for analysing and evaluating products. It stands for represent?
2	House of Quality (HOQ) 	**The House of Quality (HOQ)** is a matrix-based tool used in Quality Function Deployment (QFD) to translate customer needs into technical requirements for product development.
3	Pugh Chart 	**A Pugh chart,** also known as a Pugh matrix or decision matrix, is a tool used to compare multiple options against a set of criteria, helping to identify the best choice.
4	Quality Function Deployment (QFD)	**Quality Function Deployment (QFD)** is a structured method used to translate customer needs and expectations into specific engineering characteristics and design parameters for products or services
5	Production Plan	A **production plan**, also known as production planning, is a comprehensive strategy that outlines how a company will manufacture its products or deliver its services.
6	Gantt Chart	A chart in which a series of horizontal lines shows the amount of work done or production completed in certain periods of time in relation to the amount planned for those periods.
7	Evaluation	In production, **evaluation** is the process of systematically assessing the performance and impact of a product, service, or process to determine its effectiveness, efficiency, and value.
8	Product Testing	**Product testing** is the process of evaluating a product's performance, quality, and usability before its release to the market.

Keywords Vocabulary		
16	**Subjective Evaluation**	Subjective evaluation refers to assessments or judgments based on personal opinions, feelings, interpretations, or preferences, rather than on objective facts or measurable criteria. It involves individual perspectives and can vary from person to person.
17	**Objective Evaluation**	Objective evaluation refers to assessments that are based on measurable, verifiable facts and data, rather than on personal opinions or biases. It emphasizes impartiality and consistency, aiming for judgments that would be similar regardless of who is making them
18	**Summative Evaluation**	Summative evaluation is a method of assessment conducted at the end of a program, course, or project to measure its overall effectiveness and determine the extent to which objectives have been achieved.
19	**Ranking matrix**	In the context of design, a ranking matrix is a tool used to prioritize or rank different design options or features based on their importance or effectiveness according to specific criteria. It helps designers make informed decisions by systematically comparing and evaluating alternatives.
20	**Qualitative data**	Qualitative data is non-numerical information that describes characteristics and qualities. It focuses on concepts, opinions, and experiences, rather than numerical measurements or statistics. This type of data is often gathered through interviews, observations, and text-based sources, providing insights into the "why" and "how" behind phenomena
21	**Quantitative data**	Quantitative data is numerical information that can be counted or measured, often used for statistical analysis to understand quantities, frequencies, and trends. It differs from qualitative data, which describes characteristics or qualities. Essentially, quantitative data provides numerical values that can be subjected to mathematical calculations and statistical analysis.

DT: Engineering

Engineering	Designing Requirements	Year 10-11	R038

Commercial Production methods				
1	Needs and wants	In design, needs represent fundamental requirements for a product or service to function as intended and fulfill a basic purpose, while wants are desires or preferences that enhance the user experience but are not strictly necessary. Needs are about functionality and usability, whereas wants focus on aesthetics, features, and emotional connections.		
2	Quantitative and qualitative criteria	Quantitative criteria rely on numerical data and statistical analysis to measure and quantify variables. Qualitative criteria, on the other hand, focus on descriptive, non-numerical data to understand experiences, perspectives.		
3	Scale of manufacture	One-off; One-off manufacturing, also known as job or bespoke production, involves creating a single, unique product tailored to a specific customer's requirements.	Batch; Batch manufacture, also known as batch production or process manufacturing, is a production method where goods are produced in discrete groups or sets, called batches.	Mass; Mass manufacture, also known as mass production, involves producing large quantities of standardized goods, often on assembly lines, using specialized machinery and a division of labour.

Types of manufacturing processes:		
4	Wasting	Wasting is a process that uses tools to remove material from a workpiece until the required component has been produced: wasting can be achieved by hand tools and machine tools. **Examples, drilling, routing, chiselling, turning.**
5	Shaping	Shaping refers to the process that take raw materials and form them into final parts. **Examples, casting, moulding, injection moulding and machining processes.**
6	Forming	Forming, pressing or press forming is where a pressing force is applied to a material to cause it to deform. **Examples, die pressing, line bending, Vac forming, rolling.**
7	Joining	Joining processes are used to physically join two or more components. **Examples, brazing, soldering, adhesives, bolts and rivets.**
8	Finishing	Finishing refers to the process of applying a decorative appearance, protective coating or other treatments to protect a surface material. **Examples, painting, spraying, waxing, heat treating, dip coating.**
9	Assembly	Products with two or more components will have been designed to be assembled so they can function.

Keywords Vocabulary		
16	Tooling	Manufacturing equipment needed to produce a component, such as cutting tools, dies, gauges, moulds or patterns.
17	Deburring	Process to remove sharp or raised edges on a material caused by other processes.
18	Labour Costs	Costs associated with employees in a business, including wages, taxes and additional benefits.
19	Overheads	Expenses that need to be paid by the business, not including labour or materials but rent and utilities.
20	Subtractive process	The removal of material from a solid block by a machining process, such as milling, turning or drilling.
21	Consumables	Resources that assist manufacture and are used up during the process- for example, oil and lubricant used in machines.
22	Standard Forms	Made available in large quantities to the same specification- sheet metal, paper, timber sheeting.
23	Geometry	Shape of the object.
24	Automation	Using computer technology to operate equipment, rather than humans.
25	Turning	A machine operation that generates cylindrical and rounded forms with a stationary tool.

26	Rethink	Can the designer rethink the way it is manufactured. Is the material being used the only option?
27	Reuse	Is about reusing what you've already got rather than buying new items straightaway.
28	Recycle	From batteries to bubble wrap, you might be surprised by how much can be recycled.
29	Repair	Taking the time to repair broken items can extend their lifetime and avoid introducing new materials into the cycle.
30	Reduce	Consider how you can reduce your meat and dairy consumption, and buy new clothes only when you really need them by making do with what you've got before replacing them.
31	Refuse	Say no to single-use bags, packaging, cups, straws and so on, and get into the habit of bringing along your own reusable replacement

Exploring R038 Principles of engineering design: Miss Neail's student guide

The exam will always be out of **70 marks**. Section A will have 10 marks. Section B 60.
You need to aim for approx. 38 marks for a P2.

Section A will have 10 Multiple choice questions. You must the correct answer.
These questions test knowledge from across R038. Each question is worth 1 mark. There will always be 4 possible choices e.g. a,b,c,d only one will be correct.

Each question will indicate the number of marks awarded in square brackets. [1]

4

9 Which symbol shows the **radius** on an engineering drawing?

(a) Ø
(b)
(c)
(d)

[1]

Key information in a question will always be bold to make it clear what is being asked.

Section B contains several questions that are broken up into smaller questions.
Question types include:

- Short answer (define, describe, explain)
- Closed response (yes/no, inputting numbers, Symbols)
- Shorter response (Point /Explain)
- Extended response (Point evidence explain)

In section B you will be assessed on: Recalling knowledge and showing understanding, , applying knowledge and understanding, analyse and evaluate knowledge, understanding and performance.

In section B you will be expected to completed a diagram or table: When asked to complete a diagram or process you will be given the words, and you must choose the correct one. You must then write the answer in the diagram or table until it is completed..

(b) Use the terms below to identify the manufacturing process used for each manufactured product in the table.

Not all the terms are used.

One has been completed for you.

~~Assembly~~ Finishing Forming Joining Shaping Wasting

Manufactured product	Manufacturing process
Blow moulded bottle	
Riveted toolbox	
Polished aluminium tap	
Circuit board and components	Assembly
Machine turned bolt	

[4]

In section B: where a question asks you to complete a drawing space will be provided for you to do so.

(c) Explain **two** ways that **capital** cost could limit the scale of production.

1 .....

.....

.....

2 .....

.....

..... [4]

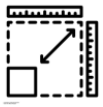
In section B: The number of lines and space provided is an indication of how much you need to write. There will always be an extended response 6-mark question!

(c) Discuss the advantages and limitations of carrying out **user testing** as early as possible in the design process to evaluate design ideas.

..... [6]

DT: Engineering

Modelling is used to test:


Scale


Proportion


Function

Types of modelling

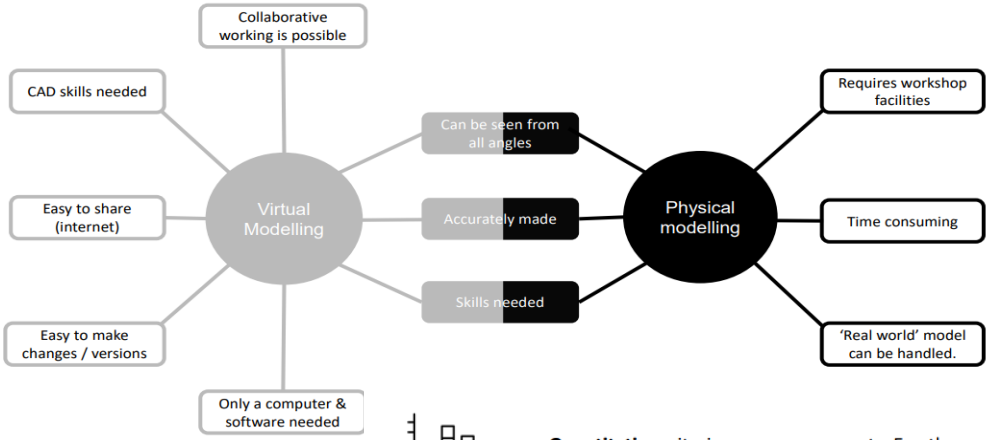

Virtual


Physical

Evaluation of model

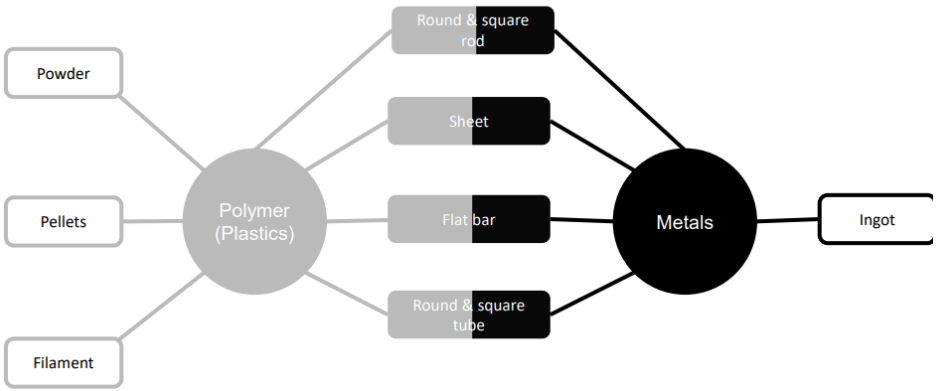
All models or prototypes are compared with the design **brief** and **specification**.

