ASH MANOR SCHOOL
Aspire & Achieve

Year 11 Spring Term
Knowledge organiser

Name:

Tutor group:

Tutor:

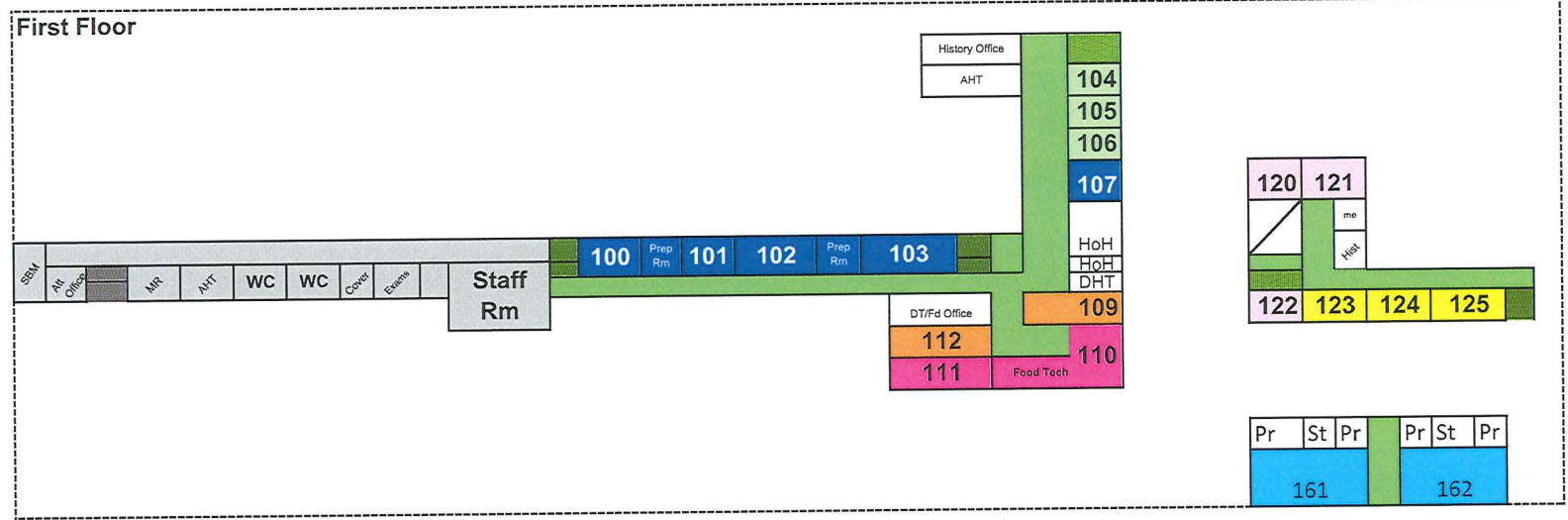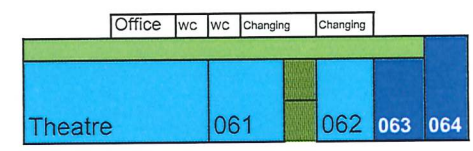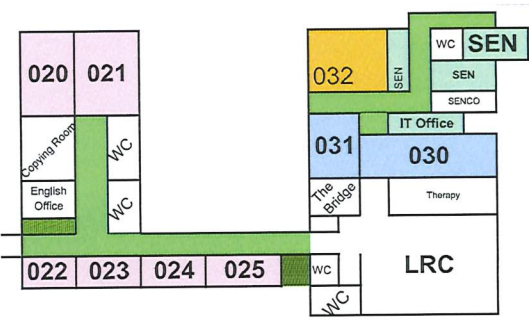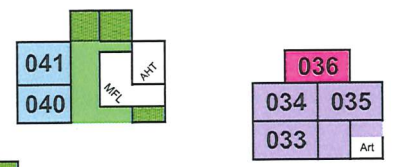Tutor room:

Key School information

Times of the school day	
8.00am – 8.30am	Breakfast in canteen
8.35am	Pre-lesson 1 bell
8.40am-9.30am	Lesson 1
9.30am-10.20am	Lesson 2
10.20am-10.40am	Morning break
10.40am-11.30am	Lesson 3
11.30am-12.20pm	Lesson 4
12.20pm-1.00pm	Lunch
1.00pm-1.20pm	Tutor time / Assembly
1.20pm-2.10pm	Lesson 5
2.10pm-3.00pm	Lesson 6
3.00pm-4.00pm	Extended learning and extra-curricular clubs

Term dates	
Autumn term	**Y7**: 04/09/23 to 15/12/23
	Y8-11: 05/09/23 to 15/12/23
Half term	23/10/23 to 27/10/23
Spring term	03/01/24 to 28/03/24
Half term	12/02/24 to 16/02/24
Summer term	15/04/24 to 19/07/24
Half term	27/05/24 to 31/05/24

Important IT details	
Username	
Password reminder	

ART/DT Block

O77 O76
O74 O75
Store | Dark Room
Office | Disabled Toilet
Plant Room | Toilets
O72 ICT
O73 DT
O78 DT

141 142
140
RE/PSE Office | WC | 050 | 051

041 AHT
040 MFL

036
034 035
033 Art

Fitness Suite

Sports Hall

GYM

CR
CR
PE | CR | CR

The Canteen

Main Hall

Copier Rooms

Conf Rm | MR | Headteacher | Main Office | Reception
H PA | Finance / HR | exhms
MR
MR | WC | 002 | Science Prep Room | 003 | WC
Student Reception | 012 | 009
011 | Maths Office | 010
IT

Main Entrance

Site Office
CCF
004
005
006
007
008

020 | 021
Copying Room | WC
English Office | WC
022 | 023 | 024 | 025 | WC

032 | SEN | WC | SEN
SEN
SENCO
IT Office
031 | 030
The Bridge | Therapy
LRC
WC

Office | WC | WC | Changing | Changing
Theatre | 061 | 062 | 063 | 064

First Floor

History Office
AHT
104
105
106
107
HoH
HoH
DHT
DT/Fd Office | 109
112
111 | 110 Food Tech

SBM | Art Office | MR | AHT | WC | WC | Cover | Exams | Staff Rm
100 | Prep Rm | 101 | 102 | Prep Rm | 103

120 | 121
me
Hist
122 | 123 | 124 | 125

Pr | St | Pr | Pr | St | Pr
161 | 162

Science
Maths
English
Art
Computing Studies
MFL
History / Classics
Geography
Performing Arts
PE
SEND
RE
DT/Food
Business studies
non student areas

3

shared\office\school site map

How to use Knowledge Organisers – a step by step guide

Knowledge organisers contain critical knowledge you must know. This will help you recap, revisit and revise what you have learnt in lessons in order to remember this knowledge for the long term. You must have this for every lesson – it is part of your equipment.

1 — LOOK, COVER, WRITE, CHECK

LOOK AND STUDY A SPECIFIC AREA OF YOUR KNOWLEDGE ORGANISER

COVER OR FLIP THE KNOWLEDGE ORGANISER OVER AND WRITE DOWN EVERYTHING YOU REMEMBER

CHECK WHAT YOU HAVE WRITTEN DOWN. CORRECT ANY MISTAKES IN GREEN PEN AND ADD ANYTHING YOU MISSED. REPEAT

2 — DEFINITIONS TO KEY WORDS

WRITE DOWN THE KEY WORDS AND DEFINITIONS

USE YOUR KNOWLEDGE ORGANISERS AFTERWARDS TO HELP YOU

USE YOUR GREEN PEN TO CHECK YOUR WORK

3 — FLASH CARDS

USE YOUR KNOWLEDGE ORGANISER TO CONDENSE AND WRITE DOWN KEY FACTS AND OR INFORMATION ON YOUR FLASH CARDS

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

USE A PARENT/CARER OR FRIEND TO HELP QUIZ YOU ON THE KNOWLEDGE

KNOWLEDGE ORGANISERS ARE ALSO AVAILABLE ON THE SCHOOL'S WEBSITE:
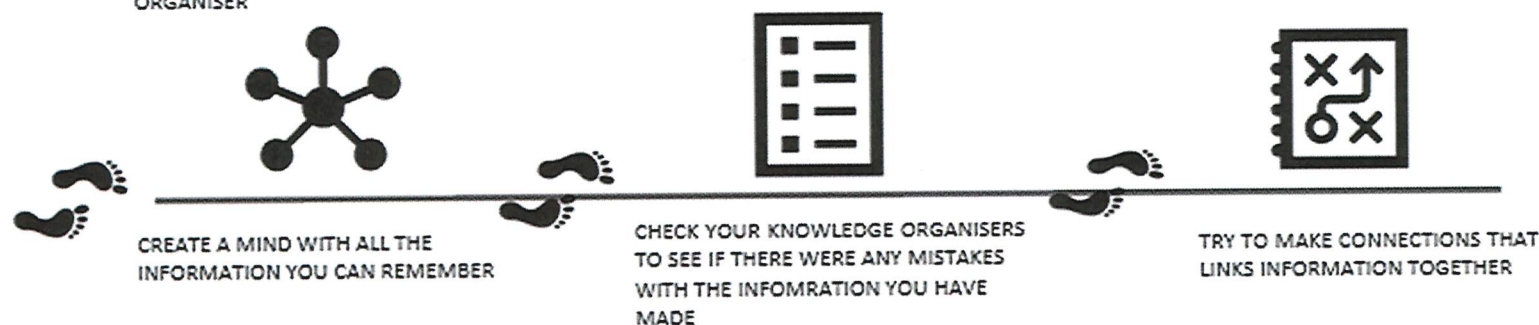https://www.ashmanorschool.com/
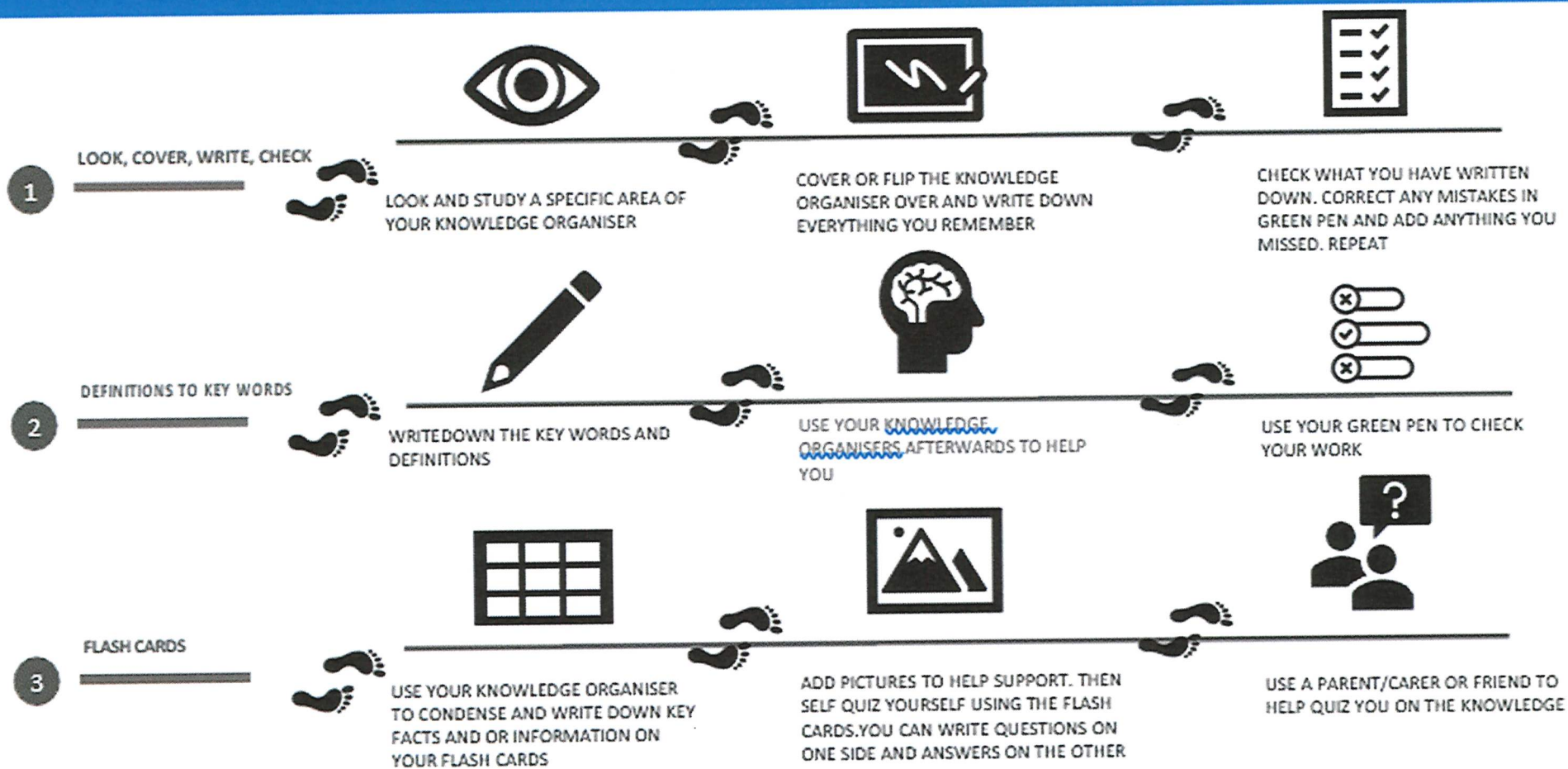
How to use Knowledge Organisers – a step by step guide

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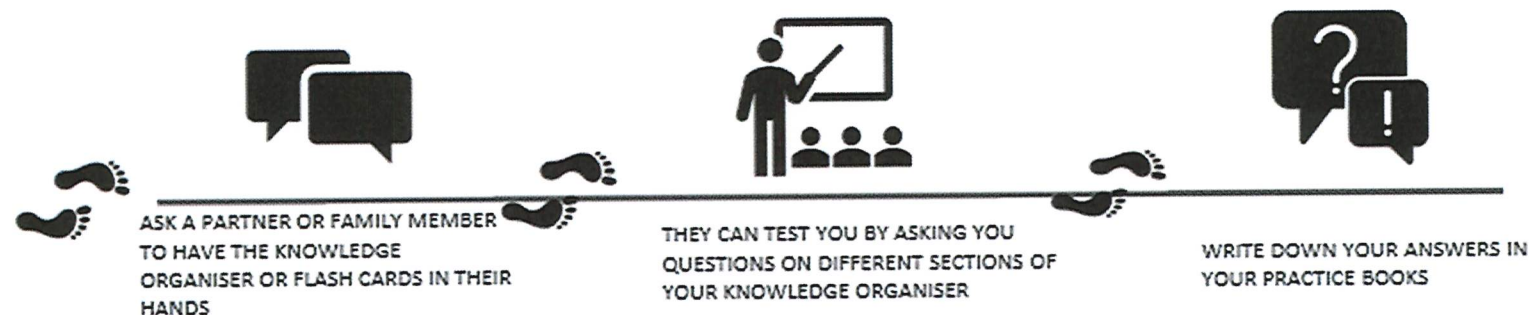
4 SELF QUIZZING

USE YOUR KNOWLEDGE ORGANISERS TO CREATE A MINI QUIZ. WRITE DOWN QUESTIONS USING YOUR KNOWLEDGE ORGANISER

ANSWER THE QUESTIONS

YOU CAN ALSO USE FAMILY TO HELP QUIZ YOU. KEEP SELF QUIZZING UNTIL YOU GET ALL QUESTIONS CORRECT

5 MIND MAPS

CREATE A MIND WITH ALL THE INFORMATION YOU CAN REMEMBER

CHECK YOUR KNOWLEDGE ORGANISERS TO SEE IF THERE WERE ANY MISTAKES WITH THE INFOMRATION YOU HAVE MADE

TRY TO MAKE CONNECTIONS THAT LINKS INFORMATION TOGETHER

6 PAIRED RETRIEVAL

ASK A PARTNER OR FAMILY MEMBER TO HAVE THE KNOWLEDGE ORGANISER OR FLASH CARDS IN THEIR HANDS

THEY CAN TEST YOU BY ASKING YOU QUESTIONS ON DIFFERENT SECTIONS OF YOUR KNOWLEDGE ORGANISER

WRITE DOWN YOUR ANSWERS IN YOUR PRACTICE BOOKS

KNOWLEDGE ORGANISERS ARE ALSO AVAILABLE ON THE SCHOOL'S WEBSITE:
https://www.ashmanorschool.com/

Periclean Athens

PELOPONNESIAN WAR
Alliances at the Start and Contrasting Strategies, 431 B.C.

Athenian Strategy:
Defend on Land
Offensive on Sea
Continue Foreign Trade

Spartan Strategy:
Offensive on Land

Athenian Empire and Allies
Spartan Confederacy

SCALE OF MILES
0   25   50   75   100

431 – Beginning of the Peloponnesian War.

430 – Longest Spartan invasion of Athens (lasting 40 days).

Outbreak of the plague.

Pericles was not voted in as a general.

429 – Death of Pericles during the plague of Athens.

404 – Athens loses the Peloponnesian War.

The Helot Revolt

The Spartan slaves (helots) rebelled, and the Athenians offered to help. However, Sparta refused.

Poleis asking Sparta for help

- Corinth was alarmed by Athens' alliance with Corcyra, as well as their treatment of Potidaea.
- Aegina had much of their freedom removed from Athens.

The Megarian Decree

After they tried to leave the Delian League, Athens passed a law banning Megara from the ports of Athens, damaging their economy. Sparta told Athens to stop, and when they didn't Sparta declared war.

What caused the Peloponnesian War?

Aspasia

The lover of Pericles. The comedic playwright Aristophanes claimed that she told Athens to pass the Megarian Decree, when some people from Megara stole prostitutes from her brothel.