In **iterative** design, this leads to an **improved design** which is then modelled.



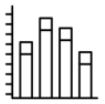
Wasting	Shaping	Forming	Joining	Finishing	Assembly
					
Changing shape by removing material	Forming a shape by moulding or laying up composites.	Changing shape by deformation.	Permenant or temporary fixing.	Creating a surface finish for technical or aesthetic reasons.	Adding components together into a single product.

Polymers and metals have some stock forms in common.
Other materials have their own standard stock forms.



Circular Economy

In a circular economy, products, components and materials are reused and recycled instead of being thrown away



Quantitative criteria are measurements. E.g. the amount of memory in a phone or the capacity of a battery.

Qualitative data are based on opinions, impressions and points of view. E.g. how comfortable a handle should be or how attractive a bath tap must be.

Needs criteria are essential and must be included in a design. E.g. an emergency stop button on a machine.

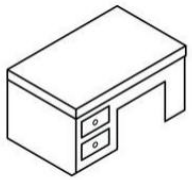
Wants are criteria that are not essential but desirable. E.g. 1950s aesthetic styling on a food mixer.

	Buildings	Capital cost
	Equipment	
	Workers	Labour cost

DT: Engineering

Isometric

A formal 3D style drawing.



Start at the corner all lines

Oblique

Another 3D style that is less realistic that isometric.

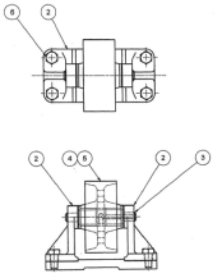
Start with front 'face' then

Freehand sketching

An informal style used to communicate ideas quickly.

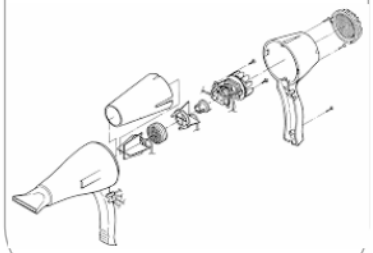
Assembly Drawings

Drawings that show all components assembled together.



Exploded views

A type of assembly drawings that shows space between parts.



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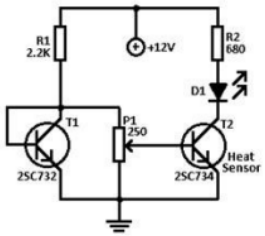
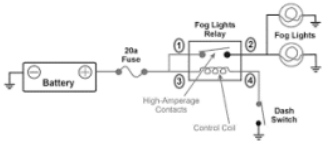
Circuit Diagram

Used to show how electronic components are connected in a circuit.



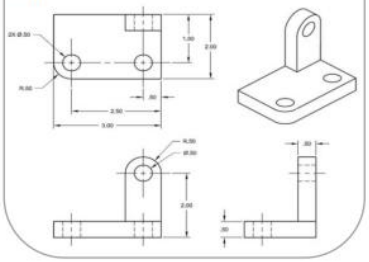
Wiring Diagram

Shows how connections should be made within larger electrical systems.



Orthographic drawing

A formal style of 2D drawing usually used to show dimensions. Drawn to scale.

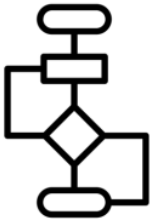


Block diagrams

A diagram of a system showing how stages relate to each other.

Flowcharts

Used to show a decision making process.



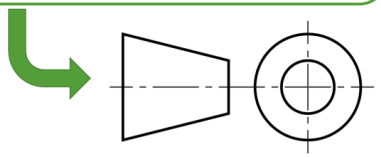
Working Drawings

Outline		Tolerance	
Centre Line		3rd Angle	
Dimension Line		External Thread	
Hidden Detail		Internal Thread	
Projection		Knurl	
Leader Line		Blind Hole	
Diameter	∅	Chamfer	
		Countersink	
		Through Hole	

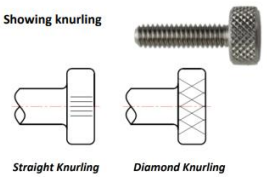
Across Flats	AF
Centre Line	CL
Diameter	DIA, D and Ø
Drawing	DRG
Material	MATL
Square	SQ

Title block example

Title:	Desk lamp base	Date:	19/1/23	Drawn by:	P Miles
Scale:	1:1	Version:	3	Tolerance:	± 0.2 unless stated otherwise
All dimensions in millimetres					



Showing knurling



Straight Knurling *Diamond Knurling*

A/F	Across flats
CL	Centre line
Ø	Diameter
DRG	Drawing
MATL	Material
SQ	Square

DT: Engineering

Command words	Meaning
Analyse	Separate information into components and identify their characteristics. Discuss the pros and cons of a topic or argument and make reasoned comments.
Compare and contrast	Show the similarities and differences.
Conclude	Make a decision after reasoning something out.
Define	Give the meaning of.
Describe	Give a detailed account of.
Differentiate	Explore and explain the differences.
Discuss	Explore the subject by looking at the advantages and disadvantages.
Explain	Describe, giving reasons and causes.
Evaluate	Give an opinion by exploring the good and bad points.
Identify	Recognise or prove something as being certain.
Illustrate	Show by explaining and giving examples.
Interpret	Explain the meaning by using examples and opinions.
Justify	Give good reasons for offering an opinion or reaching a conclusion.
Outline	Concentrate on the main points of the topic or item.
Summarise	Give the main points of an idea or argument. Leave out unnecessary details.

1 Mark Questions *– Identify/name/label*
2 Mark Questions *– Identify and explain/ define/label 2 items*
3 Mark Questions- *Identify/explain/give reasons/ label 3 items*
4 mark Questions *– Often Identify/ explain and describe/label 4 items*
5 mark Questions *– Often Identify/explain/ describe/justify label 5 items*
6 Mark Questions *– Extended writing piece, needing detail, multiple examples and use of key terms.* ***This is the only question in the paper that marks Spelling, punctuation and grammar.***

A mark a minute

BOX the command word i.e. describe, explain, evaluate, assess

UNDERLINE key ideas to focus in, to understand what content will be needed in their answers

GLANCE over the question to make sure you include everything needed

(c) Explain how standard components can improve the sustainability of new products.

(b)	Award one mark for each valid reason e.g. • Guaranteed quality (1) • Less expensive to purchase / cheaper (1) • Compatible with standard tools / no specialist tools required (1) • Readily available / widely used / large quantities (1) • Easily replaceable (1) • Standards understood globally (1)	2	Accept suitable alternative answers. Do NOT accept 'they are easy to make/not complex to make.' Only award 'easier to understand' if qualified by 'global standards' / 'compatible with standard tooling' or similar

[3]

If you get stuck write down all the key words that you know are relevant first at the bottom of the page. Then use this to start building your sentence. Tick off each key word as you go

Tip:
3 marks so 3 minutes
3 marks so 3 points to be made
Always make extra points if you can give an opportunity to gain marks
Explain so needs reasoning

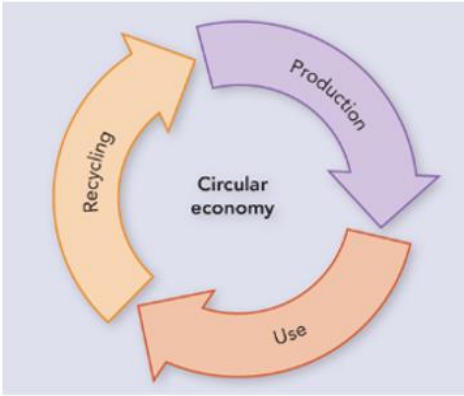
Command verb	Meaning
State	Express in precise terms, express in unequivocal terms
Suggest	Give possible alternatives, produce an idea, put forward, eg an idea or plan, for consideration
Identify	Recognise, list, name or otherwise characterise

Working Drawings

Outline		Tolerance	
Centre Line		3rd Angle	
Dimension Line		External Thread	
Hidden Detail		Internal Thread	
Projection		Knurl	
Leader Line		Blind Hole	
Diameter	∅	Chamfer	
		Countersink	
		Through Hole	

Across Flats	AF
Centre Line	CL
Diameter	DIA, D and Ø
Drawing	DRG
Material	MATL
Square	SQ

Discuss	Give an account that addresses a range of ideas and arguments	I have a variety of different chairs in my home. All of them have a seat, back rest and are supported by legs. It is possible to have a chair with three legs but most have four. The back rest is what defines the chair otherwise it could be called a stool. When buying a chair, I would consider the room it is for, the design and colour and the price. It is important that it is fit for purpose and that it is comfortable.
Explain	To give account of the purposes or reasons	A chair is used for sitting on. It normally comprises a seat; a backrest and is supported by legs. The legs are positioned in such a way so as to balance the chair, so that when it is sat upon it does not collapse or become unstable. Chairs can be made in many different styles and use a variety of materials. The design and material choice are reflected in the cost of the chair. Chairs are often used alongside a table, to support body weight at a convenient height whilst doing something at the table. Chairs can be produced in different sizes to make them suitable for individuals eg a child.



DT: Textiles

GCSE Textiles - AO2

Refine work by exploring ideas, selecting and experimenting with appropriate media, materials, techniques and processes.

AO2 – Next steps – design development

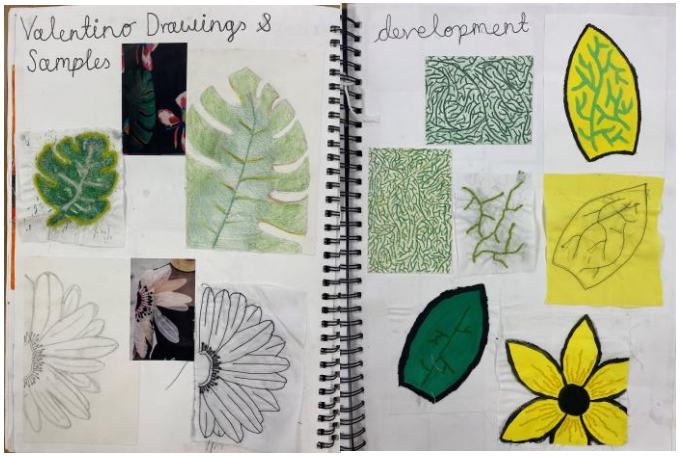
Once you have completed a sample - what do you do next?

Here are some ideas:

~~Cut the sample in half - keep one half as the original and develop the other half with a different technique.

~~Sketch an initial idea to show how you would use this sample in your work

~~Evaluate your sample to help you refine your ideas and techniques.



Design Development – Exemplar Grade 8 sketchbook pages.

How do I complete a merit/distinction time plan?

All recipes and Time plans must be printed off today, so that I can order the ingredients for next week. Friday lesson is too late.
Make sure I have all the instructions you will need on the day as well.

Key words:
Dovetail / Sequencing – fitting the different stages of different recipes into a logical order.
Contingencies – plan for what to do when something goes wrong.

- Writing a successful time plan

- Print a copy of each recipe you are going to use;
- Highlight every activity you will need to do e.g. Whisk eggs, make a dough, etc. Use a different coloured highlighter for each recipe;
- Work out the order of each activity; the ones that take the longest will need to be done first;
- Show which activity from another dish you will do next while you are waiting for your first recipe to be ready to move on to the next stage and so on, until every activity has been included;
- When you are dovetailing activities remember to all enough time, e.g. waiting for the water to boil for vegetables;
- Remember to show when you would expect to remove something from the oven.

Timings

Must include:

- ✓ Getting yourself ready
- ✓ Getting your equipment out
- ✓ Each dovetailed step of the recipe
- ✓ Washing up (which should be done throughout and not just left to the end)
- ✓ Plating up
- ✓ Putting equipment away

You must factor in the time it will take for things for the different stages of the dishes to be cooked.

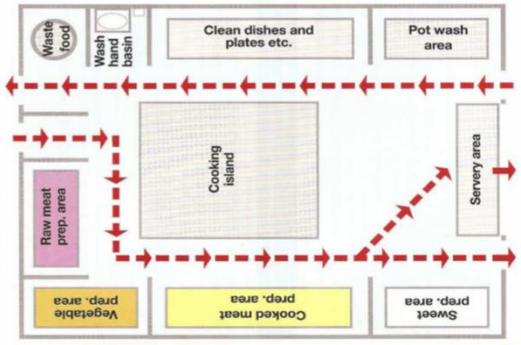
Health and safety/ Contingencies

- ❖ Highlight any health and safety points the chef needs to be aware of at each stage. E.g. wear oven gloves when using the oven.
- ❖ Include detail about why it's a health and safety risk e.g. check the chicken is cooked to 75^{0}C to ensure it is cooked thoroughly and the bacteria has been destroye

Catering

Knowledge Organiser LO2 Understand how hospitality and catering provision operates.

Workflow in the kitchen should follow a logical process by using different areas so that the clean stages in food production never come into contact with the "dirty" stages.



You need to consider the following key areas in terms of layout…

1. Delivery
2. Storage
3. Food preparation
4. Cooking
5. Holding
6. Food service area
7. Wash up
8. Waste disposal

DRESS CODE

A chef's uniform is more than a fashion statement. Each component plays a specific role in protecting from potential dangers common in most kitchens

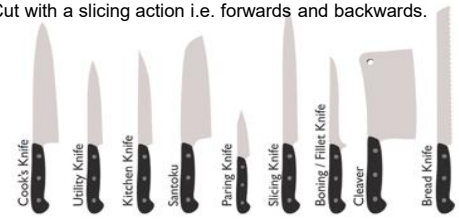
Chef's uniform

- Chef's jacket
- Chef's pants
- Hat
- Neckerchief
- Apron
- Hand towel
- Slip-resistant shoes

- Some establishments have staff wear the same uniform; this makes them easily identifiable for staff and customers. The uniform may change depending on which area of the establishment they work in.
- Protective clothing as part of a uniform must be paid for by the employer.

KNIVES

1.Store knives safely so you don't cut yourself accidentally
2.Clean knives after each use. gently scrub the knife, then wash it off with hot water. Dry with a clean cloth
3. Make sure knives are sharp.
4.Use knives for the purpose that they were intended.
5.Cut with a slicing action i.e. forwards and backwards.



STOCK CONTROL

2 types of foods when it comes to stock control:

Perishable food and products that do not stay fresh for very long

- Fresh fruit, vegetables
- Dairy products
- Meat and fish
- Only buy enough to last a few days because they will not last

Staple foods and supplies that are canned, bottled, dried or frozen These have a longer shelf life and so do not need to be purchased as frequently. Larger amounts can be bought to get cheaper prices and can be stored .

- Condiments,
- Canned vegetables
- Frozen foods including meat, fish and deserts
- Sauces
- Flour, sugar, fat,oil

Remember

1. **FIFO – First In First Out rule.**
2. **Check use by/best before dates and make sure you stick to these. Do not use something if it is past its use by date.**
3. **Keep food that an cause an allergic reaction separate from all other food.**

DOCUMENTATION

Why must they be completed?

1. Maintaining organisational procedures
2. Safety of staff and customers
3. Legal requirements
4. Complying with food safety legislation
5. Complying with accounting and taxation practices

Stock control
Monitor stock levels for re ordering
Decide frequency of stock check
First in First out for items with a shelf life

Personnel records
Hours worked
Personal details
Wages
Taxation
National insurance
Training
Accidents
Staff rotas and timetables

Health and safety, hygiene
Fire certificate
Staff training records
Accident book
Food hygiene checks
Cleaning checks

Bookings and reservations
Electronic booking system
Electronic reservations system
Diary with bookings and reservations
Feedback forms

Purchasing
Food and drink orders
Packaging orders
Equipment
Tables, chairs etc.
Cutlery and crockery
Staff uniforms

Financial
Income tax
VAT
Wages
Insurance
Sales and income
Staff costs
Heating, lighting

CUSTOMER REQUIREMENTS

Customer service is what an establishment does in order to meet the **expectations** of their customers and generate customer satisfaction.

- **So customers return**.- People will not return to a place where they were not satisfied with the service. Repeat business means a successful business.
- **Exceeding expectations-**This makes repeat business more likely
- **Growth of the business-** If customers receive a high standard of service ad return, they will spend more money and also tell other people about the business.

Customers are influenced by:

- TV
- Magazines
- Health
- Travel abroad
- Technology
- Ratings and reviews
- Amount of money service is

Types of Customer

Leisure	Local residents	Business / corporate
Customers who visit the establishments in their leisure time e.g. a meal with friends, a family day out, tourists,	Customers who live in the local area who visit the establishment often eg regular Sunday lunch, or get togethers	e.g. business lunches. Use business facilities in establishment for meetings or presentations. Courses and conferences

Leisure customers' requirements

- Value for money
- Good facilities
- Families want child menus, play area, child friendly
- Tourists want local food, easy to communicate
- Older people may want more formal service
- Good customer service
- Varied choice of menu
- Dietary needs eg allergies, intolerances, vegetarian catered for without having to ask for special foods
- Facilities for physically impaired customers

Local customers' requirements

- Value for money
- good standard of customer service so they return
- Catering for local needs (culture, religion)
- Consistent dishes served
- Loyalty schemes
- Recognised by staff- feel welcome
- Menu specials
- Theme nights
- OAP discount day
- Child friendly
- Entertainment
- Mailing list or email for special offers

Business customers requirements

- Dedicated corporate (business) contact at establishment
- Discounted rates
- Meeting rooms
- Water, juice on tables
- Presentation equipment, Tea and coffee for breaks
- Lunch or other meals- buffet or restaurant
- Accommodation if attendees are from a long distance
- Quick service for lunch meetings

Small Equipment – you will need to know what each piece of equipment is used for.

Large Equipment – you will need to know what each piece of equipment is used for.

Page 48

Deep Fat Fryer

- Check the level of oil is above the heater coils.
- Avoid spilling any water in the oil.
- Do not overheat the oil..

Grill/Salamander
Ensure the tray beneath the bars are clean.

- Switch off electrical supply and clean the bars thoroughly, as well as the top.
- Do not clean when hot.

Free Standing Mixer
Ensure the parts underneath the arm are cleaned

- Switch off electrical supply and clean the blade/whisk thoroughly, as well as the top.
- Do not clean when moving

Bain Marie
Ensure there is water at all times when the Bain Marie is on.

- Do not let the water boil vigorously.
- Refill with clean water

Hot Plate

- Avoid spilling water on surface
- switch off parts, which are not being used.
- Cool hot plates before cleaning

A to Z of...

Based on your ***OPTION SUBJECT***, recall any key information from the current topic you have been studying.