Breaking the 30 year Peace

This had been an agreement between Sparta and Athens not to get involved in each others' alliance. Sparta believed the treatment of Samos, Corinth, Aegina, and Megara broke this agreement.

Athenian Imperialism

During the Persian Wars, Athens had become increasingly powerful due to their military victories over Persia. In 477, they set up the Delian League to defend against further Persian invasions. All members were forced to contribute soldiers or money. Athens turned the Delian league into their unofficial Empire.

The Long Walls

5-mile long defensive walls which joined Athens to Piraeus (the harbour of Athens) and allowed people to travel safely within them. This showed long-term strategic thinking and that Athens was preparing for war. It meant the Athenians could not be cut off from their trade routes or navy by a siege. Pericles ordered the walls to be extended in 440 with a 'middle wall'.

6
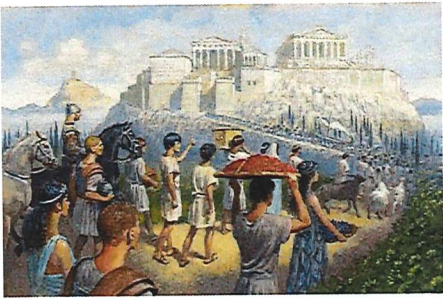
The Panathenia Festival

A grand civic Athenian festival held every year in honour of the city's patron goddess Athena.

It involved a procession of all Athenian citizens to the Acropolis where a large sacrifice would be held, and a robe (which had be specially woven by girls named arrephoroi) would be presented to the statue of Athena Polias.

There would also be musical, tribal, and sporting competitions, with the prize being amphorae filled with olive oil.

The City Dionysia Festival

A major Athenian festival to worship the god Dionysus.

The centrepiece of the festival were two drama competitions, including tragedies (e.g. Medea), parodies (satyrs), and comedies. The winners would be chosen from 10 judges who were selected by lot.

The parade of tribute was held on day 2 of the festival and involved a display of the money taken that year as tribute to the Delian League.
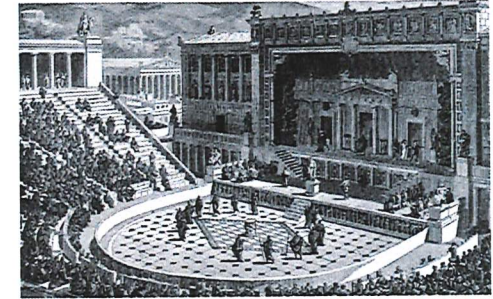
Childhood

The birth of a daughter was probably a disappointment for many Athenian men. Very little is known about the childhood of girls. She would not go to school but stay at home and be taught skills expected of women such as spinning, weaving, cookery, and managing the finances of the house.
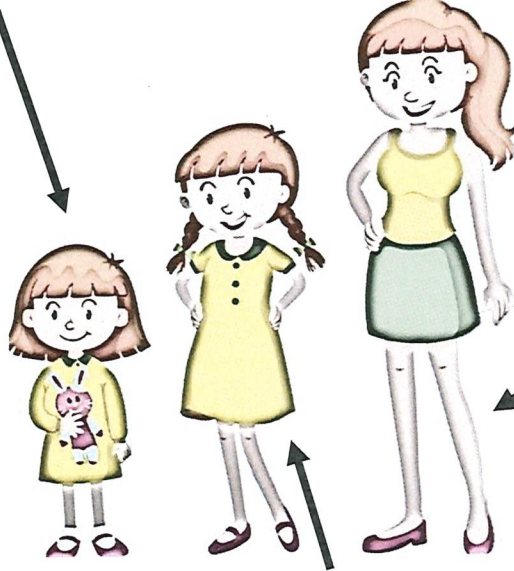
Wives

The ideal Athenian wife would rarely leave the home or have opinions of her own. She knew how to spin and weave wool. From Xenophon, it is clear that the husband was expected to engage in the matters of the city and war, while the woman would look after the home.

Marriage

Arranged to take place as soon as she reached puberty (around 14). The arrangement would be made between the father of the bride and the head of the groom's family (normally the groom, who would be around twice her age). A marriage would be a social and financial agreement, and some couples would not meet until their wedding day. The father of the bride would pay a dowry to his new son-in-law.

Source	Description
Aristotle	Aristotle (writing: 330s-320s) was a famous thinker, writer and researcher from northern Greece who lived for a long time in Athens.
Thucydides	Thucydides (writing c.400) was an Athenian who lived between c.460 and c.400. He lived in Athens during the Age of Pericles.
Plutarch	Plutarch (writing c. AD 100) was a Roman who wrote the only surviving biography as part of his 'Parallel Lives' project. He compared Pericles to Fabius Maximus.
Plato	Plato (writing in the early 4th century) was an Athenian philosopher who lived c. 429 – 347.
Aristophanes	Aristophanes was an Athenian comic playwright, who lived and wrote in the 5th century BC.
Quintilian	Quintilian was a Roman educationalist writing c. AD 35- c.95 about rhetoric.
Pausanias	Pausanias (writing: AD 175) was a Greek geographer, writing for a Roman audience, who described the monuments of Greece as they stood in his own day.
Pliny	Pliny was a Roman who lived in the 1st century AD. He was a Roman admiral and natural historian who recorded details of the great sculptors of Ancient Greece.
Inscriptiones Graecae	An inscription (c.440) setting out the terms for Brea, a new Athenian colony in Thrace, and indicating the importance of continued ties with Athens.
Xenophon	Xenophon was an Athenian who was writing a philosophical dialogue (a fictional conversation) in the early 4th century.
Euripides	Euripides was a tragic playwright whose play, Medea was first performed in 431 at the City Dionysia to an audience of men.
Sophocles	Sophocles, an Athenian tragic playwright wrote Tereus at some point before 414.

ART

IDEA 7:

FINAL PIECE

PREP PIECES:

FINAL PIECE PLANNING:

Words to help you critique artwork:

Tone:	Line:	Colour:
subtle	delicate	bold
contrasting	simple	vibrant
muted	bold	vivid
flat	thick	cool
light	thin	warm
dark	fine	subtle
dramatic	vertical	pale
depth	horizontal	Earthy
shadowy	flowing	Natural
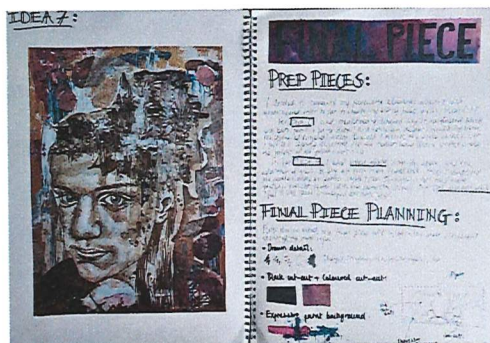
AQA GCSE Assessment objectives – you will be marked on each for your coursework			
AO1 (24)	AO2 (24)	AO3 (24)	AO4 (24)
Develop your ideas through investigating artists, designers and other appropriate sources. Demonstrate critical understanding of sources.	Refine your work by exploring ideas, selecting and experimenting with appropriate media, materials, techniques and processes.	Record your ideas, observations and insights that are relevant to your project intentions as work progresses. Annotate work and include drawings within your sketchbook.	Present a personal and meaningful response that realises your project intentions and demonstrates understanding of visual language.

Statement of Intent

- What are you planning to do for your final piece?
- Why are you planning to do this? – where has the idea come from/what are your influences?
- What techniques are you going to use? Why?
- What scale/size will you work?
- Does your sketchbook reflect the idea and link to all of your experiments etc.?

Media Experiment Annotation Checklist

What media have you used?
How have you used the technique? (describe the method)
What/who inspired you?
What else did you try?
Why was it successful/why?
Is there anything you would change/need to do now?

Final piece planning

I have done the following:
- ✓ Sketched what my final piece will look like.
- ✓ Experimented with the techniques
- ✓ Added labels to explain different techniques.
- ✓ Thought about the colour palette you will use where appropriate.
- ✓ Annotated with a statement of intent to show where my idea has come from.

Ian Murphy
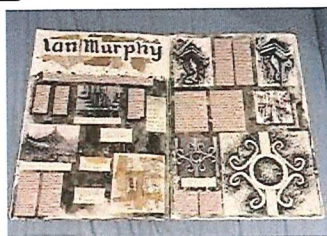
Sketchbook Presentation

I have done the following:
- ✓ Used appropriate colours in the background, title and writing.
- ✓ Used appropriate font for the title.
- ✓ Considered the layout of my page before sticking it down.
- ✓ Creatively laid out my work on the page – e.g. used flaps, layered work, used a window, mounted the work

COLLAGE
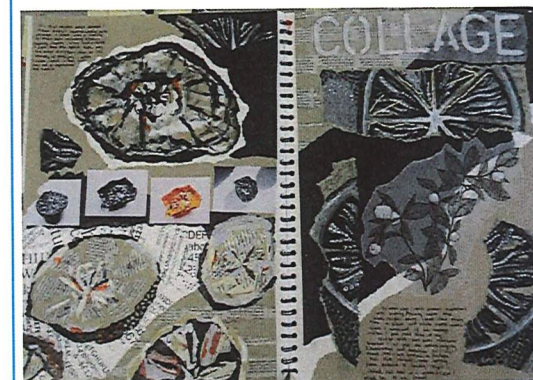
GCSE Business – Theme 1 / Paper 1 Building a business

Why new business ideas come about:

- **Changes in technology.** New technology can often improve products and make them more desirable.
- **Changes in consumer needs.** Fashions and tastes are always changing. This affects clothes, cars etc. but also peoples lifestyles, and trends such as healthy eating and fitness. Businesses must adapt to meet these trends.
- **Products becoming obsolete.** Products become outdated overtime and new products are introduced. For example, DVD rental became obsolete as a result of streaming services.

How do new ideas come about?

- **Original ideas -** Entrepreneurs need to be creative to come up with new completely new ideas. Many new ideas are not successful but successful ones can completely change the market. E.g. Ipads, Tesla cars, Dyson Vacuums
- **Adapting existing products -** Easier than a completely new idea (80% of new products fail!). This can involve small changes (think of all the different design fidget spinners) or new versions of an existing brand – Coke Zero Cherry, Dairy Milk Bubbly, Giant Crumpets, newest James Bond film.

Sources of finance

Short-term
- Trade credit (an agreement with suppliers to pay later)
- Overdraft

Long-term
- Bank loan (must be paid back to the bank with interest)
- Personal savings
- Share capital
- Venture capital
- Retained profit (profit the owner(s) decide to re-invest in the business)
- Crowd funding

Risks and rewards of starting a business

Rewards	Risks
* Business success	* Business failure
* Profit	* Financial loss
* Independence	* Lack of security

Types of business ownership

Sole trader - an individual owning the business on their own.
+ Sole trader keeps all the profit
+ Sole trader makes all of the decisions
- Sole trader has unlimited liability
- Making all the decisions can be stressful

Partnership - Started and owned by **more than one person**
Partnerships can have limited or unlimited liability.
+ Owners may have wider expertise and can share ideas and decision-making.
+ Owners share the risk
- Profits have to be shared
- Partners may disagree and decision-making can take longer as a result

Private limited company – a company is formed when a business is set up to have a separate legal identity from its owners. Owners are now known as shareholders. Private limited companies have Ltd. after their name.
+ Has limited liability
+ It is easier for a Ltd. company to get a loan than it is a sole trader
- More complex to set up than a sole trader and more expensive because of all the legal paperwork.
- Accounts have to be published every year

Franchising – a franchise is like buying a ready-made business in a box. An entrepreneur can set up their own business using the name, equipment and products of the franchise.
+ Brand image and reputation is already established.
+ May have an established customer base.
+ The franchisee benefits from national advertising campaigns.
- The franchisee will have to pay a fee or a percentage of sales revenue to the franchisor.
- The franchisee has little freedom to make decisions.

Market Segmentation

Market segmentation involves dividing a market into parts that reflect different customer needs and wants.
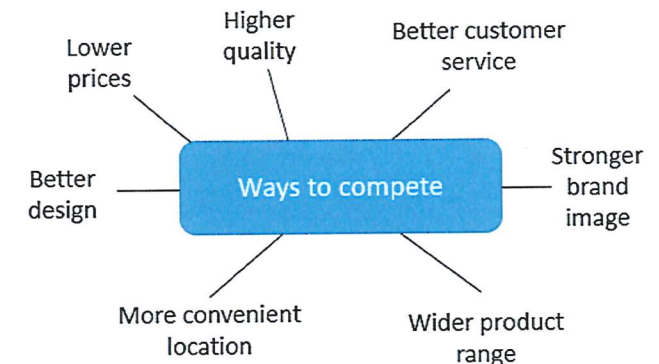
Market segments that businesses use to help them market effectively to their target customers include:
* location   * demographics
* behaviour   * lifestyle
* income   * age.
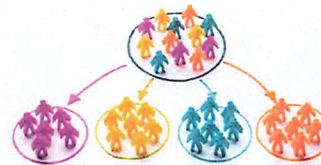
Competition

Competition affects how businesses make decisions. To stand out in a competitive environment, businesses need to make decisions that will persuade customers to buy from them, rather than their competitors. When making these decisions, the business might look at the strengths and weaknesses of its competitors.

Ways to compete:
- Lower prices
- Higher quality
- Better customer service
- Better design
- Stronger brand image
- More convenient location
- Wider product range

The Business plan

The purpose of planning business

1. Minimising risk Setting up a business involves risk, such as the potential loss of invested money and time. A business plan can help to minimise risk, but it will not eliminate risk. Risk can be reduced by:
• very detailed planning that makes the entrepreneur think through the issues that may arise
• setting clear objectives and aims to help provide direction when making business decisions
• conducting market research to help inform decision-making
• making financial forecasts so that the entrepreneur can set budgets and monitor spending
• using a cash flow forecast to identify times when there may be a negative cash balance and to plan for this in advance (e.g. an overdraft).
2. Obtaining finance If an entrepreneur is trying to raise finance from a bank, such as a bank loan, the bank manager would review their business plan before granting the loan in order to see how the entrepreneur intends to repay the money.

GCSE Business – Theme 2 / Paper 2 Growing a business

Business growth

A business grows when it sells more output over a period of time. Business growth is often an important objective because it may:
• Help to increase market share • Lead to lower costs • Result in more profit

There are 2 different approaches to growth:

1. Internal (organic) growth
Internal growth occurs when a business expands by itself, by bringing out new products or by entering new markets.

2. External (inorganic) growth
A faster way for a business to grow is for it to join forces with another.
➢ Merger – where two or more businesses voluntarily agree to join up and work as one business.
➢ Takeover – where one business buys another.

Financing growth – External sources of finance

Loan capital
A long-term bank loan can be secured against the business's assets, but interest will be charged and the business will have to make fixed repayments to repay the debt.

Share capital
A PLC can raise considerable capital by selling shares. However, selling shares puts PLCs at risk of being taken over and all shareholders are also entitled to a share of the profits through dividends.

Public limited company (PLC)

'Public' means that shares in the company are traded on a stock market, and can be bought and sold by anyone.

Advantages
✓ Much more capital can be raised than any other kind of business.
✓ This helps the business to expand and diversify.
✓ PLCs have limited liability so if things go wrong, the owners only lose the amount of money they've invested.

Disadvantages
✗ It can be hard to get lots of shareholders to agree on how the business is run.
✗ Someone could buy enough shares to take over the company – if they can convince shareholders to sell.
✗ The accounts have to be made public – so everyone (including competitors) can see if a business is struggling.
✗ PLCs can have hundreds or even thousands of shareholders so there are lots of people wanting a share of the profits.

Average rate or return (ARR): $\frac{average\ yearly\ profit}{sum\ invested} \times 100$

(Sum invested: the cash put at risk when investing in new equipment or a new product.)

Gross profit margin: $\frac{Gross\ profit}{Revenue} \times 100$ **Net profit margin:** $\frac{Net\ profit}{Revenue} \times 100$

Business and globalisation

Globalisation is where businesses operate internationally and gain a lot of influence or power.
Globalisation affects businesses in three main ways:

❖ **Imports**
Globalisation allows businesses to import products and raw materials at lower prices than they would be able to produce them for in the UK. However, importing increases competition from foreign businesses that are able to sell directly to UK customers.

❖ **Exports**
Exporting opens up new international markets for businesses and gives them the potential to grow. However, operating in international markets can be very different to operating in the UK and businesses may face problems if they lack the necessary expertise or knowledge.

❖ **Location**
Globalisation brings with it the opportunity for businesses to relocate operations to other countries. This may be to benefit from lower labour costs, to be closer to raw materials or to be closer to the markets to which they sell their products.