A	B	C	D
E	F	G	H
I	J	K	L
M	N	O	P
Q	R	S	T
U	V	W	X
Y	Z		

TA2: The Role of Sport in Promoting Values

Olympic and Paralympics

The Paralympics are games for people with a disability which run in parallel with the Olympic games. They are both held once every four years in the same host city. Both Olympic and Paralympic movements aim to represent similar core values.

The Creed

Baron Pierre de Coubertin - Founder of the modern olympics

"The most important thing in the Olympic Games is not to win but to take part, just as the most important thing in life is not the triumph, but the struggle. The essential thing is not to have conquered, but to have fought well."

The Symbol

Five interlocking rings to represent the union of the five continents of the world which take part.

The symbol is closely linked with all aspects of the Olympics and Paralympics and reminds everyone that the brand logo for the sporting event involves all areas of the world.

The Values

3 Olympic values

- Frienship
- Respect
- Excellence

4 Paralympic values

- Determination
- Inspiration
- Courage
- Equality

Sportsmanship

Fair and polite behaviour is also known as sportsmanship.

- Being gracious and respectful when winning or losing;
- Clapping an opposition goal;
- Shaking hands before and after a game.

Gamesmanship

When a performer bends the rules.

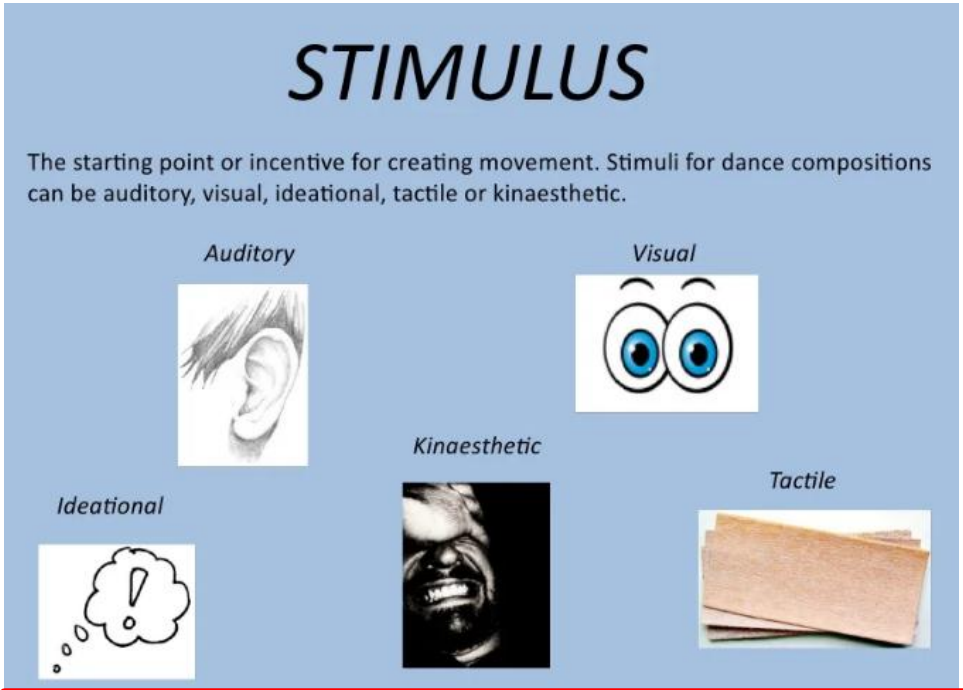
- Taking a long time to collect the ball to waste time;
- Re-tying shoe laces when an opponent is about to serve in tennis;
- Grunting loudly when playing a tennis shot to put off the opponent.

Spectator etiquette

Spectators also have unwritten rules to follow

- Being quiet during rallies at tennis games;
- Respecting an opponents national anthem;
- Staying quiet at the start of an athletics race;
- Staying quiet when a rugby player kicks a conversion.

Year 11 Dance: Creating a dance



Choosing your stimulus

- A stimulus is something that inspires you to create a dance and provides a starting point for you to explore movement ideas.
- Artists respond to the world around them, whether they use movement, sound, images or words.
- Some artists have an important or serious message to communicate.
- Some artists enjoy playing with the material and ideas that they generate.
- You can stick very closely to the stimulus using it to guide or shape the material.
- Your dance might develop in a different direction, once the stimulus has done its job of getting you started.

How to select your stimulus

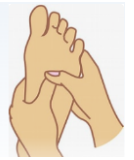
- When you have an idea for your dance and you think it will fit the theme, research it further, see what information you can find that will help you.
- Is there any professional works that you can find that are similar that can help influence your work?
- Create a detailed mind map of your ideas to help you when you are in the creative process. Think of the emotions, the energy, the dynamics, type of movements, genre etc. that are needed to help meet with your stimulus and tell your story.
- If the mind map is hard to complete or a bit empty, don't be afraid to "bin" that stimulus and try another one.
- What social, historical, cultural, political or community will influence your work?

Unit RO34: Creative and therapeutic activities **Topic Area 1: Therapies and their benefits**

Physical: The purpose of physical therapies is to help individuals to maintain, improve or recover their physical abilities.

- Yoga
- Tai chi
- Reiki

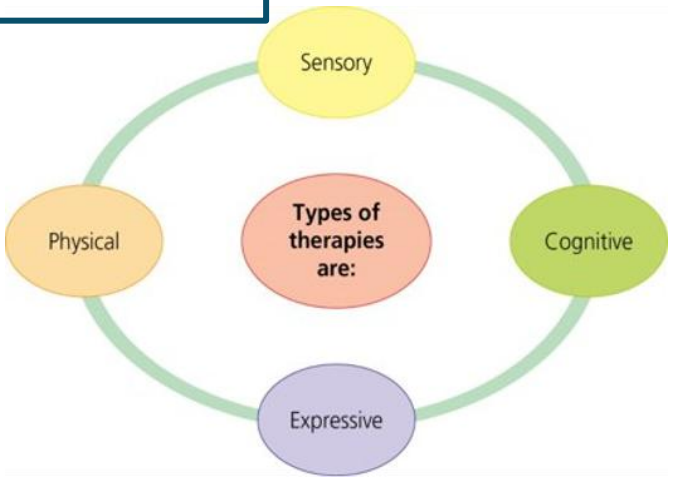
Sensory: The purpose of sensory therapies is to stimulate the five senses of sight, sound, touch, taste and smell.



- Aromatherapy
- Reflexology
- Massage

Expressive: The purpose of expressive therapies is to stimulate the expression of thoughts and emotions.

- Art therapy
- Play therapy



Cognitive: The purpose of cognitive therapies is to stimulate the mind and body.

- Hypnotherapy
- Speech and language therapy
- Reminiscence therapy
- Mind–body healing by using the power of positive thinking

Benefits of therapies

Physical	Intellectual	Emotional	Social
• Reducing pain; • Improve circulation; • Improve coordination; • Lower blood pressure; • Improve dexterity; • Encourage body movement; • Improve flexibility; • Improve heart function; • Increase strength.	• Improve concentration; • Improve focus; • Being relaxed and calm; improvs mind to be more creative; • Improve communication; • Improve imagination; • Increased awareness.	• Improve self esteem; • Maintain a sense of well being; • Reduce stress and anxiety; • Reduce depression; • Improve confidence; • Help deal with grief.	• Improving interactions; • Make friends - increased confidence; • Cooperation/working together; • Share views and opinions – build connections; • Understanding of rules; • Taking responsibility; • Cooperation.

Roll-a-dice Revision

Based on your ***OPTION SUBJECT***, create questions for each square on the grid. Once you're done, take it in turns to roll two dice and answer the corresponding questions.

	1	2	3	4	5	6
1						
2						
3						
4						
5						
6						

External factors

Ethics focuses on what is the right or wrong thing to do. It is not always easy to decide what is right and wrong in business and what we think is right or wrong can change over time. 200 years ago, many people thought it was correct to trade in slaves, taking people from Africa and selling them in America. Nowadays, people think slavery is wrong.

Ethical issues are faced by all businesses. There is often fierce competition between suppliers of products. These suppliers may find it necessary to keep their costs as low as possible to help them to compete, and this is where they may be tempted to "cut corners" when it comes to ethical work practises. The problem has become increasingly complex as globalisation has increased. Businesses can find it difficult to know exactly what is going on in the factories that supply them. In developed countries, likely UK, we expect our businesses to take these responsibilities seriously, by, for example, having proper and effective inspections of the factories of suppliers.

Examples of unethical business behaviour include:

- using child labour
- paying workers low wages
- expecting workers to work very long hours.
- not providing workers with safe working conditions
- discriminating against workers on gender, ethnicity, or disability grounds

Another potential unethical practise is charging a higher price than is fair. Energy and petrol companies have sometimes been accused of this. It is said that when the price of gas or oil falls on the world markets, they do not pass these lower costs on in the form of lower prices for consumers as quickly as they should. Instead, they may make higher profits for a while.

Another practise that may be unethical is testing beauty products on animals. Laws such as the trade descriptions act, and the sale of goods act can be used to punish firms who do not act ethically. While it is possible to prosecute firms that break the law as mentioned, it is not possible to punish firms that test beauty products on animals. This is because this is not against the law, though some people think it is unethical and that it should be against the law.

Examples of **environmental considerations** are discussed under four separate headings:

- Sustainability
- waste disposal
- Pollution
- climate change

Sustainable production is making goods and providing services without depleting natural resources. In practise, businesses that claim to use sustainable methods aimed to use renewable resources and recycled resources, reduce waste, and use energy sparingly and avoid the use of non-renewable resources when they can.

Climate change is the long-term change in weather conditions. There are some different views about climate change. Some scientists say it is not happening, but most say that temperatures are rising, sea levels are rising, and rainfall is increasing but snowfall is decreasing. The overall effect is called global warming. It is caused by natural events such as volcanic eruptions and changes in the amount of heat generated by the sun. It is also caused by human activity - both domestic and business activity. We humans cause global warming mainly by burning fossil fuels such as coal, oil and wood used to generate energy. This creates more carbon dioxide. We also cause it by cutting down forests. Deforestation means there are fewer trees to absorb the carbon dioxide.

Possible advantages of behaving ethically in business	Possible disadvantages of behaving ethically in business
There is a greater chance that the business will survive in the long run.	The costs of production may rise because workers need to be paid a fair wage.
Workers may be more motivated which will improve productivity.	A business that is honest in its marketing may find that its sales fall.
Sales may increases as customers think the business is trustworthy.	
A business may find it easier to recruit employees.	

Knowledge Organiser 8 : Ethical, Legal, Cultural and Environmental Concerns

1. Privacy Issues

Implications	• Implications for personal privacy have arisen due to the vast array of cameras and surveillance systems around. • The amount of data that we share and that is recorded about us is growing hugely • Free speech / freedom of expression / right to personal privacy vs. Law and Order / Public security / government's role

2. Cultural Issues

Implications	• The impact of technology in our daily lives (Technology is changing how people live their lives today. We have an ever increasing dependency on technology in the 21st Century) • The digital divide (Access to technology and the Internet is not the same across the world) • Globalisaion (As people around the world become more exposed to technology this impacts on the values and expectations of the people in each country)
Positive Effects	• In the developing world, the rapid spread of technology, fuelled by the Internet has led to positive cultural changes in developing countries. • Easier, faster communication has contributed to the rise of democracy, as well as working towards the alleviation of poverty. • Globalisation can also increase cultural awareness and promote diversity
Negative Effects	• Diffusion of technology must be carefully controlled to prevent negative cultural consequences. • Developing countries risk losing their cultural identities and assimilating themselves into an increasingly westernised world. • Challenges of inequality from the uneven distribution of technology within a country also still remain • Traditionally, most computer applications are designed by developers in North America. These designers unintentionally apply their cultural values and systems of thought whilst developing computer applications

6. Open Source vs Proprietary Source

Open Source	Users can modify and distribute the software. Can be installed on any number of computers. Support provided by the community. May not be fully tested. Users have access to the source code
Proprietary Source	Users cannot modify the software. Protected by CD&P Act. Usually paid for and licensed per user or per computer. Supported by developers. Users do not have access to the source code. Tested by developers prior to release. Although they may run beta programmes.

3. Environmental Impact

Fossil Fuels	Fossil fuels are consumed in the manufacturing of computer devices
Energy	2% of global energy consumption is used by data centres
Disposal	Old computing equipment is often shipped to countries with lower standards for disposal. People trawl through waste looking for metals to be recycled and sold, exposing themselves to danger.

4. Impacts of Digital Technology on Wider Society

Customers	Customers can do more from home with less travelling involved. They can do things 24/7. They can access their data on many devices. Computers can make instant decisions without human involvement. Potentially open to hacking. Less personal
Staff	Job losses as things become more automated. New types of jobs created that didn't previously exist. Up-skilling required
Companies	Less overheads (salary, rent, utility bills) if fewer staff and buildings required. More ways to target potential customers. Increased importance of data protection and security
Local Communities	Local shops may suffer is town centres are more empty. Elderly and vulnerable customers may have nowhere local to go as local services are scaled back

5. Legislation

Data Protection Act (2018) [implementing GDPR]	• Data must be processed lawfully, fairly and in a transparent manner. • Data must only be collected for specified, explicit and legitimate. • Data must be adequate, relevant and limited to what is necessary. • Data you collect must be accurate and kept up to date. • Data you hold must be kept for no longer than is necessary. • Data you hold must be processed in a manner that ensures appropriate security of the personal data. • Data controllers must be able to prove that their data protection measures are sufficient
Computer Misuse Act (1990)	It is illegal to make any unauthorised access to data… …with the intent to commit further offences …with the intent to modify data, e.g. viruses
Copyright Designs and Patents Act (1998)	It is illegal to copy, modify or distribute software, music, videos or other intellectual property without permission from the author

Knowledge Organiser 9 : Algorithms

1. Computational Thinking

Abstraction	The process of removing unnecessary details and including only the relevant details.It is a method of computational thinking that focusses on what is important in problem solving
Decomposition	The process of breaking a complex problem down into smaller more manageable parts. Dealing with many different stages of a problem at once is much more difficult than breaking a problem down into a number of smaller problems and solving each, one at time.
Advantages of Program Decomposition	• Makes problems easier to solve. Different people can work on different parts of a problem at the same time… • …reducing development time. • Program components developed in one program can easily be used in other programs
Algorithmic Thinking	A way of getting to a solution by identifying the individual steps needed. By creating a set of rules, an algorithm that is followed precisely, leads to an answer. Algorithmic thinking allows solutions to be automated.

2. Input Processes and Output

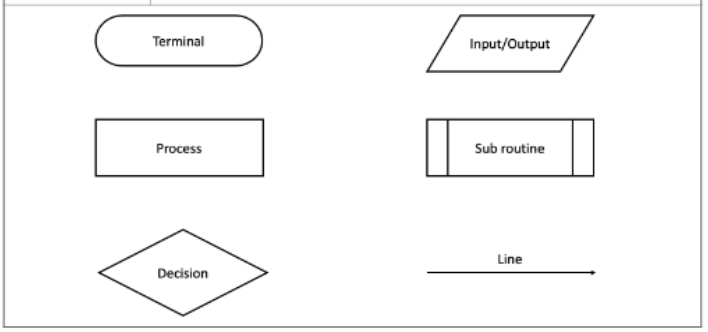
Inputs	• Anything which needs to be supplied to the program so it can meet its goals. • Often input by the user. • Consider an appropriate variable name and data type for the input.
Processes	• Consider what calculations need to be performed while the program is running. • Does data need to change formats or data types
Outputs	• Consider what your program need to output. • Consider what form this output need to take. • Consider an appropriate variable name and data type for any output

3. Structure Diagrams

- Structure diagrams illustrate problem decomposition.
- They can be used for developers to understand a problem to code and to share with users during systems analysis.
- They are produced using a method known as step-wise refinement.
- Break problem down using decomposition into ever smaller components.
- Some areas of the program will needed breaking down more than others.
- The lowest level nodes should achieve a single task.
- These can then be coded as a single module or sub-program.

3. Flowcharts, Pseudocode and OCR Reference Language

Flowchart	A method of representing the sequences of steps in an algorithm in the form of a diagram. Sometimes called a Flow diagram
Energy	2% of global energy consumption is used by data centres
Pseudocode	A text based alternative of representing the sequences of steps in an algorithm. Pseudo-code can be thought of as a simplified form of programming code.
OCR Reference Language	You must be able to read this but you can always use Python in your exams–but be precise



4. Types of Errors

Syntax Error	Syntax errors are errors which break the grammatical rules of the programming language. They stop it from being run/translated
Logic Errors	Logic errors are errors which produce unexpected output. On their own they won't stop the program running

5. Trace Tables

- A vital skill for understanding program flow and testing the accuracy of an algorithm for logic is called "Tracing Execution".
- Examine a printed extract of program code and running thorough the program.
- Take each line at a time and write out in a trace table the current state of each variable. Noting down any output the program produces.
- Each variable present in the program should have its own column in the trace table.
- A new row should be added under any column if the state of a variable changes.
- Trace tables are an excellent way to track down logic errors in a problem.

Knowledge Organiser 11 : Programming Fundamentals 1

1. Key Terms

Variable	A value stored in memory that can change while the program is running
Constant	A value that does not change while the program is running, and is assigned when the program is designed
Operator	A character that represents an action, e.g. "+" is a mathematical Operator
Assignment	Giving a variable or constant a value
Casting	Converting a variable from one data type to another
Input	A value that is entered into the program after the program has started running
Output	A value that produced by the program and either saved or displayed to the user

2. Correct Use of Data Types

Integer	A positive or negative whole number used when arithmetic will be required
Real / Float	A positive or negative decimal number
Character	A single alphanumeric
String	Multiple characters joined together [n.b. use this for credit card numbers]
Others	Some languages have others, e.g. date, picture…

3. The Three Basic Programming Constructs

Sequence	Executing one instruction after another
Selection	Program branching depending on a condition
Interation	sometimes called looping, is repeating sections of code. Condition controlled or count controlled

4. Common Arithmetic Operators

+	Addition
-	Subtraction
*	Multiplication
/	Division
^	Exponentiation
MOD	Modulus

5. Common Comparison Operators

==	Is equal to
!=	Is not equal to
<	Is lesser than
>	Is greater than
<=	Is lesser than or equal to
>=	Is greater than or equal to

5. The Common Boolean Operators

6. Basic String Manipulation (general)

string.length	Obtains the length of the string in characters
string.upper	Converts the string to uppercase
string.lower	Converts the string to lowercase
string.left(n)	Gets the left-most n characters of the string
string.right(n)	Gets the right-most n characters of the string
string.substring(a,b)	Gets b characters of the string starting at position a
ASC(char)	Returns the numerical ASCII value of char

Note : this is NOT the way things are done in any particular programming language. In particular Python does things differently

7. Basic File Handling Operations (OCR Reference Language)

myFile=open("…")	Open a file
myFile.close()	Close a file
myFile.readLine()	Read a line from a file
myFile.writeLine()	Write a line to a file
myFile=("…")	Create a new file
string.substring(a,b)	Gets b characters of the string starting at position a
A Workflow	myFile = open ("sample.txt") while NOT myFile.endOfFile() print (myFile.readLine()) endwhile myFile.write("Hello") myFile.close()

Note : this is NOT the way things are done in any particular programming language. In particular Python does things differently