Calculate Gross profit and Net profit

$$Revenue$$
$$- Cost\ of\ sales$$
$$= Gross\ profit$$

$$Gross\ profit$$
$$- (Other\ operating\ expenses\ and\ interest)$$
$$= Net\ profit$$

Sales revenue	£625 000
Cost of sales	£145 000
Other operating expenses and interest	£200 000

$Gross\ profit = £625\ 000 - £145\ 000$
$Gross\ profit = £480\ 000$

$Net\ profit = £480\ 000 - £200\ 000$
$Net\ profit = £280\ 000$

COMPUTING YEAR 11 REVISION
OCR J 277 Computer Science – Paper 1

1.1 – Systems architecture

Sub topic

1.1.1 Architecture of the CPU

- [ ] The purpose of the CPU:
    - o The fetch-execute cycle
- [ ] Common CPU components and their function:
    - o ALU (Arithmetic Logic Unit)
    - o CU (Control Unit)
    - o Cache
    - o Registers
- [ ] Von Neumann architecture:
    - o MAR (Memory Address Register)
    - o MDR (Memory Data Register)
    - o Program Counter
    - o Accumulator

1.1.2 CPU performance

- [ ] How common characteristics of CPUs affect their performance:
    - o Clock speed
    - o Cache size
    - o Number of cores

1.1.3 Embedded systems

- [ ] The purpose and characteristics of embedded systems
- [ ] Examples of embedded systems

Sub topic

1.2.3 Units

- [ ] The units of data storage:
    - o Bit
    - o Nibble (4 bits)
    - o Byte (8 bits)
    - o Kilobyte (1,000 bytes or 1 KB)
    - o Megabyte (1,000 KB)
    - o Gigabyte (1,000 MB)
    - o Terabyte (1,000 GB)
    - o Petabyte (1,000 TB)
- [ ] How data needs to be converted into a binary format to be processed by a computer
- [ ] Data capacity and calculation of data capacity requirements

1.2.4 Data storage

Numbers

- [ ] How to convert positive denary whole numbers to binary numbers (up to and including 8 bits) and vice versa
- [ ] How to add two binary integers together (up to and including 8 bits) and explain overflow errors which may occur
- [ ] How to convert positive denary whole numbers into 2-digit hexadecimal numbers and vice versa
- [ ] How to convert binary integers to their hexadecimal equivalents and vice versa
- [ ] Binary shifts

Sub topic

Characters

- [ ] The use of binary codes to represent characters
- [ ] The term 'character set'
- [ ] The relationship between the number of bits per character in a character set, and the number of characters which can be represented, e.g.:
    - o ASCII
    - o Unicode

Images

- [ ] How an image is represented as a series of pixels, represented in binary
- [ ] Metadata
- [ ] The effect of colour depth and resolution on:
    - o The quality of the image
    - o The size of an image file

Sound

- [ ] How sound can be sampled and stored in digital form
- [ ] The effect of sample rate, duration and bit depth on:
    - o The playback quality
    - o The size of a sound file

1.2.5 Compression

- [ ] The need for compression
- [ ] Types of compression:
    - o Lossy
    - o Lossless

1.2 – Memory and storage

Sub topic

1.2.1 Primary storage (Memory)

- [ ] The need for primary storage
- [ ] The difference between RAM and ROM
- [ ] The purpose of ROM in a computer system
- [ ] The purpose of RAM in a computer system
- [ ] Virtual memory

1.2.2 Secondary storage

- [ ] The need for secondary storage
- [ ] Common types of storage:
    - o Optical
    - o Magnetic
    - o Solid state
- [ ] Suitable storage devices and storage media for a given application
- [ ] The advantages and disadvantages of different storage devices and storage media relating to these characteristics:
    - o Capacity
    - o Speed
    - o Portability
    - o Durability
    - o Reliability
    - o Cost

1.3 – Computer networks, connections and protocols

Sub topic

1.3.1 Networks and topologies

- [ ] Types of network:
    - o LAN (Local Area Network)
    - o WAN (Wide Area Network)
- [ ] Factors that affect the performance of networks
- [ ] The different roles of computers in a client-server and a peer-to-peer network
- [ ] The hardware needed to connect stand-alone computers into a Local Area Network:
    - o Wireless access points
    - o Routers
    - o Switches
    - o NIC (Network Interface Controller/Card)
    - o Transmission media
- [ ] The Internet as a worldwide collection of computer networks:
    - o DNS (Domain Name Server)
    - o Hosting
    - o The Cloud
    - o Web servers and clients
- [ ] Star and Mesh network topologies

1.3.2 Wired and wireless networks, protocols and layers

- [ ] Modes of connection:
    - o Wired
        - ▪ Ethernet
    - o Wireless
        - ▪ Wi-Fi
        - ▪ Bluetooth
- [ ] Encryption
- [ ] IP addressing and MAC addressing
- [ ] Standards
- [ ] Common protocols including:
    - o TCP/IP (Transmission Control Protocol/Internet Protocol)
    - o HTTP (Hyper Text Transfer Protocol)
    - o HTTPS (Hyper Text Transfer Protocol Secure)
    - o FTP (File Transfer Protocol)
    - o POP (Post Office Protocol)
    - o IMAP (Internet Message Access Protocol)
    - o SMTP (Simple Mail Transfer Protocol)
- [ ] The concept of layers

1.4 – Network security

Sub topic

1.4.1 Threats to computer systems and networks

- [ ] Forms of attack:
    - o Malware
    - o Social engineering, e.g. phishing, people as the 'weak point'
    - o Brute-force attacks
    - o Denial of service attacks
    - o Data interception and theft
    - o The concept of SQL injection

1.4.2 Identifying and preventing vulnerabilities

- [ ] Common prevention methods:
    - o Penetration testing
    - o Anti-malware software
    - o Firewalls
    - o User access levels
    - o Passwords
    - o Encryption
    - o Physical security

1.5.2 Utility software

- [ ] The purpose and functionality of utility software
- [ ] Utility system software:
    - o Encryption software
    - o Defragmentation
    - o Data compression

1.5 – Systems software

Sub topic

1.5.1 Operating systems

- [ ] The purpose and functionality of operating systems:
    - o User interface
    - o Memory management and multitasking
    - o Peripheral management and drivers
    - o User management
    - o File management

1.6 – Ethical, legal, cultural and environmental impacts of digital te...

Sub topic

1.6.1 Ethical, legal, cultural and environmental impact

- [ ] Impacts of digital technology on wider society including:
    - o Ethical issues
    - o Legal issues
    - o Cultural issues
    - o Environmental issues
    - o Privacy issues
- [ ] Legislation relevant to Computer Science:
    - o The Data Protection Act 2018
    - o Computer Misuse Act 1990
    - o Copyright Designs and Patents Act 1988
    - o Software licences (i.e. open source and proprietary)

https://www.ocr.org.uk/Images/558027-specification-gcse-computer-science-j277.pdf

COMPUTING YEAR 11 REVISION
OCR J 277 Computer Science – Paper 2

2.1 – Algorithms

Sub topic

2.1.1 Computational thinking

- ☐ Principles of computational thinking:
  - Abstraction
  - Decomposition
  - Algorithmic thinking

2.1.2 Designing, creating and refining algorithms

- ☐ Identify the inputs, processes, and outputs for a problem
- ☐ Structure diagrams
- ☐ Create, interpret, correct, complete, and refine algorithms using:
  - Pseudocode
  - Flowcharts
  - Reference language/high-level programming language
- ☐ Identify common errors
- ☐ Trace tables

2.2.2 Data types

- ☐ The use of data types:
  - Integer
  - Real
  - Boolean
  - Character and string
  - Casting

2.2.3 Additional programming techniques

- ☐ The use of basic string manipulation
- ☐ The use of basic file handling operations:
  - Open
  - Read
  - Write
  - Close
- ☐ The use of records to store data
- ☐ The use of SQL to search for data
- ☐ The use of arrays (or equivalent) when solving problems, including both one-dimensional (1D) and two-dimensional arrays (2D)
- ☐ How to use sub programs (functions and procedures) to produce structured code
- ☐ Random number generation

Sub topic

2.1.3 Searching and sorting algorithms

- ☐ Standard searching algorithms:
  - Binary search
  - Linear search
- ☐ Standard sorting algorithms:
  - Bubble sort
  - Merge sort
  - Insertion sort

2.3 – Producing robust programs

Sub topic

2.3.1 Defensive design

- ☐ Defensive design considerations:
  - Anticipating misuse
  - Authentication
- ☐ Input validation
- ☐ Maintainability:
  - Use of sub programs
  - Naming conventions
  - Indentation
  - Commenting

2.3.2 Testing

- ☐ The purpose of testing
- ☐ Types of testing:
  - Iterative
  - Final/terminal
- ☐ Identify syntax and logic errors
- ☐ Selecting and using suitable test data:
  - Normal
  - Boundary
  - Invalid/Erroneous
- ☐ Refining algorithms

2.2 – Programming fundamentals

Sub topic

2.2.1 Programming fundamentals

- ☐ The use of variables, constants, operators, inputs, outputs and assignments
- ☐ The use of the three basic programming constructs used to control the flow of a program:
  - Sequence
  - Selection
  - Iteration (count- and condition-controlled loops)
- ☐ The common arithmetic operators
- ☐ The common Boolean operators AND, OR and NOT

2.4 – Boolean logic

Sub topic

2.4.1 Boolean logic

- ☐ Simple logic diagrams using the operators AND, OR and NOT
- ☐ Truth tables
- ☐ Combining Boolean operators using AND, OR and NOT
- ☐ Applying logical operators in truth tables to solve problems

2.5 – Programming languages and Integrated Development Environ

Sub topic

2.5.1 Languages

- ☐ Characteristics and purpose of different levels of programming language:
  - High-level languages
  - Low-level languages
- ☐ The purpose of translators
- ☐ The characteristics of a compiler and an interpreter

2.5.2 The Integrated Development Environment (IDE)

- ☐ Common tools and facilities available in an Integrated Development Environment (IDE):
  - Editors
  - Error diagnostics
  - Run-time environment
  - Translators

EXPLAINING YOUR OWN CHOREOGRAPHY

What will the question ask?

The question could ask you to EXPLAIN:
- How one of the choreographic skills you used supported your dance idea.
- How a different choreographic skill supported the overall effectiveness of your dance.
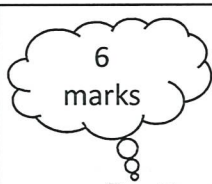
What will the question ask?

All choreographic skills.

How do I need to answer?

Extended writing worth 6 marks per question.

1. State your dance idea
2. Give an example of where you used the skill the question asks for
3. Explain how it supported your dance idea
4. Evaluate why it was effective
5. Repeat 2-4 times

6 marks

4-6	Explain why skill 3 was effective
	3rd skill and detailed example
	Explain why skill 2 was effective
2-3	Skill 2 and detailed example
	Explain why skill 1 was effective
1	Skill 1 and detailed example
	State your choreographic intent

CHOREOGRAPHY SKILLS

ACTION

Travel
Turn
Elevation
Gesture
Stillness
Use of different body parts
Floor work
Transfer of weight

DYNAMICS

Fast/slow
Sudden/sustained
Acceleration/ deceleration
Strong/light
Direct/indirect
Flowing/abrupt

SPACE

Pathways
Levels
Directions
Size of movement
Patterns
Spatial design

RELATIONSHIPS

Lead and follow
Mirroring
Action & reaction
Accumulation
Complement & contrast
Counterpoint
Contact
Formations

CHOREOGRAPHIC DEVICES

Motif and development
Repetition
Contrast
Highlights
Climax
Manipulation of numbers
Unison and canon

STRUCTURE

Binary
Ternary
Rondo
Narrative
Episodic
Beginning/middle/end
Unity
Logical sequence
Transitions

AURAL SETTINGS

Song
Instrumental
Orchestral
Spoken word
Silence
Natural sound
Found sound
Body percussion

PERFORMANCE ENVIRONMENTS

Proscenium arch
End stage
Site-sensitive
In-the-round

EXAMPLE

The choreographic intention for my dance was magnetic force. — **CHOREOGRAPHIC INTENT**

One of the main ways I used space was to use a variety of different levels. For example, at the beginning of the dance, one dancer stood up with the arms pushed downwards and the second dancer crouched in front of her on the floor with head low. This was to show the force of a magnet pushing down and repelling an object. — **LEVELS / EXAMPLE / EXPLANATION/DANCE IDEA**

Using direction was also important. In the second section both dancers started at opposite ends of the diagonal, upstage right and downstage left. They then slowly turned towards each other until they met in the centre. This create impact because it brought power to the dance and showed how magnets pull objects together across distance. — **DIRECTION / EXAMPLE / EVALUATION / EXPLANATION/DANCE IDEA**

The size of the movement was also important. After the diagonal pull both dancers stood wide with feet apart and arms outstretched and then slowly curled into the body. This was to show a magnet drawing an object tightly close to it. It was effective for showing contrast. — **SIZE / EXAMPLE / EXPLANATION/DANCE IDEA / EVALUATION**

Towards the end of the dance we performed a chaotic travelling section in canon. We used zig zag pathways from upstage left. This was to symbolise five magnets stage right and left pulling us this way and that and came as a sudden surprise for the audience. — **PATHWAY / EXAMPLE / EXPLANATION/DANCE IDEA / EVALUATION**

A Linha Curva

Artificial Things

Emancipation of Expressionism

Infra

Shadows

Within Her Eyes

Anthology

- **Features of production**
  - staging/set: projection, furniture, structures, backdrop, screens and features of these such as colour, texture, shape, decoration, materials
  - dancers: number, gender
  - lighting: colour, placement, direction, angles
  - aural setting: song, instrumental, orchestral, spoken word, silence, natural sound, found sound, body percussion, style, structure and musical elements such as tone, pitch and rhythm
  - properties: size, shape, materials, how used
  - costume: (including footwear, masks, makeup and accessories): features such as colour, texture, material, flow, shape, line, weight, decoration and how they define character or gender, identify dancers, enhance or sculpt the body and enhance the action

- **Choreography intent**
  - mood(s)
  - meaning(s)
  - idea(s)
  - theme(s)
  - Style/style fusion(s)

- **Choreography content**
  - movement content: actions, dynamics, space and relationships
  - structuring devices and form): binary, ternary, rondo, narrative, episodic, beginning/middle/end, unity, logical sequence, transitions
  - choreographic devices: motif and development, repetition, contrast, highlights, climax, manipulation of number, unison and canon

- **Choreographic approaches**
  - fact file
  - interview

- **Performance Environment**
  - proscenium arch
  - end stage
  - site-sensitive
  - in-the-round

WRITING IN DRAMA

VOICE				
Pitch	**Pace**	**Volume**	**Tone**	**Accent**
High, Low, Squeaky, Husky, Deep, Whiny, Croaky, Brittle, Grating, Gravelly.	Fast, Slow, Halting, Abrupt, Stuttering, Stilted, Hesitant, Controlled.	Soft, Quiet, Loud, Whisper, Shout.	Harsh, Gentle, Sarcastic, Forceful, Firm, Trusting, Derogatory, Cold, Angry, Persuasive, Authoritative, Proud, Assertive, Submissive, Sly, Abrasive, Quivery, Warm, Cheeky, Anxious, Seductive, Enthusiastic, Timid, Assured, Cautious, Fierce, Fond, Nervous, Joking, Sensitive.	Liverpudlian, Northern, West country, Cockney, Upper Class British, Scottish, Irish, Australian, American.

FACIAL EXPRESSIONS			
Emotion	**Eyes**	**Eyebrows**	**Mouth**
Happy, Cheerful, Upset, Hurt, Eager, Anxious, Untrusting, Fearful, Rejected, Smug, Defiant, Distressed, Thoughtful, Sly, Seductive, Distraught, Spiteful, Aggressive, Friendly .	Wide, Glaring, Squinting, Teary, Hopeful, Suspicious, Tightly Shut.	Raised, Lowered, Furrowed, Inquisitive, Frown.	Opened, Jaw-dropped, Closed, Smile, Quivering, Lip-biting, Pursed Lips Clenched.

KEYWORDS

Actor, Appropriate, Atmosphere, Audience, Believable, Character, Creativity, Dialogue, Effect, Emphasize,, Genre, Impact, Improvisation, Interaction, Interpretation, Monologue, Non-Naturalistic, Original, Performance, Piece, Physical, Rehearsal, Scene, Status, Tension, Tone.

BODY LANGUAGE			
Posture	**Gesture**	**Gait**	**Mannerisms**
Upright, Slouched, Relaxed, Grotesque.	Clenched Fists, Pointing, Open handed, Closed, Strong, Measured, Hesitant, Energetic.	Rapid, Sluggish, Gentle, Smooth, Direct, Rushed, Purposeful, Hasty.	Twitchy, Decisive, Indecisive, Formal, Jerky, Secretive, Wild, Controlled, Dismissive, Aggressive, Nervous, Informal.

IMPACT		
Atmosphere	**Audience Response**	**Believability**
Tense, Dangerous, Intriguing, Awe, Amazement, Anticipation, Surprising, Shocking, Awareness of Society, Comic, Pathos.	Applause, Laughter, Sympathy, Anger, Disappointment, Anti-climax, Amusement, Admiration, Distaste, Contempt, Delight, Horror, Empathy, Irritation.	Natural, Believable, Realistic, Exaggerated,

PEED — SENTENCE STARTERS

Point	Evidence	Explanation	Development
• I was particularly proud of the way I…. • One strength of my acting skills was…. • In rehearsals I felt very pleased with…. • The most effective aspect of my acting skills was… • One of the highlights of my performance was…. • In rehearsals I used…..	• I did this by….. • I showed this by…. • This was evident when…. • It was clear when …. • I developed this by….. • This was clearly shown when… • This was demonstrated when…. • I presented this by….	• This impact of this was….. • This had the effect on the audience of… • This really showed… • This made my character more believable because… • This showed the audience that… • This added to the appropriate mood / atmosphere because… • This was effective because… • The effect of this on the final performance was… • This really worked because… • I feel this was effective because…	• Therefore… • In addition… • Furthermore.. • Consequently • As a result from this… • However

REHEARSAL STRATEGIES

Hot seating

Improvisation

Role-on-the-wall

Emotion Memory

Writing in Role

Tension Graph

Thought tunnel

STAGE POSITIONING

Upstage Right (USR)	Upstage Centre (USC)	Upstage Left (USL)
Centre Stage Right (CSR)	Centre Stage (CS)	Centre Stage Left (CSL)
Downstage Right (DSR)	Downstage Centre (DSC)	Downstage Left (DSL)

AUDIENCE VIEWPOINT

NON NATURALISTIC TECHNIQUES

Tableau / Freeze Frame

Thought-Tracking

Chanting

Split-Staging

Soundscape

Narration

STAGING FORMATS

End on
Audience on 1 side

Traverse
Audience on 2 opposite sides

Thrust
Audience on 3 sides

In the Round
Audience on all sides

SUPPLY AND DEMAND

DEMAND CONCEPTS

EFFECTIVE DEMAND – demand supported by intention and ability to buy

COMPLEMENTARY DEMAND – demand for one good is closely linked to the demand for another, ie two or more goods that go well together

COMPETITIVE DEMAND - two or more goods that are close substitutes for each other

MARKET DEMAND – all consumers' demands in the market summed together

MOVEMENTS ALONG THE DEMAND CURVE

LAW OF DEMAND – as price falls, the quantity demanded increases and vice versa. Demand slopes downwards to the right

EXTENSION IN DEMAND – a movement along the demand curve from A to B (lower P, higher Qd)

CONTRACTION IN DEMAND – a movement along the demand curve from B to A (higher P, lower Qd)

Price

Movement from A to B = **extension of quantity demanded** due to a fall in the price of the product

A

B

Movement from B to A = **contraction of quantity demanded** due to a rise in the price of the product

D

Quantity
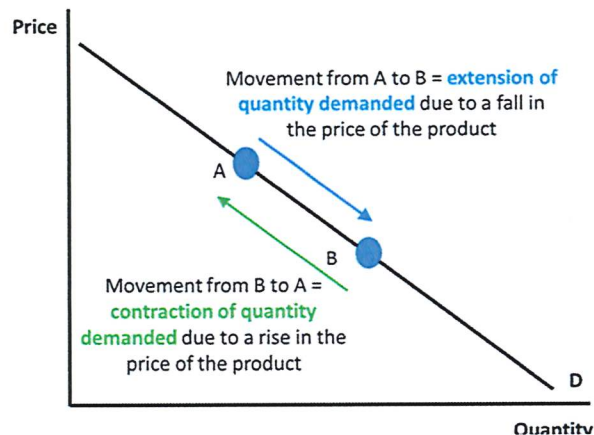
FACTORS CAUSING A SHIFT IN DEMAND

- Change in tastes/preferences
- Change in incomes
- Change in the price of related goods (complements or substitutes)
- Change in size/structure of the population
- Changes in interest rates
- Changes in the law
- Changes in expectations

Price

Increase in demand from D1 to D3: more is demanded at each and every price

Decrease in demand from D1 to D2: less is demanded at each and every price

D2   D1

D3

Quantity
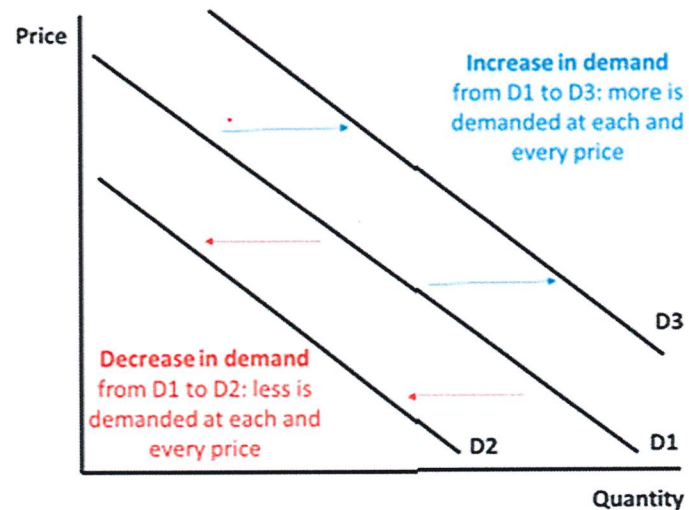
WHY THE DEMAND CURVE SLOPES DOWNWARDS

SUBSTITUTION EFFECT – consumers substitute in favour of the good that become relatively cheaper; if price of good X falls, consumers buy more of good X Real

INCOME EFFECT – if the price of good X falls, the consumer buying good X will gain purchasing power; this extra 'income' available for spending can be used to buy more X

SUPPLY CONCEPTS

JOINT SUPPLY – two or more goods that derive from a single production process; a change in the supply of one good leads to a change in the supply of a by-product

INDIVIDUAL SUPPLY – a producer's supply of a good/service

MARKET SUPPLY – all producers' supplies to the market summed together

MOVEMENTS ALONG THE SUPPLY CURVE

LAW OF SUPPLY – as price falls, the quantity supplied decreases and vice versa. Supply slopes upwards to the right

EXTENSION IN SUPPLY – a movement along the supply curve from A to B (higher P, higher Qs)

CONTRACTION IN SUPPLY – a movement along the supply curve from B to A (lower P, lower Qs)

Price

Movement from A to B = **extension of quantity supplied** due to a rise in the price of the product

S

B

A

Movement from B to A = **contraction of quantity supplied** due to a fall in the price of the product

Quantity
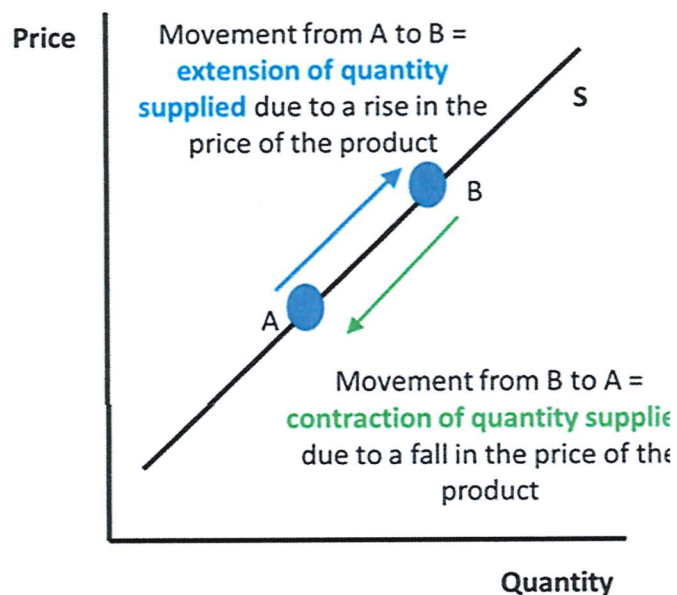
FACTORS CAUSING A SHIFT IN SUPPLY:

- Change in the costs of production (raw materials, wages, energy....)
- Change in production technology
- Change in weather/climate
- Events such as strikes, pandemic
- Changes in indirect taxes
- Changes in producer subsidies
- Changes in the price of substitutes in production
- Changes in the number of firms supplying to the market

Price

Decrease in supply – S1 shifts to S3 less is supplied at each and every price

S3

S1

S2

Increase in supply – S1 shifts to S2 more is supplied at each and every price
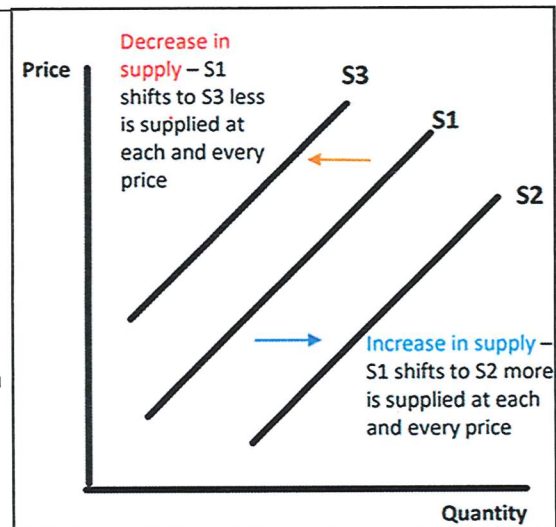
Quantity

THE MARKET IS CREATED BY THE INTERACTION OF BUYERS (DEMAND) AND SELLERS (SUPPLY)

- Equilibrium = a state of rest
- At equilibrium E1, there is one unique price P1, where the plans of producers match the plans of consumers
- The quantity demanded equals the quantity supplied at P1
- This is sometimes called the market-clearing price.

Price

S

P

D

Q

Quantity
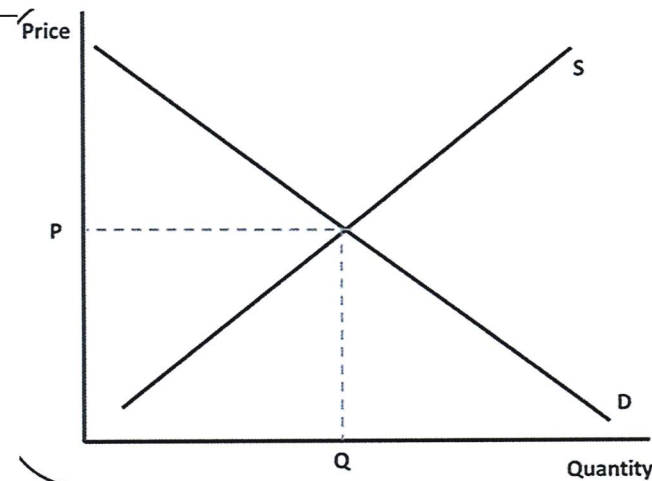
INCREASE IN DEMAND	DECREASE IN DEMAND	INCREASE IN SUPPLY	DECREASE IN SUPPLY
• Demand shifts right from D1 to D2 • At original price P1, there is now an excess demand. • This signals to producers to increase price and extend their supply from Q1 to Q2 to restore the market equilibrium. • The new equilibrium is at P2 and Q2	• Demand shifts left from D1 to D2 • At original price P1, there is now an excess supply. • This signals to producers to reduce price and contract their supply from Q1 to Q2 to restore the market equilibrium. • The new equilibrium is at P2 and Q2.	• Supply shifts right from S1 to S2 • At original price P1, there is now an excess supply, so price falls. • This signals to consumers to extend their demand from Q1 to Q2 to restore the market equilibrium • The new equilibrium is at P2 and Q2.	• Supply shifts left from S1 to S2 • At original price P1, there is now an excess demand, price rises. • This signals to consumers to contract their demand from Q1 to Q2 to restore the market equilibrium • The new equilibrium is at P2 and Q2.
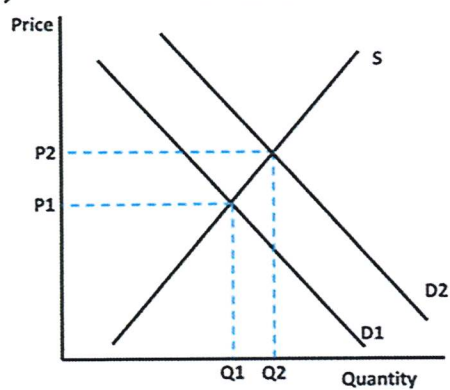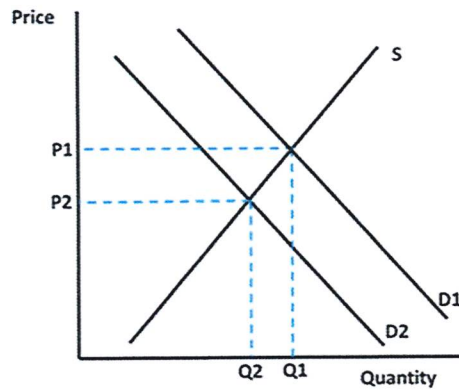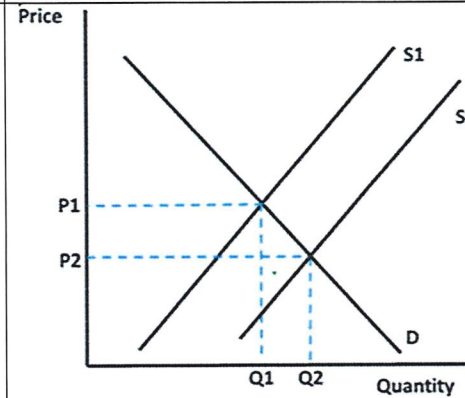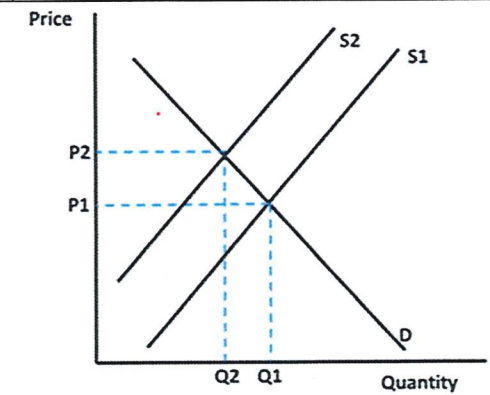
PRICE ELASTICITY OF DEMAND

The responsiveness of quantity demanded of a good to a change in its price

$$PED = \frac{\%\ change\ in\ quantity\ demanded}{\%\ change\ in\ price}$$

PRICE ELASTICITY OF SUPPLY

The responsiveness of quantity supplied of a good to a change in its price

$$PES = \frac{\%\ change\ in\ quantity\ supplied}{\%\ change\ in\ price}$$

FACTORS INFLUENCING PED

• Availability of close substitutes • Cost of switching suppliers • Breadth of product definition • Degree of necessity

FACTORS INFLUENCING PES

• Time period • Breakdowns in supply chains • Spare capacity • Stock levels • Availability of producer substitutes • Ease of entry into the market

Price inelastic demand — The increase in price is proportionally much larger than the fall in quantity demanded

Price elastic demand — The increase in price is proportionally much smaller than the fall in quantity demanded

Price inelastic supply — The increase in price is proportionally much larger than the rise in quantity supplied

Price elastic supply — The increase in price is proportionally much smaller than the rise in quantity supplied

The purpose of a text can be defined as:
- To persuade
- To argue
- To advise
- To inform
- To explain
- To describe

Top tips
- Remember that all sentences and names start with a **capital letter.**
- Always write in complete sentences.
- Include descriptive detail to set the scene for the reader.
- Use a variety of sentence starters and vocabulary.
- Write with a range of punctuation.

Transactional Writing: composing a text for a specific purpose

Upgrade Your Sentence!

Not only but also
Not only are holidays too infrequent, but they also are badly timed.

So, so
Holidays are so infrequent, so short, that they feel as if they are over before they begun.

Double adjective start
Infrequent and expensive, holidays hit the pockets of families across the country.

Less less less
The less time spent with the family means the less time that is spent establishing family values, which means the less time a child is able to connect with their parents.

Fortunately/ unfortunately
Fortunately, the holiday companies are aware of holiday dates and can adjust the capacity for those periods, unfortunately this comes at a significant financial premium.

Whoever/ whenever
Whoever dictates holiday dates, and whenever they decide for them to fall, ultimately controls the happiness of millions of families across the country.

Holidays are too infrequent.

Brackets although
School holidays are too infrequent (although, some killjoys will love to tell you otherwise) and the impact this has on students can be seen in the high anxiety rates amongst teenagers.

Verb beginning
Considering the amount of time spent apart from their families, holidays are clearly too infrequent.

More more more
The more dirt that was shifted away, the more of the statue's belly was exposed, and the more indignant the sacred relic became.

Adverb beginning
Typically, no one consults children on how they feel about holiday dates and the frequency of their breaks.

Triple noun colon
Fury, anger, dismay: the statue felt his sadness slip away and was replaced with more damaging emotions.

Features of non-fiction texts
Letter:
- Use address
- Include a date
- Use a formal mode of address (Dear Sir or Madam)
- Sequence your paragraphs fluently
- Sign off appropriately.

Article:
- Create a clear and appropriate headline
- Use subheadings
- Include an overview paragraph (introduction)
- Effectively and fluently sequence your paragraphs.

Speech:
- Create a clear address to your audience
- Effectively and fluently sequence your paragraphs
- Use rhetorical indicators to show the audience is being addressed throughout
- A clear sign off at the end (even if it's just 'thank you for listening').

Hook
What will you say to get the audience's attention? Use a compelling image or story? Say something challenging or powerful about the issue? Greet people?

Exposition/Setting
Give the background - why should your topic matter to people? What is its history? Why is it relevant to this particular audience? This might involve sharing some research data, too.

Rising Action/ Complication
Establish the fact that this is a burning issue. What will happen if things don't change? What is at risk? What are the potential challenges which might arise?

Climax
What is the single most important argument in your favour? What will draw emotion, engagement and agreement from people?

Falling action/ denouement
Begin to paint a vision of what can happen if things begin to change - why should the audience be hopeful? What signs are there that good things are happening?

Satisfying ending
What are your solutions to this issue? What practical things would you like to see happening? How can people help by changing their attitudes, behaviours, habits?

Autumn   English Language   Year 11

Paragraphing:
Always start a new paragraph whenever you change:
- Time
- Place
- Topic
- Person

Remember TiPToP

Imaginative Writing: creating an engaging narrative

Sentence types:
Declarative - make statements (most likely to be fact or opinion statements)
Exclamative - express emotion (most likely to end with an exclamation mark)
Imperative - give commands (include imperative verbs)
Interrogative - ask questions (end with a question mark)

Punctuation
- . **Full stop** – ends a sentence
- , **comma** – separates ideas
- : **Colon** – introduces a list
- ; **semi-colon** – separates clauses
- ! **Exclamation mark** – adds emphasis
- ? **Question mark** - interrogative
- " " **Speech marks** – indicates speech
- - **Hyphen** – shows connection
- … **Ellipsis** – creates mystery/intrigue

Word bank

Ways to start sentences
Start your sentence with an 'ed' word: Alarmed, Angered, Abandoned, Astonished, Bewildered
Start your sentence with an 'ing' word: Hiding Jumping Knowing   Riding Praying Thinking Stopping
Start your sentence with an adverb: Accidentally, Bravely, Cheerfully, Defiantly, Fortunately, Menacingly
Adverbial phrase for when something happens: After running up the hill, Before charging into battle,
Adverbial phrase for how something happens: With her feet squelching in the mud, Jane trudged...
Adverbial phrase for where something happens. Around Behind Beneath Beside In On Over Past
Start with a simile. (A simile compares two things): As dark as… As busy as… As clear as…

A drop in clause adds in extra information: The dragon, **who had fearsome talons,** flew off into the sky.
The brave knight, **who was wearing a coat of armour,** strode through the castle doors.