Knowledge Organiser 12 : Programming Fundamentals 2

1. Storing Data in Records

In Text Files	• Stored on the secondary storage (hard disk/SSD/flash). • Used to store data when the application is closed. • Useful for small volumes of data. E.g. configuration files. • Each entry is stored on a new line or separated with an identifier such as a comma or tab. • Can require a linear search to find/read data which is slow (if there is no order to the data or record structure). • Structured text files E.g. CSV, XML & JSON are popular for storing and exchanging data between applications
In Arrays and Lists	• Stored in RAM. • Used to store data when a program is running. • Useful for small volumes of data an algorithm is using. • Can be single or multi-dimensional allowing for tables of data to be stored. • Uses indexes to refer to data items. • Efficient algorithms or linear searches can be used to find data
In Databases	• Often stored on remote servers. • Often used to store data shared by many users, e.g. ticket booking system. • Data is stored in records and fields. • Uses advanced data structures to store data efficiently. • Uses very efficient algorithms to search and sort data executed on the servers. • More secure than text files. • The order of the fields in the database in independent of the code
Record Structure	• A collection of related fields. • A field is a variable. • Each field in a record can have a different data type. • Note the dot syntax when using records: record<dot>Field e.g. car1.Make

2. SQL

SELECT	which fields to be returned. * can be used to indicate all fields
FROM	which table. Databases can have more than one table, each with their own unique name
WHERE	records meet a condition. LIKE and % can be used as a wildcard
Example	SELECT name, age, iq FROM person WHERE name LIKE 'FIS%'

3. Arrays

Definition	An array is a series of memory locations – or 'boxes' – each of which holds a single item of data, but with each box sharing the same name. All data in an array must be of the same data type
Use	• Indexes usually start at 0 for the first data item (known zero indexed). • Arrays may be single or multiple dimensions. • Visualise dimensions as a column (single dimension) or table (two dimension) • In Memory two dimensional arrays are still stored in a linear fashion

4. Sub programs

Why Use them	• Larger programs are developed as a set of sub-programs called subroutines. • Structuring code into sub-programs makes the code easier to read and debug. • Each sub-program can easily be tested. • Sub-programs can be saved into libraries and reused in other programs
Functions	Functions return values and create reusable program components.
Procedures	Procedures create a modular structure to a program making it easier to read. They do not return values

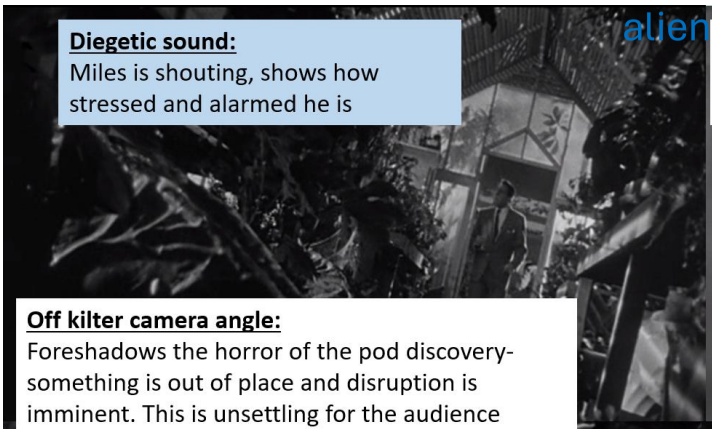
5. Random Numbers

Deterministic	Programs that run on computer systems are deterministic – with exactly the same inputs they should produce exactly the same outputs.
Real World	Randomness is easy to produce in the real world – spinning a wheel, rolling a dice and so on are millennia-old techniques but producing the same randomness in a computer program is actually rather tricky
Computer	• Computers do not produce random numbers at all • They use complex mathematical techniques to produce a series of numbers that may appear random but are really only an approximation to randomness (called pseudo-random numbers) • We refer to them as random numbers anyway
OCR Reference Language	myVariable = random (1,6) will produce a random number between 1 and 6

aper 1 Section A: US Comparative Study Sci-Fi

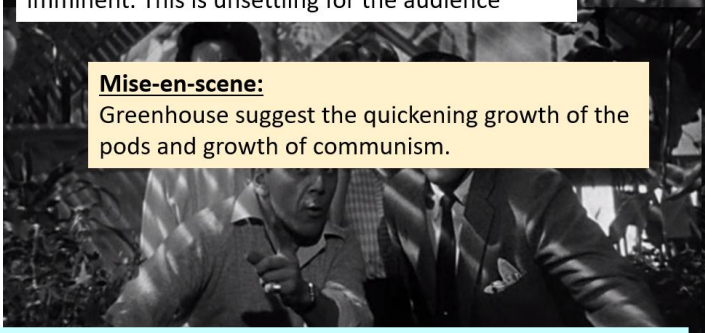
Invasion of the Body Snatcher and E.T.

1). How aliens are presented AND Emotions of humans when they see the alien

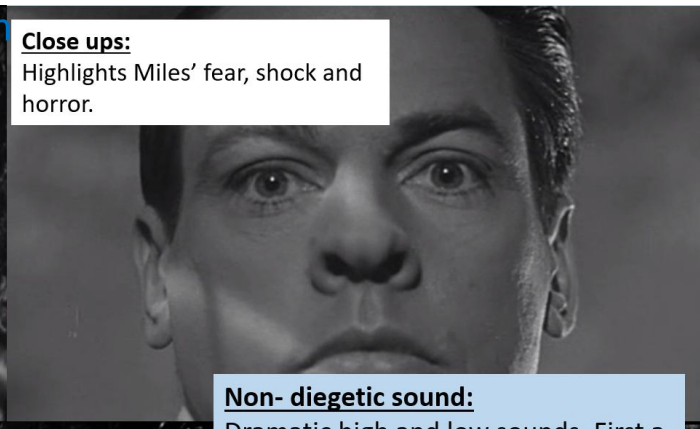


Diegetic sound:
Miles is shouting, shows how stressed and alarmed he is

Off kilter camera angle:
Foreshadows the horror of the pod discovery- something is out of place and disruption is imminent. This is unsettling for the audience

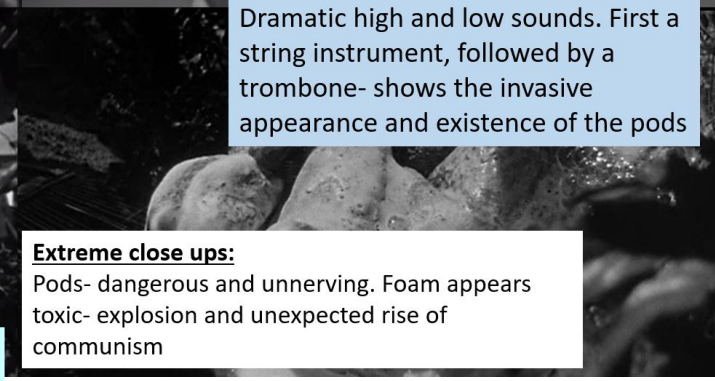


Mise-en-scene:
Greenhouse suggest the quickening growth of the pods and growth of communism.



Close ups:
Highlights Miles' fear, shock and horror.

Non- diegetic sound:
Dramatic high and low sounds. First a string instrument, followed by a trombone- shows the invasive appearance and existence of the pods



Extreme close ups:
Pods- dangerous and unnerving. Foam appears toxic- explosion and unexpected rise of communism

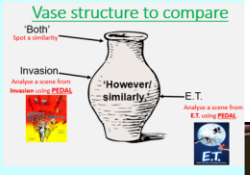
Comparison of alien presentation and human emotions in *Invasion* and *E.T.*

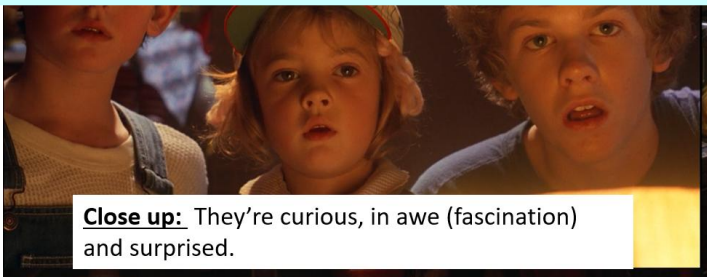
Using the knowledge our analysis of both films, how are the following presented differently in each film.

- Both films present **aliens** in different ways:
In ***Invasion***, they are presented as... **Dangerous (takes life away)**
However,
In ***E.T.,*** the alien is presented as... **Helpless/ victims (give life)**

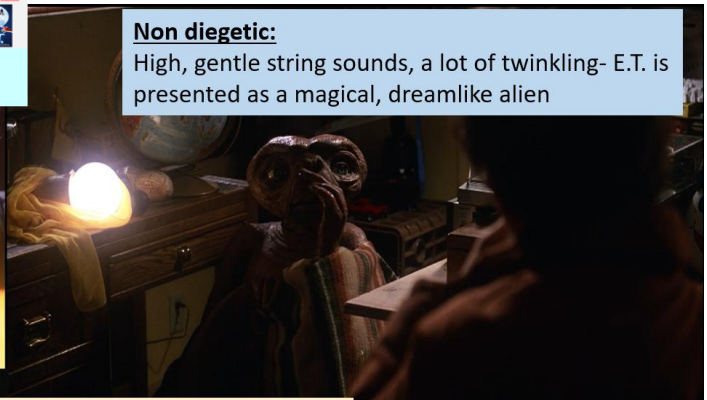
- Both film present **human emotions** towards aliens in different ways:
In ***Invasion,*** humans are... **Fearful**
However,
In ***E.T.,*** humans are... **Curious**

Vase structure to compare





Close up: They're curious, in awe (fascination) and surprised.



Non diegetic:
High, gentle string sounds, a lot of twinkling- E.T. is presented as a magical, dreamlike alien

Mise-en-scene:
Elliot's bedroom/ close- protective, highlights the innocence of E.T

Mid shot:
E.T appears less threatening, helpless, vulnerable, hesitant and scared. Distrust of context, E.T trying to work out if he can trust them.