Word types
Noun – Person, place, thing
Pronoun – In place of a noun 'you'
Verb – an action or state
Adjective – describes a noun
Adverb – describes a verb
Preposition – shows the relationship between objects
Determiner – used in front of a noun to show the type 'the' 'a'
Conjunctions – joining words

Top tips
- Remember that all sentences and names start with a **capital letter.**
- Always write in complete sentences.
- Include descriptive detail to set the scene for the reader.
- Use a variety of sentence starters and vocabulary.
- Write with a range of punctuation.

Writing in timed conditions
1. **Drop** – where are you?
Describe the setting

2. **Characters** – who are you with?

3. **Zoom** – what's happening?
Link to the task focus

4. **Flashback** –when it happened to you

5. **Ending** – create a cliff-hanger or surprise

Common Errors
- **There/their/they're** – there= place, their=belongs, they're=they are.
- **Which/witch** – which=choice, witch=supernatural
- **To/too/two** – to=the direction, too=a lot, two=2

Paper 2 Section A

'Jekyll and Hyde'
a) Extract Analysis (20)
b) Whole text response (20)
40 marks

a) Extract analysis

- ✓ Analysis of language, form and structure in the extract
- ✓ Explanation of the effect on the reader
- ✓ Relevant terminology is used to develop ideas

b) Whole text response

- ✓ Personal response, fully related to the text
- ✓ Critical style and interpretation
- ✓ Well-chosen references to support a range of points

Question style:

a) 'Explore how Stevenson presents … in the extract'
b) 'Explain why… is important elsewhere in the novel.'

Stevenson's Intentions

- To show his audience that evil exists in us all.
- To highlight the hypocrisy of society
- To warn society of the dangers science can present.

Characters

Gabriel Utterson— Jekyll's friend. Lawyer. Curious about Hyde and his relationship to Jekyll.
"inclined to help rather than to reprove"

Dr Henry (Harry) Jekyll— Scientist and wealthy man. Interested in the duality of man.
"I learned to recognise the thorough and primitive duality of man;"

Edward Hyde— Cruel man who attacks the weak and innocent.
"Edward Hyde, alone, in the ranks of mankind, was pure evil."

Dr Hastie Lanyon— Was friends with Jekyll but stopped speaking to him when they disagreed.
"I saw what I saw… my soul sickened at it…My life is shaken to the roots."

Themes

duality   Reputation

secrecy   Science

Key vocabulary:

1. **Deception** – lying or hiding the truth
2. **Dilemma** – choosing between difficult options
3. **Hierarchy** – system of ranking in society
4. **Dogmatic** – expressing opinion as the truth
5. **Redemption** – being saved from evil
6. **Repentant** – feeling regret or remorse
7. **Inevitability** – certainty of events
8. **Turmoil** – state of great uncertainty
9. **Conscience** – inner voice guiding behaviour to right or wrong
10. **Justice** – morally correct or fair

What?	What is the writer trying to tell us about the character/theme/setting?	*Significantly Hyde is presented as… Stevenson notably presents repression as … and …*
How?	How do they use language/structure to do this? How do key words/phrases show this?	*The adjectives/noun/verb/phrase/image … This suggests/implies/indicates/demonstrates…*
Why?	Why are they doing this? Why did they choose that language?	*Stevenson wants to establish the significance of … It can be seen that/it might be thought that/some readers might…*

Key Quotes:

"man is not truly one, but truly two." Henry Jekyll

"Jekyll had more than a father's interest; Hyde had more than a son's indifference."

"all human beings, as we meet them, are commingled out of good and evil."

"I stood already committed to a profound duplicity of life." Henry Jekyll

"If he be Mr Hyde… I shall be Mr Seek." Gabriel Utterson

"If I am the chief of sinners, I am the chief of sufferers also." Henry Jekyll

The reader feels: empathy, sympathy, resentment, indignation, respect, disapproval, horrified, anticipation, admiration, relief, apprehension, critical, disappointment, anxious, disillusioned, impatient.

Context:

The Divine Right of Kings
The idea that a monarch is chosen by God to rule his people. It argues that a king is accountable only to God

The Great Chain of Being
A structure of all life, ordered by God. It begins with God and descends through angels, humans, animals and plants to minerals.

James I
Styled himself "king of Great Britain." James was a strong believer of royal absolutism (believed in the Divine Right and The Great Chaim of Being)

The Gunpowder plot
A group of Catholics who believed James I's death would mean the end of Protestantism. They tried to overthrow the government through blowing it up.

James I and Witchcraft
James was convinced that a coven of powerful witches was conspiring to murder him through magic, and that they were in league with the Devil. He published a study of witchcraft: Daemonologie.

Witchcraft
Witches were blamed for causing illness, death and disaster, and were thought to punish their enemies by giving them nightmares, making their crops fail and their animals sicken.

Themes

Ambition

Guilt

Fate

Supernatural

Terminology:

1. **Context:** Events at the time the text was written that influence the ideas.
2. **Tragedy:** A text that ends in death and destruction.
3. **Tragic hero:** a character who has virtuous traits but dies.
4. **Hamartia:** a fatal flaw leading to the downfall of a tragic hero or heroine
5. **Tragic process:** The cycle a tragic hero goes through.
6. **Iambic pentameter:** a rhythm structure of unstressed syllables and stressed syllables in groups of five.
7. **trochaic tetrameter:** a line of four trochaic feet.
8. **Soliloquy:** speaking one's thoughts aloud
9. **Blank verse:** verse without rhyme
10. **Motif:** repeated image in a narrative

Paper 1 Section A

'Macbeth'

a) Extract Analysis (20)
b) Whole text response (20)

40 marks

Question style:

a) 'Explore how Shakespeare presents … in the extract'
b) 'Explain why… is important elsewhere in the play.'

a) Extract analysis

✓ Analysis of language, form and structure in the extract
✓ Explanation of the effect on the reader
✓ Relevant terminology is used to develop ideas

b) Whole text response

✓ Personal response, fully related to the text
✓ Critical style and interpretation
✓ Well-chosen references to support a range of points
✓ Relevant context used t support answer

Adverb

Inherently Intrinsically Innately Naturally [in a way that is characteristic or natural]	Significantly Crucially Notably Particularly [in a way that is important/ needs to be known]	Undoubtedly Undeniably Unquestionably Indubitably [in a way that is true/ can't be argued]	Arguably Debatably Probably Potentially Possibly [in a way that could be true]

Expresses a clear evaluation of the writer's ideas

verb

exaggerates intensifies amplifies magnifies emphasises hyperbolises accentuates	creates crafts engineers constructs composes establishes portrays	represents exemplifies typifies embodies epitomises exhibits manifests

Shows that you are considering the text as a construct

adjective

bitter resentful disgruntled discontented spiteful exasperated displeased	subtle crafted precise skillful adept expert masterful	bleak harsh grim ominous shocking gruesome gloomy	angry outraged aggrieved incensed infuriated enraged indignant	optimistic hopeful jovial amiable affable genial exuberant

Demonstrates a deeper understanding of the ideas

NEA 2 Food Preparation Task

The Final Dishes (30 marks)

Before the assessed practical:

- Check you have all your recipes and the time plan.
- Read through the time plan the night before so you will be ready
- Check you have all the ingredients you will need.
- Have you checked with your teacher the equipment is available?
- Have you considered how you will present the dishes?

Presenting your dishes

Presentation of the final dishes is important. When planning the presentation, think about:

- Garnishing
- Decorations
- Portion size
- Finishing dishes to a high standard

You can use your own crockery and equipment from home to help present your dishes.

Evaluation (8 marks)

When you have completed your practical work, you need to:

- Carry out a sensory evaluation
- Cost the final dishes
- Carry out nutritional analysis
- Identify improvements for the dishes you made

Possible ideas for presenting the evaluation, nutritional analysis and cost of dish

Evaluation and analysis: Tortellini with salmon, spinach and ricotta

For an aesthetically pleasing finish, I presented my pasta with a butter, sage and pine nut sauce and parsley in a white dish with a side of salad leaves and tomatoes. The skills used in the process of making this dish include: pasta making, shaping and making a sauce. I practised pasta making as part of the demonstrating technical skills which helped me to produce good pasta for the final assessment.
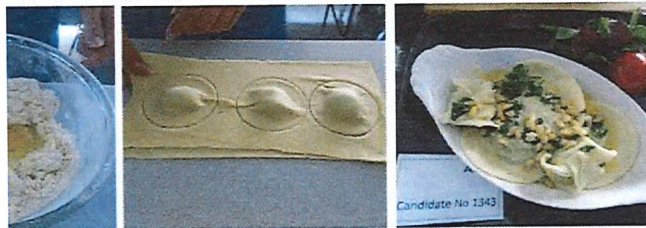
Costing

Cost for recipe: £4.86

Cost for each portion: £0.61

I was pleased with the overall cost of the dish. The recipe made a lot of pasta which could be used in another recipe (e.g. lasagne).

Cost analysis

Name	Amount used	Cost for 100g	Recipe cost	Portion cost
00 flour	400g	£0.19	£0.76	£0.10
Butter	50g	£0.44	£0.22	£0.03
Pine nuts	15g	£3.33	£0.50	£0.06
Cheese (Parmesan)	30g	£1.60	£0.48	£0.06
Cheese (ricotta)	200g	£0.40	£0.80	£0.10
Spinach (raw)	200g	£0.60	£1.20	£0.15
Egg	180g	£0.50	£0.90	£0.11
			Totals £4.86	£0.61

Sensory evaluation

	Taster 1	Taster 2	Taster 3	Taster 4	Total
Appearance	4	3	5	3	15
Texture	3	5	5	4	17
Taste	4	5	4	5	18
Aroma	3	4	3	3	13

From my results table the most popular feature of the tortellini dish was the taste scoring 18/20. I included many different Mediterranean flavourings such as ricotta and spinach to make my pasta tortellini have a more interesting flavour. The sauce had parmesan cheese another Italian cheese to fit the theme of the task. The least popular was the aroma 13/20 as the dish did not have much of a scent. Texture scored 17/20, the pasta was al dente and this contrasted well to the moist filling. I could work at developing the appearance to include more vibrant colours, e.g. making a tomato sauce.

Nutritional analysis

This dish was quite balanced and scored no red traffic light warnings. There was 14g of saturated fat per portion (33%). This will be as a result of the butter in the sauce, and the ricotta and parmesan cheese in the filling and topping. To reduce the saturated fat I could develop a tomato-based sauce. The salt was low with 7% of the RI. However, the dish is low in sugar which is a healthy
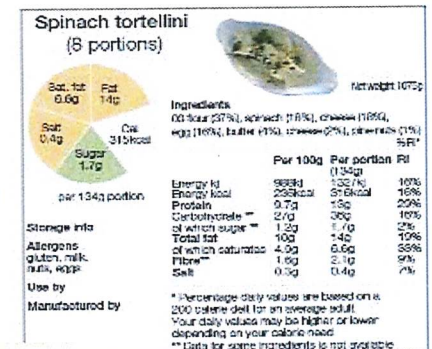
Improvements

When considering improvements of your dishes, use the following criteria:

- Sensory testing results
- Cost analysis
- Food provenance
- Nutrition
- Skills and techniques
- Quality and finish of final menu

The Written Food Exam

The written exam is **1 hour 45 minutes**.

The exam is divided into <u>TWO</u> sections;

Section A: Multiple Choice (20 marks)

Section B: Open-ended questions (80 marks)

Section A- Multiple Choice.

These questions are quick to answer **BUT** do not assume they are easy! There are 20 questions worth 1 mark each.

They can be *very* challenging. You need to read these questions carefully before answering them.

Section B- Open ended questions.

Questions in this section use <u>**open-ended**</u> questions. Open-ended questions cannot be just answered with just a '*yes*' or a '*no*'. Questions in Section B can be anything from 2 to 12 marks.

The number of marks in the question tends to be the number of points you need to make.

Use full sentences and always give reasons for your answers. The more you justify yourself the more likely you will gain marks for your answer.

COMMAND WORDS

Define - to describe the meaning of something. Tell someone what a word or idea means.

Describe – Give a detailed account.

Explain – To make something understandable.

Evaluate – To form an idea about something.

Discuss – Talk about an issue in detail giving pros and cons.

Analyse – Examine a topic in detail to explain it.

Justify – Give a balanced argument.

REOCCURING TOPICS

Tick as you revise:

- ❑ Protein complementation
- ❑ Denaturing protein
- ❑ Diet related diseases
- ❑ Life stages
- ❑ Seasonal foods
- ❑ Organic foods
- ❑ Food waste
- ❑ Gelatinisation
- ❑ GM foods
- ❑ Intensive farming
- ❑ Saturated fats
- ❑ Triglycerides
- ❑ Heat transfers
- ❑ Food production e.g. the process of cheese making
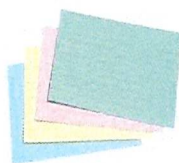
Tips for Flashcards

- Make your own
- Mix words with pictures
- Keep them simple
- Say your answers out loud when revising

How to prepare for the written exam

- Plan a revision timetable
- Organise your written notes according to different topics
- Keep your notes together in topic sections
- Make your own brief revision notes/mind maps/ revision cards about each topic
- Ask your teacher if you are unsure of a topic to help you through it.
- Practice answering past exam quesitons

Revision Book

These are available to buy and use within class. Please ask your teacher about purchase options.
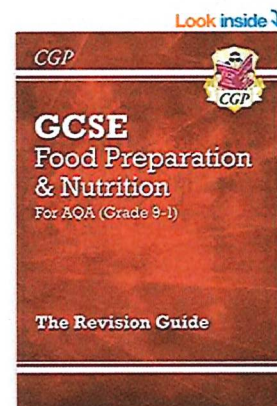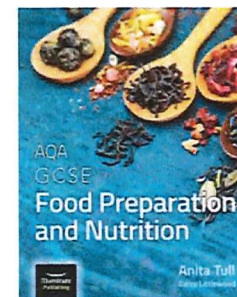
Your Online Food Curriculum

Go to:
https://www.illuminate.digital/aqafood/

Username: sashmanor3

Password: student3

Note: Unfortunately, the book is not compatible with mobile phones

Un œil sur le monde *An eye on the world*

International and Global Dimension

A ton avis, quelle sera la plus grande menace pour la planète à l'avenir ? Pourquoi ?
In your opinions what will be the biggest threat to the planet?

Pour moi, la plus grande menace pour la planète à l'avenir, c'est le changement climatique à cause de l'usage des combustibles fossiles. Il faut qu'on fasse ce qu'on peut pour réduire notre empreinte carbone.

Que fais-tu pour protéger l'environnement ?
What do you do to protect the environment ?

Actuellement, je fais déjà pas mal de choses chez moi pour protéger l'environnement. Je trie les déchets et je vais au collège à vélo et mon frère utilise les transports en commun pour aller en ville. En plus, ma mère achète des produits verts et mon beau-père fait du compost à la maison et récupère l'eau de pluie pour arroser le jardin.

Qu'est-ce que tu pourrais faire de plus pour protéger l'environnement ?
What more could you do to protect the environment?

Je dirais qu'on devrait faire plus, par exemple apporter une bouteille d'eau au lieu de prendre un gobelet jetable ou prendre une douche au lieu de prendre un bain. Ce n'est pas facile mais il faut agir maintenant et faire des campagnes de sensibilisation.

Qu'est-ce que ton école fait pour protéger l'environnement ?
What does your school to protect the environment ?

Honnêtement, mon collège ne fait pas grande chose pour protéger l'environnement, ce que je trouve vraiment honteux. On devrait utiliser du papier recyclé et éteindre les appareils électriques et la lumière en quittant une pièce.

Tu achètes des produits issus du commerce équitable?
Do you buy Fairtrade products?

Oui, j'essaie d'acheter des produits issus du commerce équitable car les produits pas chers sont souvent fabriqués dans des conditions de travail inacceptables et les ouvriers sont sous-payés. Cependant, quelquefois ces produits sont très chers donc ce n'est pas toujours possible.

Qu'est-ce que tu as fait récemment pour aider les autres ?
What have you recently done to help others ?

Récemment, j'ai aidé ma grand-mère avec ses courses et nous avons passé l'après-midi ensemble. C'était chouette ! En plus, j'ai fait un don à une association caritative pour protéger les animaux en danger.

Tu voudrais faire du travail bénévole un jour ?
Would you like to volunteer one day ?

Oui, quand je suis plus âgé·e, je voudrais faire du travail bénévole parce que quant à moi, ça me permet d'élargir mes compétences. De plus, c'est vraiment important de participer à la vie en société et de ne pas se focaliser sur soi-même.

Quels sont les problèmes pour les SDF ?
What are the problems for the homeless?

La situation des SDFs est vraiment terrible. Il faut les soutenir et prendre conscience des raisons pour lesquelles ils sont sans abri. Quelquefois, c'est à cause du chômage mais d'autre part, c'est à cause des catastrophes naturelles comme les inondations ou des tremblements de terre.

Quels sont les avantages des grands événements sportifs?
What are the advantages of large sporting events ?
Pour moi, un avantage de cet événement, c'est que ça met en avant la ville hôte et ça crée un sentiment de fierté nationale. En plus, ça encourage la pratique du sport et donne des modèles aux jeune. De l'autre côté, un inconvénient c'est que les ouvriers qui construisent les stages sont souvent exploités

---

Est-tu déjà allé·e à un festival de musique ?
Have you already been to a music festival?

Oui, l'année dernière je suis allé·e au festival de Reading avec mes amis et on a fait du camping. Nous avons regardé beaucoup de bandes et c'était inoubliable. Je dois admettre que j'ai détesté les toilettes car elles étaient dégoutantes mais l'atmosphère en général était époustouflante !

Question you will ask:

Fancy Phrases:

PERFECT TENSE (*"has done/did"*)
Start with the present tense of *avoir/être*, then add the past participle of the second verb:

-er	-ir	-re
Remove *–er* Add *-é*	Remove *-r*	Remove *–re* Add *-u*
jouer → (j'ai) joué	finir → (j'ai) fini	vendre → (j'ai) vendu

VERBS USING ÊTRE e.g. je suis allé(e)

monter   entrer   sortir   venir   aller   naître
partir   descendre   arriver   tomber   rester
*mourir   retourner   **(and all reflexive verbs)***

The past participle for these verbs must agree with the subject in gender and number:

je suis allé (m)   *je suis tombée* (f)
on est entrés (mpl)   *on est entrées* (fpl)

PRESENT TENSE (*"does/is doing"*)
Remove the -er/-ir/-re and add these endings:

	jouer	finir	vendre
je	joue	finis	vends
tu	joues	finis	vends
il/elle/on	joue	finit	vend
nous	jouons	finissons	vendons
vous	jouez	finissez	vendez
ils/elles	jouent	finissent	vendent

ÊTRE
je suis / tu es / il est / nous sommes / vous êtes / ils sont
AVOIR
j'ai / tu as / il a / nous avons / vous avez / ils ont

SIMPLE FUTURE TENSE (*"will/shall do"*)
Add these endings to the infinitive:

	jouer	finir	vendre
je	jouerai	finirai	vendrai
tu	joueras	finiras	vendras
il/elle/on	jouera	finira	vendra
nous	jouerons	finirons	vendrons
vous	jouerez	finirez	vendrez
ils/elles	joueront	finiront	vendront

IRREGULAR STEMS

être (ser-)   *avoir* (aur-)   *faire* (fer-)
venir (viendr-)   *savoir* (saur-)   *aller* (ir-)
devoir (devr-)   *pouvoir* (pourr-)   *voir* (verr-)

IMPERFECT TENSE (*"was doing/used to do"*)
Remove *–ons* from the *nous* form of the present tense, add these endings (ais/ais/ait/ions/iez/aient)

	jouer	finir	vendre
je	jouais	finissais	vendais
tu	jouais	finissais	vendais
il/elle/on	jouait	finissait	vendait
nous	jouions	finissions	vendions
vous	jouiez	finissiez	vendiez
ils/elles	jouaient	finissaient	vendaient

NEAR FUTURE TENSE (*"is going to do"*)
Use the present tense of *aller* followed by the infinitive:

je	vais	
tu	vas	jouer
il/elle/on	va	finir
		vendre
nous	allons	être
		aller
vous	allez	vouloir
		etc.
ils/elles	vont	

CONDITIONAL TENSE (*"would do"*)
Begin with the future stem, add imperfect endings:

	jouer	finir	vendre
je	jouerais	finirais	vendrais
tu	jouerais	finirais	vendrais
il/elle/on	jouerait	finirait	vendrait
nous	jouerions	finirions	vendrions
vous	joueriez	finiriez	vendriez
ils/elles	joueraient	finiraient	vendraient

IRREGULAR STEMS
Same as for the simple future
EXTRA MARKS: USE WITH THE IMPERFECT TENSE
Si j'avais le temps, j'irais... (If I had time, I'd go to...)

PLUPERFECT TENSE (*"had done"*)
Very similar to the perfect tense, except you start with the *imperfect* tense of auxiliary verbs *avoir/être*:
e.g. j'*avais* joué, il *avait* fini, nous *étions* allés, elles s'*étaient* brossées les dents

Year 11 Geography - The Living World

What is an Ecosystem? An ecosystem is a system in which organisms interact with each other and with their environment.

Ecosystem's Components

Abiotic	These are **non-living**, such as air, water, heat and rock.
Biotic	These are **living**, such as plants, insects, and animals.

	Flora	**Plant life** occurring in a particular region or time.
	Fauna	**Animal life** of any particular region or time.
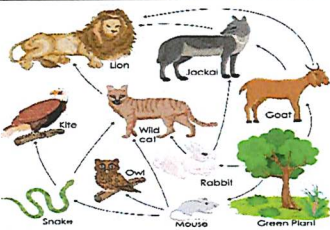
Food Web and Chains

Simple **food chains** are useful in explaining the basic principles behind ecosystems. They show only one species at a particular trophic level. **Food webs** however consists of a network of many food chains interconnected together.

Nutrient cycle

Plants take in **nutrients** to build into new organic matter. Nutrients are taken up when animals eat plants and then returned to the soil when animals die and the body is broken down by **decomposers**.
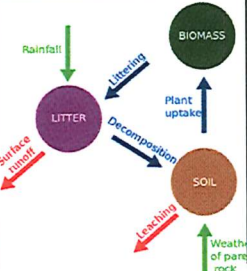
Litter	This is the **surface layer** of vegetation, which over time breaks down to become **humus**.
Biomass	The total **mass of living organisms** per unit area.

Biomes

A biome is a **large geographical area of distinctive plant and animal groups**, which are adapted to that particular environment. The climate and geography of a region determines what type of biome can exist in that region.
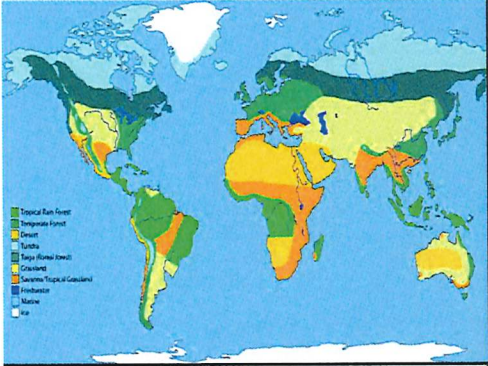
	Coniferous forest
	Deciduous forest
	Tropical rainforests
	Tundra
	Temperate grasslands
	Tropical grasslands
	Hot deserts.

The **most productive biomes** – which have the greatest biomass – grow in climates that are **hot and wet**.

Biome's climate and plants

Biome	Location	Temperature	Rainfall	Flora	Fauna
Tropical rainforest	Centred along the Equator.	Hot all year (25-30°C)	Very high (over 200mm/year)	Tall trees forming a canopy; wide variety of species.	Greatest range of different animal species. Most live in canopy layer
Tropical grasslands	Between latitudes 5°- 30° north & south of Equator.	Warm all year (20-30°C)	Wet + dry season (500-1500mm/year)	Grasslands with widely spaced trees.	Large hoofed herbivores and carnivores dominate.
Hot desert	Found along the tropics of Cancer and Capricorn.	Hot by day (over 30°C) Cold by night	Very low (below 300mm/year)	Lack of plants and few species; adapted to drought.	Many animals are small and nocturnal: except for the camel.
Deciduous & coniferous forest	Between latitudes 40°- 60° north of Equator.	Warm summers + mild winters (5-20°C) 4 seasons	Variable rainfall (500-1500m /year)	Mainly deciduous trees; a variety of species.	Animals adapt to colder and warmer climates. Some migrate.
Tundra	Far Latitudes of 65° north and south of Equator	Cold winter + cool summers (below 10°C)	Low rainfall (below 500mm/ year)	Small plants grow close to the ground and only in summer.	Low number of species. Most animals found along coast.
Polar	North/South Poles Arctic/Antarctic	Very low temperatures year round can reach -50°C	Very low rainfall	Some plants such as mosses and lichens	Very few- polar bears, penguins

CASE STUDY: Small-Scale Ecosystem- Freshwater Pond

Freshwater ponds provide a variety of habitats for plants and animals.

Pond margin	Plenty of **oxygen & light** here. **Herons & reeds** found here.
Pond Surface	Plenty of **oxygen & light** producers such as **algae/waterlily** and consumers such as **ducks**.
Mid water	Animals breathe through gills. Fish (**stickleback**): main predators.
Pond bottom	**Little oxygen or light. Decomposers & scavengers** like **water fleas** here.

Changes to ecosystems

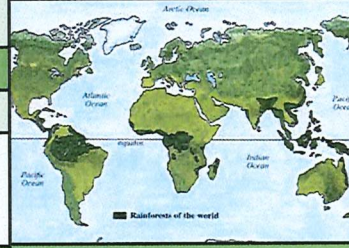A change to one part of an ecosystem can have an impact on other parts

Perch (predator) added to pond →	Perch will eat smaller fish and frogs →	Reduced food for creatures higher up food chain e.g. herons →	With fewer frogs there will be an increase in frogs lower in food chain

Layers of the Rainforest

Emergent	Highest layer with trees reaching **50 metres** (average).
Canopy	80% of life is found here as It receives **most of the sunlight and rainfall**.
U-Canopy/storey	Consists of trees that reach **20 metres high (approximately)**.
Shrub Layer	Lowest layer with **small trees** that have adapted to living in the **shade**.

Rainforest nutrient cycle

The **hot, damp conditions** on the forest floor allow for the **rapid decomposition** of dead plant material. This provides plentiful nutrients that are easily absorbed by plant roots. However, as these nutrients are in high demand from the many fast-growing plants, they do not remain in the soil for long and stay close to the surface. If vegetation is removed, the soils quickly become **infertile**.

Tropical Rainforest Biome

Tropical rainforest cover about **6 per cent** of the Earth's surface yet they are home to **over half of the world's plant and animals**.
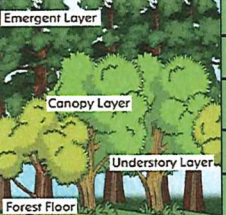
Interdependence in the rainforest

A rainforest works through **interdependence**. This is where the plants and animals **depend on each other** for survival. If one component changes, there can be **serious knock-up effects** for the entire ecosystem.

Distribution of Tropical Rainforests

Tropical rainforests are **centred along the Equator** between the Tropic of Cancer and Capricorn. Rainforests can be found in South America, central Africa and South-East Asia. **The Amazon** is the world's largest rainforest and takes up the majority of northern South America, encompassing countries such as Brazil and Peru.
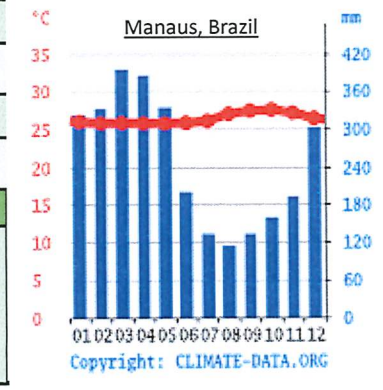
Climate of Tropical Rainforests

- Evening temperatures rarely fall below **22°C**.
- Due to the **presence of clouds**, temperatures rarely rise above **32°C**.
- Most afternoons have heavy showers.
- At night with no clouds insulating, temperature drops.

Manaus, Brazil

Copyright: CLIMATE-DATA.ORG

Tropical Rainforests: Case Study The Amazon

The Amazon is the **largest rainforest** on earth covering an area of **8million km2** (the UK is 250,00km2) It covers countries such as Brazil, Peru, Colombia, Venezuela, Ecuador, Bolivia, Guyana, Suriname, French Guiana.

Plant Adaptations to the rainforest

Buttress Roots	**Big roots** to support 50 metre high trees.
Drip Tips	Allows heavy rain to **run off leaves easily.**
Lianas & Vines	**Climbs** trees to reach sunlight at canopy.

Animal Adaptations to the rainforest

Poison dart frog	Has **sucker-like toes** to deal with **wet / slippery branches**
Toucan	Has a **special beak** to **scoop up fruits of forest**

Issues related to biodiversity

Why are there high rates of biodiversity?

- **Warm and wet climate** encourages a wide range of vegetation to grow.
- There is **rapid recycling of nutrients** to speed plant growth.
- Most of the rainforest is **untouched.**

Main issues with biodiversity decline

- **Keystone species** (a species that are important of other species) are extremely important in the rainforest ecosystem. Humans are threatening these vital components.
- **Decline in species** could cause tribes being unable to survive.
- **Plants & animals** may become **extinct.**
- Key medical **plants** may become **extinct.**

What are the causes of deforestation in the Amazon?

Logging- 2-3% of deforestation

- Most widely reported cause of destructions to biodiversity.
- Timber is harvested to create **commercial items** such as furniture and paper.
- **Violent confrontation** between indigenous tribes and logging companies.

Cattle Ranching- 65-70%

- **Biggest** cause of deforestation in the Amazon.
- Forest is cleared to make space for **cattle grazing.** Normally by **slash and burn.**
- There are around **200 million cattle on 450,000km2 of pasture.**

Mineral Extraction < 2%

- **Precious metals** are found in the rainforest.
- Areas **mined** can experience **soil and water contamination.**
- **Indigenous people** are becoming **displaced** from their land due to roads being built to transport products.

Commercial Farming: 5-10%

- **Soy** is also farmed here- up to 250,000 km2 of former forest has been used for it's production.
- **Rice, cane and sugar cane** are also grown and sold for **profit.**

Impacts of deforestation

Economic development

+ In March 2018 Brazil exported **$600 million of beef**
+ One mining company in Peru (Buenaventura Mining Company) employs **over 8,000 people**
- The loss of biodiversity will reduce tourism and local **Brazilian rubber tappers** have lost their livelihood.

Energy Development <2%

- The **high rainfall** creates ideal conditions for **hydro-electric power (HEP).**
- The **Balbina Dam** near **Manaus** flooded 2,400km2 of rainforest.
- **New roads** are also needed to transport resources causing more deforestation.

Subsistence Farming- 20-25%

- Forest is cleared by **small-scale farmers** who need to grow food for **themselves & their families**
- Many **indigenous people** are subsistence farmers. Many farmers have been settled along the **trans-Amazonian Highway** by the Brazilian government.
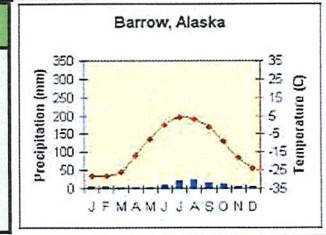
Soil erosion

- Brazil is loosing **100m tonnes** of topsoil every year. This may lead to landslides and flooding.
- Soil fertility reduced as more water reaches soil

Climate Change

- Rainforests are **carbon sinks**- the **Amazon** stores **140 billion tonnes** of carbon, deforestation releases this Co2 which is a greenhouse gas
- Up to **75% of Brazils** CO2 emissions come from deforestation.

Sustainable Management of Rainforests

Uncontrolled and unchecked exploitation can cause irreversible damage such as loss of biodiversity, soil erosion and climate change.

Possible strategies include:
- **Selective logging &replanting** - trees are only felled when they reach a particular height and trees are replaced, (e.g. in Malaysia)
- **Education** - ensuring people understand the impacts of deforestation
- **Ecotourism** - tourism that promotes the environments & conservation (e.g. Monteverde reserve, Costa Rica)
- **Conservation**- setting up national parks & nature reserves
- **Reducing debt**- debt can be cancelled by HICs if LICs protect their TRFs (e.g. USA cancelled $25m of Peru's debt)
- **International Hardwood Agreements**- in place to prevent illegal logging.

Cold Environments: Case Study Alaska, USA

Alaska is a cold environment that is part of the USA. Northern Alaska is inside the Arctic Circle. Alaska's state **population** is one of the smallest in the USA despite being the largest state by area.

Distribution of Cold Environments

Tundra is located at **high latitude** (above 60° north) in **Northern Canada, Northern Europe** e.g. **Scandinavia and Alaska. Polar** environments are found around the **north and south poles.**

Major characteristics of Cold Environments

- **Tundra: Cold winters** and **brief summers** and **little rainfall.**
- **Polar: Very cold** and **icy and dry. Very little grows.** They remain **dark** for several months each year.

Cold Environment inhabitants

- **Tundra:** home to **indigenous people** and **oil & gas workers** in larger towns
- **Polar:** Mostly **uninhabited,** some **indigenous** and **scientists.**

Climate of Cold Environments

- **Tundra:** Warm months only reach a max of **10°c** while winters can plunge to **-50°c.** Precipitation is low, less than **380mm**
- **Polar:** very cold year round, winters tend to drop to **-40°c** but can reach **-90°c.** Very little rainfall-less than **100mm a year.** Antarctica is a cold desert!

Barrow, Alaska

Adaptations Cold Environments

Plants	Most plants become **dormant** to survive cold, dark winters. Plants are **low-growing** to avoid strong winds. **Shallow roots** because of permafrost. E.g. Bearberry plant.
Animals	**Well insulated,** they have **thick fur** like **Polar Bears.** Some animals **hibernate. White coats** for camouflage e.g. **Arctic Fox.**

Interdependence

Cold climate causes plants to grow slowly & decompose slowly-> so plant cover is low -> soil is low in nutrients -> limiting further plant growth

Opportunities and challenges for development in Alaska

Opportunities	Challenges
- **Energy:** Over **half** of Alaska's income comes from the oil & gas industry. - **Mineral Resources: Gold, silver & iron ore** mined. In 2015 **$154million** of gold was exported from Alaska. - **Fishing: 30,000** people are employed in fishing in Alaska **(10% of the population)** - **Tourism:** tourists are attracted by Alaska's wilderness. **2 million** visit yearly brining in almost **$2.5billion.**	- **Extreme Temperatures:** It is very cold Prudhoe Bay's mean annual temperature is **-9°c.** Making working outside dangerous. Daylight hours are also low. - **Inaccessibility:** Alaska is far from the rest of the US & many areas are mountainous limiting development. - **Buildings & infrastructure:** Providing buildings to cope with either soft or frozen ground is expensive and difficult. Most construction only happens in summer.