Aliens as 'the other'

* different, unusual

How are the aliens presented as *'the other' in ***Invasion of the Body Snatcher?***

Focus your analysis on the ***effect of the aliens*** in the following scene.

- Invading
- Taking over the city and peoples lives
- Giving out seed pods according to the family needs which is communism
- Dangerous- want to cause death

Analysis:

-**Body language-** all the same, uniform

Diegetic sound- Giving out orders

Diegetic sound- Alarms and sirens- danger that awaits them

Establishing shot- their invasion is spreading. It's affecting a large group of people

Aliens as 'the other'

* different, unusual

How are the aliens presented as *'the other' in ***E.T.?***

Focus your analysis on the ***effect of the aliens*** in the following scene.

Effect of the alien:

- curious
- comic relief

Analysis:

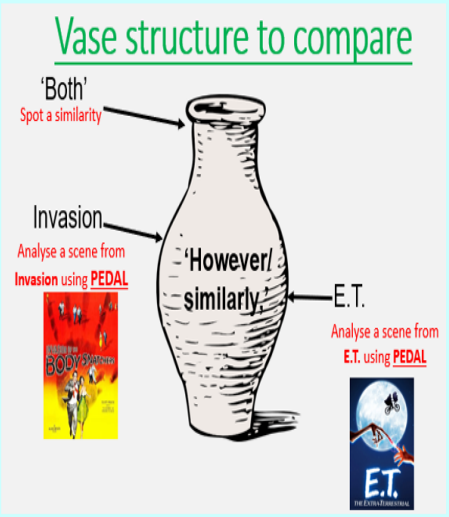
Props and costume: Dressed like an old woman, want him to look human

Body language: Drinking beer- curious about how he will be affected by it. Behaves like a human

Dialogue: Shocked and asks him to continue speaking in English.

Comparison of themes in *Invasion* and *E.T.*

Using the knowledge and analysis of both films, how are the following presented differently in each film.



- Both films present **fear of the unknown** in different ways:

In ***Invasion***, this is presented when... Miles and Becky are hiding **PEDAL**

However,

In ***E.T.,*** fear of the unknown when... Elliott hides E.T. **PEDAL**

- Both film present **aliens as 'the other':**

In ***Invasion,*** the pod-people are... invading, taking over human lives, dangerous, want to cause death, VILLAIN **PEDAL**

However,

In ***E.T.,*** the aliens is... Curious, comic relief, victim **PEDAL**

Fear of the unknown

When in the films is theme presented?

Think about the 'closet' scenes in both films. Why are these characters in there for? **What do they fear?**

- **Camera shot and body language :**

Low angle. Makes the pod people appear as though they are overtaking everything, are superior. Miles and Becki are crippled to the floor by the fear of the pods

- **Diegetic Sound:**

Whispers highlight the fear they have.

Top lighting:

Represents the pods as things to be feared.

- **Camera shot and body language :**

Mid shot- ET appears less threatening to the children. Low angle shot of children makes them appear more fearful to ET, than he does to them. Heart shape of face- ET has captured the hearts of the children, community, he's a healer, gives life.

- **NON- Diegetic Sound:**

twinkling, magical- fantasy like, make ET appear inviting, no fearful

Colour/ lighting:

Soft/ subtle lighting, ET appears warm and inviting

Ending

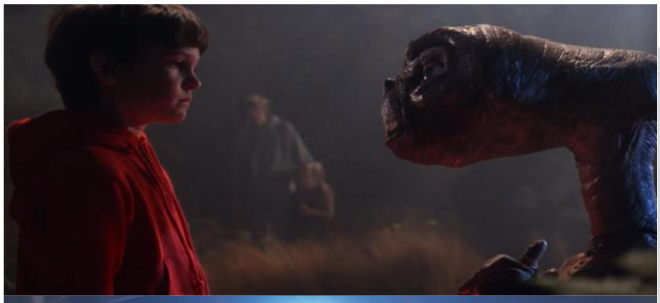
Camera shot-
Establishing shot of Miles in middle of the road, with cars driving past. Represents how the idea of communism is here and people are ignoring the dangers it could bring. Highlight how he is alone in the situation-small minority of people either agree/ disagree with communism.

No reinstatement of equilibrium because communism was still a threat.

Analysis:
-Body language- ...
Miles is running away from the pod people, the reinstatement of equilibrium is out of reach. Frantic movement mimics how the situation is the same and will not be resolved. Running away from communism (the pod people).

Diegetic sound
Miles is shouting "you fools, we're in danger". Society was chaotic at the time and their view of communism was extreme. Sounds of horns beeping and tyres screeching represents the disruption, warning and danger of communism.

Non- Diegetic sound;
Violin sounds vary in pitch (high and low), dramatic in nature, could represent the chaos society was in at the time and cries of people



Camera shot-
Low angle shot of E.T. he was empowering Elliot and his family.

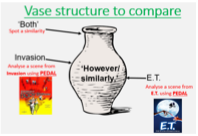
Lightening- Most of the lighting is prominently high key lighting. Back lighting. Shows how ET has the one that provided the comfort and love of a fatherly figure which was lacking during the time the film was made.
Non- Diegetic sound of xylophone, trumpet, string, trombone, high emptions, triumphant reinstatement of equilibrium.

Analysis:
Camera shot-
Establishing shot of Spaceship- E.T. bought hope and joy to Elliot's household (dad not there) and now to himself because he's going home.

Film Studies

Comparison of the ending in *Invasion* and *E.T.*

Using the knowledge and analysis of both films, how are the following presented differently in each film.



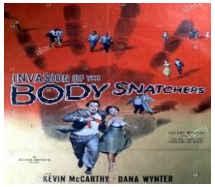
- Both films present the **ending** in different ways:

In ***Invasion***, this is presented when... Miles makes a shocking discovery

However,

In ***E.T.,*** the ending shows the reinstatement of equilibrium when...

Elliott says goodbye to E.T. near his spaceship



Invasion of the Body Snatcher- 1956

Context of the film:

The events before and after the making of the film.

- The **Cold War-** a long period of tension between the US and Russia;
- **Communism** is system of social organisation in which all property is owned by the community and each person contributes and receives according to their ability and needs;
- Communism was a **threat** to the US, as the US was recovering from the Great American Depression;
- The space Race between Russia and America;
- Americans believed in aliens after the Roswell incident in 1947;
- Fear of brainwashing in American society., as a result of the Korean/ Vietnam War
- The aliens 'pod people' represent American fears of Russian invasion

E.T- 1982

Context of the film:

America in the 1980s

- Lost trust in its government, its army and with each other.
- **President Nixon – Watergate Scandal- cash was stolen to help fund his re-election campaign.**
- If the President directly lied to the American people, you can see why the early 1980's was seen as a period of distrust in American society.
- The biggest difference between the 1950s and 1980s was thus an increase in lone parent families,
- There was a huge rise in the divorce rates
- The government were not trusted – Vietnam and a whole series of events in the 1970s meant that Americans did not trust authority

Key Word	Meaning
Clef	Musical symbols *(including Treble, Bass, Alto, Tenor/C-clefs)* placed at the left-hand side of a musical stave, indicating the pitch of the notes written on it to the performer.
Concert Pitch	Refers to the pitch reference to which a group of musical instruments are tuned for performance. An internationally agreed standard is for the tuning of musical instruments, in which the note A above middle C. has a frequency of 440 Hz.
Descriptive Music	Also called "Programme Music". Descriptive music suggests visual images or "telling a story". The descriptive idea or storyline is known as the "programme". The opposite of descriptive music is "absolute music" which is music that doesn't attempt to describe something particular and is more concerned with form and structure.
Elements of Music	Several different things which have often been called "the building bricks of music" and include: Pitch, Dynamics, Duration, Tempo, Texture, Timbre/Sonority, Attack and Decay and Silence. When a composer creates a piece of music, they use the elements of music to build it, just like a builder uses bricks.
Ensemble	A group of musicians who perform together.

BTEC Music Knowledge Organiser- BTEC

Describe some of the capabilities and limitations of your own instrument voice or technolody in terms of its range and characteristing timbre.

Describe how your own instrument, voice or technology is used in different genres.

Describe what types of ensemble your own instrument, voice or technology might be used in.

Describe how your own instrument, voice or technology's use is influenced by context and culture.

Describe some of the capabilities and limitations of your own instrument voice or technolody in terms of the techniques required to play it and any techniques specific to it.

Child Development: TA3 and TA4: Observations and Evaluations

LO3: Methods of observation

- Narrative
- Checklist
- Snapshot
- Time sample
- Participative
- Non-participative

LO3:Methods of recording

- Chart
- Written
- Child's work
- Photographs

Consideration for the best method to use, justifying why.

LO4: Plan play activities for a chosen area of development:

- Chosen activity
- Reason for choice
- Aims
- Developmental area
- Timing
- Safety considerations
- Appropriate resources
- How the activity will be introduced to the child.

LO4: How to evaluate plans for play activities:

- Using feedback from others
- Using self-reflection
- Were the aims met?
- Successes, strengths and weaknesses
- Changes or recommendations to improve activity and planning.

Reason for choice: relevance to developmental area chosen/benefits to the child.

Safety considerations include is the area safe – inside/ outside (traffic, gates), is there appropriate supervision available, are the resources child friendly, no sharp items, clean materials, clean working area.

Useful sentence starters:

I would recommend …
The impact is...
This has affected …
As explained by …
This is important because...
In reflection...
Overall...
I think that …
Their needs would be met by...
This is suitable because...
The benefit is...
The advantages is...
The disadvantage is...