Management of Cold Environments

Cold Environments are fragile & take a long time to recover. It can take centuries for them to repair.	Plant growth is slow- if damaged regrowth takes time. Species are highly specialised & find it difficult to adapt to change.
Role of Governments Alaska passed the **1964 Wilderness Act** protecting much of Alaska from development.	**International Agreements** The **1959 Antarctic treaty** was signed by 12 nations limiting tourist numbers and ensuring no development.
Technology **Trans-Alaskan Pipeline** uses technology to reduce the harm of transporting oil.	**Conservation Groups** The **WWF & Greenpeace** put pressure eon governments to protect these areas.

Valuable Wilderness Areas

- **Wilderness areas** are wild natural environments that are mostly undeveloped & uninhabited e.g. **Denali Park, Alaska.**

It is important to conserve these areas because:
- The provide habitats for species that can't survive elsewhere.
- Scientists can study these areas unaffected by people. This can help preserve rare species outside protected areas.

The Challenge of Resource Management

Significance of Resources

Resources such as food, energy and water are the things that **we use** and are needed for **basic human development**. Access to these resources affects the **economic** and **social** well-being of people and countries.

FOOD 🍴	WATER 🚰	ENERGY 💡
Without enough nutritious food, people can become **malnourished**. This can make them ill . This can prevent people working or receiving education. Globally **1/3 of all children die from diseases linked to malnourishment.**	People need a supply of **clean and safe water** for drinking, cooking and washing. Water is also needed for food, clothes and other products. Water-borne diseases such as **cholera** & **typhoid** kill many people each year.	A good supply of energy is needed for a basic standard of living. People need **light and heat** for cooking or to stay warm. It is also needed for **industry**. LICs &NEEs with less energy may burn wood for fuel- leading to local deforestation.

Global Supply and Consumption of Resources

The global distribution of resources is very **uneven**.

Some countries don't have their own energy reserves and others have dry environments that are not suitable for food production.

To access more resources some countries have to **import** them or find **technological solutions** to produce more.

Consumption of resources depends on **wealth** as well as resource **availability**.

HICs	NEEs
• Consumption of resources is **greater** in HICs because they can afford to **buy** the resources they need and they expect a **higher standard of living**. • Countries such as **Luxembourg (Europe)** import much of the energy they use.	• Consumption is **increasing rapidly** in NEEs e.g. **China**. • Industry is **developing** quickly (which requires a lot of energy) • **Population** and **wealth** are also **increasingly rapidly** meaning there is greater demand for resources.

LICs
• Consumption is **lower** in LICs e.g. **Uganda (Africa)** • This is because they either: • **Can't afford** to **exploit** the resources they have OR • **Can't afford** to **import** the resources they lack.

CONSUMPTION OF EARTH'S RESOURCES:

Food in the UK 🇬🇧 🍴

Growing Demand for Food

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

Impact of Demand

Foods can travel long distances (food miles). Importing food adds to our carbon footprint.
+ Supports workers with an income
+ Supports families in LICs.
+ Taxes from farmers' incomes contribute to local services.
- Less land for locals to grow their own food.
- Farmers exposed to chemicals.

Agribusiness 🚜

Farming is being treated like a large industrial business. This is increasing food production. E.g. Thanet Earth, Kent.
+ Intensive faming maximises the amount of food produced.
+ Using machinery which increases the farms efficiency.
- Only employs a small number of workers.
- Chemicals used on farms damages the habitats and wildlife.

Sustainable Foods 🛒

Organic foods that have little impact on the environment and are healthier have been rising. Local food sourcing is also rising in popularity. E.g. Riverford Farms.
• **Reduces emissions** by only eating food from the UK.
• **Buying locally sourced** food supports local shops and farms.
• A third of people **grow their own food**.

Energy in the UK 🇬🇧 💡

Growing Demand

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

Changes in Energy Mix

• 75% of the UK's oil and gas has been used up.
• In **1990 91%** of our energy came from coal & oil- now decreased
• UK has become too dependent on imported energy.

Energy Mix

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

2009   2020

Oil	Gas	Renewable
Nuclear	Coal	Other
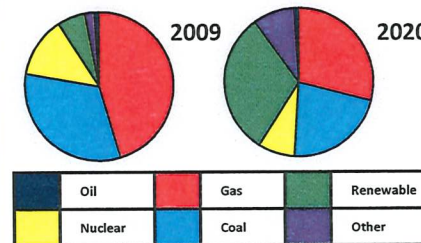
Water in the UK 🇬🇧 🚰

Growing Demand

The average water used per household has risen by 70%. This growing demand is predicted to increase by 5% by 2020.
This is due to:
• A growing UK population.
• Water-intensive appliances.
• Showers and baths taken.
• Industrial and leisure use.
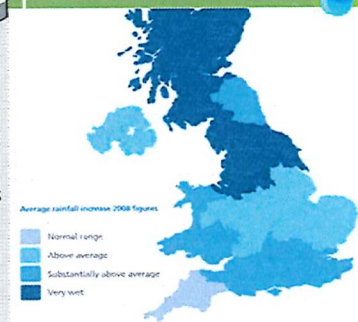• Watering greenhouses.

Deficit and Surplus

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

Pollution and Quality 🏭

Cause and effects include:
• Chemical run-off from farmland can destroy habitats and kills animals.
• Oil from boats and ships poisons wildlife.
• Untreated waste from industries creates unsafe drinking water.
• Sewage containing bacteria spreads infectious diseases. Pollution affects nearly **50%** of groundwater used.

Water stress in the UK 💧

Average rainfall increase 2008 figures
- Normal range
- Above average
- Substantially above average
- Very wet

Management

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

Water Transfer

Water transfer involves moving water through pipes from areas of surplus (Wales) to areas of deficit (London).
Opposition includes:
• Effects on **land and wildlife**.
• High maintenance **costs**.
• The **amount of energy** required to move water over long distances.

Energy in the UK (continued)

Significance of Renewables

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

Exploitation

Nuclear
+New plants provide job opportunities.
- Problems with safety and possible harm to wildlife.
-Nuclear plants are expensive.

Wind Farm
+Locals have low energy bills.
+Reduces carbon footprint.
-Construction cost is high.
-Visual impacts on landscape. Noise from wind turbines.

Health & wellbeing

What you need to know: - definition, factors

Not just the absence of disease but a holistic attitude/the whole person:
Physical (healthy body, regular exercise, a healthy diet, sleep, shelter & warmth, personal hygiene)
Intellectual (keeping the brain healthy, concentrate, learn new knowledge/skills, communicate & solve problems)
Emotional (feeling safe & secure, express emotions, deal with negative emotions, self-concept)
Social (friendships, relationships with friends and family)

Genetic inheritance

What you need to know:
- inherited conditions - predispositions

Genetic inheritance is a physical factor that can have positive and negative effects
Genes are inherited from both birth parents

Inherited characteristics
- height, eye colour, hair colour
- This can effect self image (how you see yourself) & self esteem, (how you feel about yourself)

Inherited conditions
Different versions of genes are called alleles.
Some alleles can be faulty and pass on conditions
Dominant condition
(one parent passes faulty allele on)
i.e. Huntington's – involuntary movements and loss of intellectual ability
Recessive condition
(both parents pass faulty allele on)
i.e. Cystic fibrosis – sticky mucus on the lungs

Genetic predisposition
Some people are predisposed (more likely) to develop a condition due to genetic makeup
i.e. heart disease, cancer, diabetes.
Whether they end up developing the conditions depends on their lifestyle & environmental factors
(.e. Diet, exercise)

Ill Health

Ill health -a physical factor which can have a negative effect on health & wellbeing

What you need to know:
- Effects on a persons PIES, difference between acute & chronic

Chronic	Management:
Comes on more slowly, lasts a long time. Usually treated, not cured i.e. diabetes, arthritis, asthma, heart disease	Address the negative impacts on the person and try to control the symptoms (i.e. use of medication, counselling, schooling in hospital, support groups)

Effect on PIES –
P – growth rates, restricted movements
I – disrupted learning, difficulties in thinking./problem solving, memory problems
E – negative self-concept, stress
S – isolation, loss of independence, difficulties forming relationships

Acute
Starts quickly, lasts for a short period of time. Usually cured
i.e. bacterial/viral infection, flu, broken bones, pneumonia
Management - Usually with medication

Diet

What you need to know: - amounts, quality, effects of poor diet
Diet - lifestyle choice. Diet = The balance of foods a person eats (diet doesn't mean weight loss!)

Foods to avoid
Salt – raises blood pressure –> heart disease

Saturated fat – raises blood cholesterol –> heart disease
*found in animal fats such as meat, butter

Sugar – rots teeth, high in kcals (energy) -> tooth decay & weight gain

Fruit & vegetables — Starchy foods — Meat, fish eggs, beans — Dairy — Oils
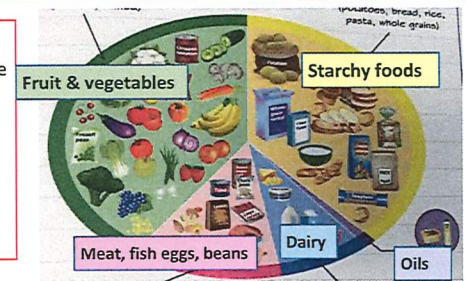
Section	Nutrient	Needed for
Starchy	Carbohydrates (& fibre if wholemeal)	Carbohydrates - Provides energy. Fibre – Digestive system/prevents constipation
Fruit & vegetables	Vitamins Fibre	Vitamins - Keep the body healthy. Fibre – Digestive system/prevents constipation
Meat, fish, eggs, beans	Protein	Growth and repair of cells and muscles
Dairy	Calcium	Strong bones and teeth
Oils	Unsaturated fats	Reduces cholesterol, Keeps the body warm, Protects organs

Other points:
Water is important to stay hydrated
Control calorie intake to manage weight.
More energy in (food) than expended in exercise causes weight gain
Less energy in (food) than expended in exercise causes weight loss

Physical activity

What you need to know:
- recommendations
– benefits at each life stage

Exercise is a lifestyle choice
- gentle – walking, housework
- moderate – light jog, steady swim
- vigorous – spinning, football

How much?
Changes depending on age. Adult: approx. 150 mins moderate per week

Why?
P – lower BMI, energy, stamina, strengthen bones & muscle
I – links to better memory and thinking skills
E – increases confidence, Relieve stress, concentrate, relax
S – social interaction, communication, teamwork

Lack of exercise:
Stiff joints
Poor stamina/strength
Obesity
Stroke
Heart disease
Osteoporosis
Poorly formed muscle

Substance misuse

Alcohol - a lifestyle choice
Men & women should drink <14 units/week
1 unit = 1 single spirit
1.5 units = 1 pint, 1 small glass of wine
Avoid saving units for 'binge'
Can increase risk of addiction & cancers.

Smoking & Nicotine – a lifestyle choice.
Nicotine is an addictive drug found in tobacco products.
Cigarette smoke contains nicotine, tar, carbon dioxide & soot which are all harmful.
People smoke to relieve stress, peer pressure, or are unable to quit. Passive smoking also carries risk to others

Drugs – including legal and illegal.
Prescription misuse - when people take for non medical (recreational use), become addicted to them, take excess, or take someone else's.
Stimulants - alertness, excitability (i.e. Cocaine, nicotine)
Depressants –calm, relax (i.e. cannabis, alcohol, heroine)
Hallucinogens – cause hallucinations i.e. LSD, ketamine)

Effect on PIES
P – dependence (alcoholism) damage to organs (mouth, liver, breast), infertility, weight gain
I – difficulty in decision making, depression, anxiety, stroke & brain damage
E – poor judgement leading to risky behaviour
S – relationship breakdown, domestic violence

Effect on PIES
P – increases risk of disease (cancer, stroke, coronary heart disease and others)
I – addiction leads to irritation, distraction & stress when unable to smoke. Increase chance of anxiety and depression.
E – poor self concept. May worry about negative impacts on health and costs.
S – may feel socially excluded when smoking, people may avoid smokers due to smell.

Effect of drug misuses
Addictive drugs are taken to change the mental state, to give an immediate feeling of wellbeing or happiness but they have long term effects. i.e. Paranoia,, sleep problems, anxiety, depression, suicidal feelings,

Personal hygiene

The cleanliness of a persons body. Essential for health & wellbeing

Good personal hygiene
Prevents spread of infection
Improves self concept
-Hand washing
- Washing
- Nails clean
-Tissue for cough/sneeze
-Brushing and washing hair
-Brushing teeth
-Clean clothes
-Flushing the toilet

Effect on PIES of poor personal hygiene
P - Catching & spreading disease
Poor body odour, bad breath & tooth decay
Illness such as food poisoning, sore throat, athletes foot.
I – may reduce chance of job
E – poor self – concept, bullied
S – social isolation, loss of friendship.

Key Words

Health & Wellbeing – how physically fit and mentally stable a person is (not just absence of disease)
Genetic Predisposition – more likely to inherit a condition based on genes
Chronic illness – gradual, long term illness, treated not cured. i.e. asthma
Acute illness – illness comes on quickly, short term & curable i.e. cold
Balanced diet - variety of different types of food and providing adequate amounts of the nutrients necessary for good health.
Substance misuse - continued misuse of any mind-altering substance that affects a person's health & wellbeing (drugs, alcohol, smoking)
Hygiene - cleanliness of body and clothing to maintain health & wellbeing.

Social interaction

Between family–friends–work colleagues–school friends.

Reacting to people through communication & relationships

Integration – when people feel they belong to a group
Isolation - when people do not have contact with others.
Due to: staying in, physical illness, reduced mobility or unemployment, mental illness, a condition such as autism

	Positive relationships	Negative relationships
P	Day to day care & practical assistance	Peer pressure/Poor lifestyle choices (drinking)
I	Shared experiences, supported learning & thinking	Less support with learning, conversation
E	Unconditional love, security, contentment , self concept, independence & confidence	Loneliness,, insecurity, anxiety, depression,
S	Companionship, social interactions	Relationship difficulties

Relationship breakdown
Can lead to:
Anxiety, stress, depression insecurity, loss of confidence, poor lifestyle choices, more pressure on finances, new home etc

Topics
-Social interaction
-Stress
-Economic/financial
-Life events
-Environment & Living Conditions
- Willingness to seek help or access services

Stress

Feelings of mental & emotional tension.

Occurs when the body responds to demand
The hormone adrenaline is released
Trigger 'fight or flight' response
– so you respond instantly in life or death situations
BUT an overreaction to non life threatening situation can cause negative stress.

Causes of stress
Pressures at work
Exams
Financial difficulties
Life events
(illness, relationship changes, moving home, bereavement)

Effect on health & wellbeing

Physical
Short Term:
-Tense muscles
-Fast breathing
-Dry mouth
-Faster heartbeat
-Butterflies
-Urge to pass water (urine)
-Diarrhoea
-Sweaty hands

Physical:
Long term:
-Sleeplessness
-High blood pressure
-Irritability
-Loss of appetite
-Heart disease
-Headaches
-Poor sex life
-Anxiety
-Mood swings

Emotional
Difficulty controlling emotions – crying, angry
Feeling insecure
Negative self concept
Feeling anxious

STRESS

Social
Difficulty making friends/building relationships
Breakdown of close relationships
Loss of confidence
Social isolation

Intellectual
Forgetfulness
Poor concentration
Difficulty in making decisions

Willingness to seek help or access services

Asking for help
People need to seek help from health & social services at various stages. Being reluctant can lead to negative effects

Barrier 1: Gender
Men are less likely to access as they are often less open & avoid looking vulnerable

Barrier 2: Education
More educated are more likely to seek help
They are more likely to:
Research symptoms and know when help is needed
Understand importance of early diagnosis & treatment
Know how and where to access services

Barrier 3: Culture
Social behaviour, value, transition, customs and beliefs of communities. E.g.
- discriminated against when accessing services
- not speaking English well enough to discuss issues
- some cultures require women to see women
- Some cultures use 'alternative therapy'
- stigma (feel ashamed)of conditions e.g., depression

Environmental & Living conditions

Air – water – noise – light – housing - area

Environmental – Air, water and land around us.
Pollution - Contamination of the environment & living organisms by harmful chemicals.

Examples
Outdoor air – Chemicals from factories, exhausts
Indoor air – Aerosols, mould, cigarette smoke, carbon monoxide from heating
Water– Farm fertilisers/pesticides, waste, sewage
Food pollutants – chemicals in food production
Noise – Machinery and traffic music, loud neighbours
Light – Excess lighting, street lights

Housing
Good living conditions
Less polluted areas, quiet, safe, spacious, warm, dry, safe outdoor space
Poor living conditions
- Overcrowding – anxiety & depression, sleeplessness, difficulty concentrating & studying
- Lack of open space – less exercise & physical play
- Pests - Rats carry disease, bugs carry disease
- Damp & mould - Respiratory problems (asthma)
- Poor heating – poor health (cold, flu) heart disease

Impact of pollutants
• Lung problems *(Bronchitis, asthma, lung cancer)*
• Heart damage *(disease, stroke)*
• Reduction of brain function *(thinking and memory)*
• Low birth weight or premature births

City
Better transport links
Close to facilities i.e. Shops, gym, entertainment, health services
Easy assess to social events
BUT pollution problems

Rural
Sense of community
Access to outdoors & less polluted
BUT commute, difficult to access services, isolation

Economic

Relate to a persons employment situation & financial resources. Effects lifestyle, health & wellbeing

Factors

2) Occupation - Job role & status (i.e. level of responsibility, salary)

3) Employment/ unemployment
- Part time
- Self employed
- Not being able to find work (due to being disabled, made redundant, or being reliant on state benefits)

1) Wealth
-Level of income
- Amount of personal wealth, including non-essential, valuable material possessions (jewellery, cars & property)

Adequate income:
Pay for rent/mortgage
– Pay bills (heating etc.)
- Afford luxuries, clothing, holidays, car, house with a garden –
Eat a balanced diet –
Socialise with friends -
Afford travel to leisure/health services
– Live in suburbs /countryside

Relative Poverty - Can only afford the essentials. (reduced financial resources)
Life choices will be limited -more likely to:
- suffer ill health
- lack personal development *(i.e. school trips, warm clothes, doing well at school)*

Absolute Poverty -Not enough money to meet basic needs (food, clothing, housing) even with benefits.