Useful connectives:

On the other hand
Whereas
Subsequently
Also
Alternatively
However
In comparison
More importantly
Additionally

Unit R093: 1.1 Media industry sectors and products

Key Terminology	
Media	Forms of communication or products that communicate a message to an audience.
Traditional Media	Any form of mass communication available before the advent of digital media.
New Media	Any form of mass communication only ever produced using digital methods.
Pre-Production	The process of planning elements involved in a form of media.
Post-Production	The stage after production when editing of visual and audio materials begins.
CGI	Computer Generated Imagery – Special visual effects added to a product using computer software
Distribution	The action of sharing a product with others.

Evolution over time	
Late 1600s	Local newspapers were first printed
Early 1700s	First magazines produced
Late 1800s	First black and white silent film
1920s	First public demonstration of radio and TV

Scales of media	
Small Scale	Local and national companies that often focus on one type of media product with a small number of staff who perform multiple roles. EG: Coffee Films, Ustwo Games, American Chordata magazine, the Film music production house.
Large Scale	Multinational and global companies that produce many different types of media products. EG: Channel 4, Facebook, EA Games, News Corp, Warner Bros.

Media Industry Sectors		
Type	**Media**	**Description**
Traditional Media	**Television (TV)**	Planning, production, distribution, and broadcasting of programmes on TV.
	Radio	Planning, production and distribution of audio and music programmes to be broadcast on different platforms.
	Film	Planning, production, and distribution of recorded video material for feature films including animation.
	Print Publishing	Planning, production, printing and distribution of printed documents including books, comics, graphic novels, magazines and newspapers.
New Media	**Internet**	Planning, production and use of websites and social media platforms/apps to provide a wide variety of products and services.
	Computer Games	Planning, design, development and distribution of games to be played on a variety of digital platforms.
	Interactive Media	Planning and production of a digital system which combines different types of media to create an interactive visual product.
	Digital Publishing	Planning, production, distribution of eBooks and digital magazines, journals, newspapers and promotional material.

Production phases	
1. Pre-production	- Products are researched - Ideas and concepts are developed, planned, and designed (concept design)
2. Production	- Product parts are created from designs by producers or creatives (workers within organisations)
3. Post-Production	- All parts are brought together - Parts are edited to form a final product
4. Distribution	- Products are sent out in different ways for audiences to access on a range of platforms.

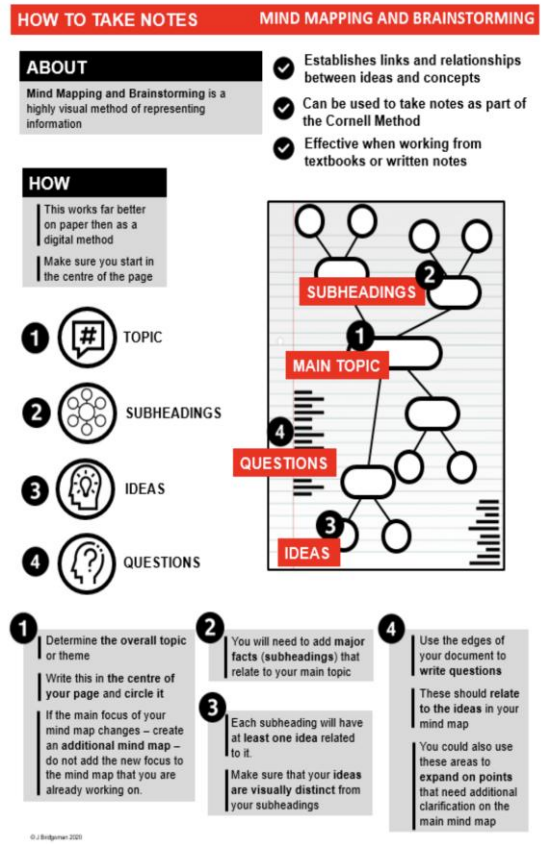
Media industry sectors and products

Media Industry Products

Product	Description	Traditional Media	New Media	Examples
Video	Recording, editing d production of moving visual images.	Film, TV	Games, interactive media, internet	Film, TV Programme, advert, trailer.
Audio	Recoding, editing and production of vocal and or other sounds or noises.	Film, TV, radio	Internet, games, interactive media, eBooks.	Radio, podcast, advert, audiobook.
Music	Recording, arrangement and production of vocal and/or instrumental sounds.	Film, TV, radio	Internet, games, interactive media	Jingle, soundtrack, music video, TV intro/outro
Animation	Digital photographing or computer generation of drawings or models to create the illusion of movement.	Film, TV	Internet, games, interactive media	Advert, film, TV programme, phone app
Special Effects (SFX)	An illusion created by props, camerawork, or lighting.	Film, TV	Games	Models, pyrotechnics, green screen, text overlays
Visual Effects (VFX)	Computer-generated imagery to enhance a video recording.			
Digital imaging & graphics	Creation of pictures or designs using digital software, a digital camera or scanner.	Film, TV, print	Internet, games, digital publishing	Book covers, billboards, logos, album artwork
Social media	Digital-based programmes that encourage connections and communication between their users, using the internet and digital devices.	Film, TV, radio	Internet, games, interactive media	Facebook, Instagram, TikTok, Twitter
Digital games	Games that are played using digital technology.		Internet, games, interactive media	For web, mobile and tablet, PC, console
Comics and graphic novel	Stories that are told using pictures in panels, along with text and speech bubbles.	Print	Digital publishing, internet	Manga comics, superhero graphics, comics
Websites	Collections of webpages containing text, images and interactive elements.	Film, TV, radio, print	Digital publishing, internet, computer games	Informational, blogs, e-commerce, promotional
Multimedia	Combines different types of media into one form of communication.	Film	Computer games, internet, interactive media	Information kiosks, presentations, DVD extras
eBooks	Digital versions of printed books that can be read on a device such as a tablet.		Internet, digital publishing, games, interactive media	Fiction, instruction booklets, guides
Augmented Reality (AR)	When computer-generated images on screen are combined with a real-world environment	Film	Games, interactive media	Video games, YouTube videos, Google Search, immersive education, simulation.
Virtual Reality (VR)	Computer Generated sounds and images that are not part of the users real-world environment			

Mindmap

Mind maps are a great way to revise key information. Have a read through the information on your ***OPTION SUBJECT*** and then use the information below to help you create mind maps.



Fancy some additional Class Charts points? Impress your teachers with any of these BHAmazing pieces of vocabulary, and they will award you extra CC points. Challenge: Can you use them in any sentences and show a member of the Senior Leadership Team?

Word List 1	Word List 2	Word List 3	Word List 4	Word List 5	Word List 6	Word List 7
Myriad (adjective) – many	**Caustic** (adjective) – mean / harsh	**Tension** (noun) – feeling of anxiety or nervousness	**Omniscient** (adjective) – all-knowing	**Sentimental** (adjective) – emotional	**Oppressed** (adjective) – subjected to cruel mistreatment	**Metamorphosis** (noun) – a change / transformation
Assert (verb) – state a fact confidently or forcefully	**Elucidate** (verb) – to make clear	**Oblivious** (adjective) – unaware	**Gullible** (adjective) – believes things easily	**Bawdy** (adjective) – rude or vulgar	**Subservient** (adjective) – obedient / submissive	**Abhorrent** (adjective) – repulsive
Egregious (adjective) - outstandingly bad	**Esoteric** (adjective) – likely to only be understood by a small number or people / obscure	**Naïve** (adjective) – Inexperienced / unaware	**Supercilious** (adjective) – arrogant	**Hypermasculine** (adjective) – overly masculine	**Exploit** (verb) – to use someone for your own good	**Abhor** (verb) – to hate
Erroneous (adjective)- wrong	**Tenuous** (adjective) – weak or fragile	**Pretentious** (adjective) – arrogant	**Tyrannical** (adjective) – a cruel dictator	**Atavistic** (adjective) – has characteristics of an earlier generation	**Epiphany** (noun) – a sudden realization	**Fate** (adjective) – destiny
Engender (verb) – to cause	**Perfunctory** (adjective) – carried out with minimal effort	**Pompous** (adjective) – arrogant	**Brazen** (adjective) – bold, shameless	**Troglodytic** (adjective) – like a caveman	**Façade** (noun) – a front (to 'wear a façade' means you wear a metaphorical mask, covering your true emotions or character)	**Integral** (adjective) – important
Employ (verb) – to make use of	**Moral** (noun) – a lesson	**Privileged** (adjective) – having an advantage over other, usually wealth	**Elusive** (adjective) – mysterious	**Apathetic** (adjective) – indifferent / lazy		**Demise** (noun) – a person's downfall or death
Salient (adjective) – most noticeable and important	**Autonomy** (noun) – independence	**Compassionate** (adjective) – sympathetic	**Chauvinistic** (adjective) – has an attitude of superiority to opposite sex	**Segregated** (adjective) - separated		**Ridicule** (verb) – to make fun of
Advantageous (adjective) – providing an advantage / beneficial	**Assertive** (adjective) – confidence	**Vindictive** (adjective) – spiteful, cruel	**Materialistic** (adjective) – cares for objects and commodities	**Misogynistic** (adjective) – hateful towards women	**Microcosm** (noun) – a smaller community which represents a larger one	**Deride** (verb) – to mock
Galvanize (verb) – to shock or excite someone into action	**Conceited** (adjective) – excessively proud / vain	**Duplicitous** (adjective) – having two sides	**Prophetic** (adjective) – able to accurately predict	**Choleric** (adjective) – quick-tempered, angry	**Aloof** (adjective) – stand-offish	**Contempt** (noun) – hate
Substantiate (verb) – to provide evidence	**Superior** (adjective) – better than	**Narcissistic** (adjective) – self-obsessed	**Impulsive** (adjective) – rash / careless	**Secular** (adjective) – not religious	**Degenerate** (adjective) – disgusting	**Hysterical** (adjective) – uncontrolled emotion
					Depraved (adjective) – immoral / evil	
					Feral (adjective) – wild	

My BHAmazing vocabulary, written in sentences:

1.

2.

3.

4.

5.

6.

7.