JOBS

	Positive	Negative
P	Good housing conditions Healthy diet Manual jobs can improve muscle tone & stamina	Poor housing conditions Poor diet Manual jobs - muscular/skeletal problems Desk jobs - less activity and weight gain
I	Opportunity to access intellectual activities Work, education & training helps to develop problem-solving & thinking skills	Long hours -less leisure time & reduced learning opportunities Being unemployed can result in poor mental health
E	A well paid job gives a feeling of security and less stress/worry over housing etc. Affording to socialise =positive self concept	Financial worries - stress & breakdown of relationships Not affording to go out and socialise =depression Unemployment of a low status job =low self concept
S	Better financial resources =opportunities to socialise Socialise with colleagues	ask of financial resources reduces opportunities for socialising Reduced opportunities for relationships = social isolation Financial worries = stress & breakdown of relationships

Life events

Events can change life circumstances in positive & negative ways

Expected
These can be predicted. They are easier to plan for & manage the effects
-Leaving school
-Starting school
-Moving house
-Starting work
-Living with a partner
-Marriage/civil partnership
-Retirement

Unexpected
Cannot be predicted and cannot prepare.– has a greater impact
e.g. Redundancy, imprisonment, exclusion, sudden death of someone close (bereavement) and ill health, accident or injury

Effects on health & wellbeing:
Positives:
New friends, learning, skills, independence, excitement, confidence
Negatives:
Anxiety, insecurity, stress, unhappiness about loss of 'old' life, change in lifestyle

Effects on health & wellbeing:
P – High blood pressure
I – Depression, difficulty thinking & decision making, memory
E – Difficulty sleeping, grief, insecurity, stress and anxiety
S – Isolation, loss of friends
Some positives – catalyst for change of behaviours, opportunities for new study or training, support for emotional, diet etc

Key Words

Health & Wellbeing – how physically fit and mentally stable a person is (not just absence of disease) Linked to PIES.

Social integration – When people feel they belong to a group

Social Isolation - When people do not have contact with others.

Social interaction Acting/reacting to people through communication & relationships

Stress - Feelings of mental & emotional tension.

Adrenaline – a hormone released when the body responds to a demand which can lead to stress.

Economic - Relate to a persons employment situation & financial resources

Income – money people receive from work, savings pensions or benefits.

Expected life events – can be predicted e.g. Leaving school

Unexpected life event – cannot be predicted i.e. Bereavement

Environmental – The air, water and land around us.

Pollution - contamination of environment & living organisms by harmful chemicals.

Health Indicators

B1 Physiological indicators

Physiological indicators that are used to measure health:

- **Pulse** (resting and recovery rate after exercise) (you will be given this data, compare theirs against recommended healthy data.)
- **Blood Pressure** (you will be given this data, interpret and compare theirs against recommended healthy data.)
- **Peak flow** (you will be given this data, interpret and compare theirs against recommended healthy data.)
- **Body mass index (BMI)** (you will be given this data, interpret and compare theirs against recommended healthy data.)

Using published guidance to interpret data relating to these physiological indicators
The potential significance of abnormal readings: risks to physical health

LIFESTYLE DATA

B1: Lifestyle indicators

Lifestyle indicators that are used to measure health:
You will be given this information if it's relevant. You only have to answer questions on information you are given

Smoking- Do they smoke to excess and what are the current and future risks to health?
Drinking alcohol – Do they drink too much and what are the potential current and risks to future health?
Do they have an inactive lifestyle (lack of exercise) ? and what are the potential current and risks to future health?
Do they have a poor diet? (lack of nutrition or overeating or eating the wrong thing) and what are the potential current and risks to future health?

Topics
- Health and lifestyle indicators
- Current and future health risks
- Recommended actions, short and long term targets.
- Sources of Support
- Person centred care (meeting needs)
- Obstacles

Final question asks for suggestions: Make them sensible and realistic. Use general knowledge and ask: would I be able to do this ?
YOU HAVE 2 HOURS- GOOD LUCK!

HEALTH DATA		Current risks to health	Future risks to health
BMI	HIGH BMI	High blood pressure – fat restricting blood flow Harder to do exercise, so it becomes a vicious cycle	**Cardiovascular disease – fat restricting blood flow to the heart** **Diabetes – too much sugar** **Arthritis – pressure on the joints due to excess weight** **Stroke – fat builds up in the arteries and causes a blood clot, this stops blood from getting to the brain**
	LOW BMI	The body is not getting enough nutrients which can lead to; • Depression • Tiredness due to a lack of iron • Infections such as colds and flu because of a lack of vitamin c	Undiagnosed illness such as an 'underactive thyroid' – not enough of a certain hormone is produced An eating disorder such as anorexia or bulimia Anaemia Rickets Stunted bone growth or weaker bones due to lack of vitamin d
Pulse rate	High pulse rate	Blood is being pumped around the body too quickly – sweating, shortness of breath, feeling weak	Heart attack – the heart cannot pump the blood quickly enough through the heart
Blood Pressure	High blood pressure	Dizziness, fainting or falls – Blood cannot move easily through the brain	**Heart disease – arteries are narrowed so blood has to pump harder to get through the heart** **Kidney disease – damaged kidney arteries will not filter the blood** **Strokes – arteries are narrowed causing blood clots in the brain** Blindness – caused by blood clots affecting the nerves behind the eyes
	Low blood pressure	**Dizziness, fainting or falls - Blood is not pumped enough to the brain**	
Peak flow	Low peak flow reading	-Airway is narrowed – lungs are not working as well as they should be. -Harder to take part in exercise which means the lungs are not as strong or elastic – easily get out of breath and feel dizzy when walking upstairs etc	Airway is narrowed – lungs are not working as well as they should be If exercise is not done due to reduced lung capacity it can mean fat could build up and lead to heart disease or stroke

LIFESTYLE DATA	Current risks to health	Future risks to health
Poor Diet	Too much salt – can cause high blood pressure Too much sugar – can cause raised blood glucose levels Increased thirst Blurred vision Too much fat – Blocks arteries causing tiredness Not enough vitamins (usually found in fruit and veg) – Tiredness due to a lack of iron Infections such as colds and flu because of a lack of vitamin c	Obesity Heart disease (see in bold causes) High blood pressure (see in bold causes) Strokes (see in bold causes) Tooth decay (see in bold causes)
Lack of Exercise	Stiffening of the joints – muscles and ligaments become stiff and will not stretch Poor strength Obesity (see in bold causes)	Stroke (see in bold causes) Heart disease (see in bold causes) Slow blood flow (see in bold causes) Osteoporosis (weak bones)
Drinking alcohol	Addiction – alcohol Significant weight change – lack of appetite or much more of an appetite	Liver cancer Jaundice - yellowing of the skin and eyes as the liver fails
Drug misuse	Addiction Significant weight change – lack of appetite or much more of an appetite	Damage to organs such as brain, liver and kidneys
Smoking	Addiction - nicotine Gum disease – pollutants in cigarettes Smelly breath Prone to chest infections – weakens the immune system Smokers cough –build up of tar on the lungs	Illness such as asthma or bronchitis Increased blood clotting – tar blocks the arteries Stroke Lung cancer – pollutants in the cigarettes cause this and build up of tar Hands and nails stained of nicotine Wrinkled faces

TARGETS

Recommended actions – THREE- What do we know that we want to change? – Broad target, in detail.

Short term target- MAKE IT SMART- What will help straight away and can be done over a short period of time 0-6 months. (CAN YOU MEASURE IT?)

Long term target- MAKE IT SMART- What will help them achieve your recommendation over a longer period of time. Something they are going to need to do for longer and/or be able to keep doing for longer.

SOURCES OF SUPPORT

Formal Support
GP, Pharmacist, Dentist (Primary services)
Help groups such as quit smoking, weight watchers, alcohol anonymous.
Hospital departments (Secondary services).
Hospice care.
Physiotherapist, dietician.
Voluntary groups
Informal Support
Family
Friends
Neighbours

And how will they help?

OBSTACLES

emotional/psychological – lack of motivation, low self-esteem, acceptance of current state
time constraints – work and family commitments
availability of resources – financial, physical, e.g. equipment
unachievable targets – unachievable for the individual or unrealistic timescale
lack of support, e.g. from family and friends
other factors specific to individual – ability/disability, addiction
Other barriers to accessing identified services. - geographical, financial, physical, culture, language, psychological

Key Words

Needs = Health and lifestyle needs
Wishes= wants and doesn't want
Circumstances= Other relevant info from case study

BMI- Body mass index (how much fat you have)
PEAK FLOW- Lung capacity (how much air you can use)
BLOOD PRESSURE- Amount of blood in one beat – lower is better = more blood. Higher is bad.
RESTING PULSE- Beats per minute not during exercise- lower is better.

Development of the Nazi Party

1919	The Nazi Party (originally called the DAP) was set up with 23 members.
1920	The DAP became the NSDAP and introduced their salute.
	Hitler introduces the 25 point plan.
1921	Hitler became leader of the NSDAP
	The SA was set up as the Nazi private army. By 1930, numbers had reached 400,000.
1922	Party Conference where Hitler became sole leader of the NSDAP.
1923	NSDAP membership reached 50,000.
	The Munich Putsch fails.
	Hitler sent to prison.
1924	Hitler was released from prison.
1926	The Bamberg Conference where Hitler eliminated any socialism from the party.
1929	The Wall Street Crash.
1933	Hitler was made Chancellor of Germany by President Hindenburg.
	The Reichstag Fire.
1934	The Enabling Act.
	The Night of the Long Knives.
	The death of Von Hindenburg.

Year 11 History: Term 2

Nazi Germany

Why Hitler became Chancellor of Germany

The Nazis **appealed** to many groups of people by saying they would fix Germany's problems, and that they would stop communists from taking power. Eventually, they became the biggest party in the Reichstag.

The Wall Street Crash in 1929 plunged Germany into the **Great Depression.** German businesses lost money, wages fell and many lost their jobs.

Hitler was an extremely charismatic man, and during elections he travelled all over Germany suing aeroplanes to speak.

The Chancellor, **Brüning**, cut benefits and raised taxes to deal with Germany's money problems.

Von Schleicher planned a military takeover in Germany. Hitler was made Chancellor to stop this.

The Reichstag Fire

The Reichstag (government building) was destroyed in a fire. A Dutch Communist named Van der Lubbe was blamed by Hitler and the Nazis and used as an excuse for Hitler to imprison communists and ban their newspapers. Removing Nazi opposition in Germany.

The Enabling Act

A law passed by Hitler which destroyed the power of the Reichstag. It was passed by the SA and SS intimidating members of the Reichstag, communist politicians had already been banned and other politicians had gone into hiding. It allowed Hitler to rule without the Reichstag. This effectively made Hitler a **dictator**.

The death of Von Hindenburg

Hindenburg was Hitler's last obstacle to being a total dictator as he remained President until his death in 1934. After his death, Hitler declared himself Führer and added the President's powers to that of the Chancellor.

The Night of the Long Knives

Allowed Hitler to remove any remaining opposition within the Nazi Party (including Röhm and leading members of the SA). The 100 leaders were arrested, imprisoned, and shot. Hitler had been worried about the SA because they had grown to be very large and were loyal to Röhm over Hitler.

Control in Nazi Germany:

SS – This group started as Hitler's personal bodyguard, but after the Night of the Long Knives (1934) they organised the whole Nazi Police State, including the SD, Gestapo and concentration camps.

Gestapo – The Nazi secret police. They mainly relied on informants and ordinary people reporting their neighbours. They relied on the public's fear that anyone could be a member or informant for the Gestapo. Their tactics included arresting people in the middle of the night.

Concentration Camps – Prison camps were hard labour was carried out. These were fest set up soon after Hitler took power (the first was Dachau in 1933). People arrested by the Gestapo often ended up in concentration camps for several months. Those imprisoned in these camps included 'undesirables' (such as prostitutes or members of the LGBTQ+ community), minority groups (such as Jews), and political prisoners (such a communists).

The Reich Church – Set up in 1936, this was the new name for the Protestant church (2/3 of Germany were Protestant) and Hitler used this to control and influence the Christian population of Germany. For example, swastikas were put up in churches and parts of the Bible were censored.

Propaganda - Propaganda was used by the Nazis to control and influence ideas. This led to the **indoctrination** brainwashing of many members of German society. The Nazis used different types of propaganda to influence the public such as art, architecture, music, rallies, and cinema.

Women:

The Nazis believed that women were important in helping German society to function. They thought that women should focus their lives in the home (not in the workplace), having children and caring for their families. They also believed that women should behave and look very traditional (hair tied up, no make-up and conservative clothing). The Nazis introduced several policies and pieces of legislation (laws) to do this.

Children:

Children were encouraged to attend Nazi clubs (such as the Hitler Youth) and taught Nazi ideas in schools so that they grow up loyal to the Nazi Party.

Opposition to the Nazis:

Groups who didn't always follow instructions from the Nazis included:

The Confessing Church – A church in opposition to the Reich church. Some pastors spoke out against the Nazis and were sent to concentration camps.

The Edelweiss Pirates – A group of teenage boys and girls who opposed the Nazis by not joining the Hitler Youth, and dressing in American fashions.

The Swing Youth – A group of teenagers who organised dances and played illegally imported music from America and drank alcohol.

The Treatment of minorities

1933 – Laws introduced which begin to persecute gypsies, disabled people and Jews.

1935 – Laws introduced to imprison people for homosexuality.

The Nuremburg Laws increased persecution of Jews.

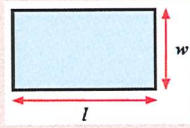1938 – Kristallnacht (the *Night of Broken Glass*).

1939 – Law passed to evict Jews and deport them from Germany.

The **Labour Service** gave low-paid jobs to the unemployed

7,000 miles of **autobahns** (motorways) were planned

How the Nazis increased employment in the 1930s

Invisible unemployment meant women and Jews weren't included in employment figures

Rearmament rebuilt the army and produced weapons.

GCSE Mathematics Command Words	PLOT	MEASURE	CONSTRUCT
	Mark a point on a graph using a cross	Find the length or a line or size of an angle using ... ... a ruler or protractor	Create an accurate drawing using the correct maths equipment Think ruler and compass
EXPAND Remove brackets from and algebraic expression $3(x + 4) = 3x + 12$	**GIVE or JUSTIFY** Use reasons to explain thinking Think angle facts line 'angles at a point sum to $360°$'	**REPRESENT** Display information in a graph or chart	**FIND** Work out an answer to a problem Think averages – find the mode
SOLVE Find the solution to an equation such as $4x - 3 = 24$	**SHOW** Give all working to get the answer	**EVALUATE or CALCULATE or WORK OUT** Find the value (calculate) Evaluate 4^3: $4 \times 4 \times 4 = 64$	**CONVERT** Change from one form to another Think units and fractions, decimals & percentages
EXPLAIN Give reasons to support the decision or answer	**SIMPLIFY** Make an algebraic expression simpler by collecting like terms OR make a ratio or fraction simpler by cancelling common factors	**ROUND** Make a number simpler but keep its value close to what is was 74.26 rounded to 1dp is 74.3	**ORDER** Use a rule to arrange Think ascending and descending
DRAW Create a neat drawing that show key features	**FACTORISE** Put brackets into an algebraic expression $x^2 + 6x + 8 = (x + 2)(x + 4)$	**ESTIMATE** Give a sensible approximate answer using rounding	**WRITE** Give the answer
SKETCH Create a rough drawing that shows key features (no need to use a ruler or compass)	**DESCRIBE** Use correct maths vocabulary to explain key features Think transformations	**LABEL** Attach the correct name to the diagram	**COMPLETE** Fill in missing values in a table or on a diagram

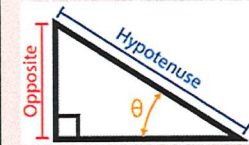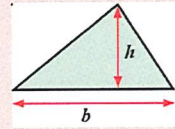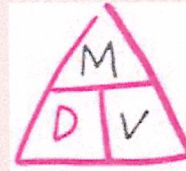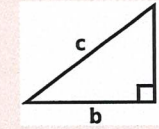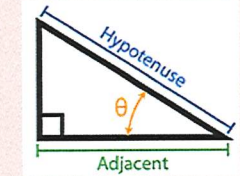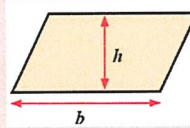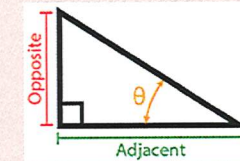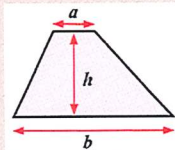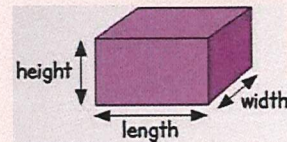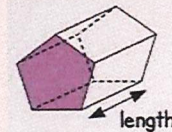| Foundation GCSE Mathematics Key Information	Area of a Rectangle	Speed	Percentage Change	Sinθ
	$A = l \times w$		$\dfrac{actual\ change}{original} \times 100$	$Sinθ = \dfrac{Opp}{Hyp}$
Prime Number A number that has exactly 2 factors 2, 3, 5, 7, 11, 17, ...	**Area of a Triangle** $A = \dfrac{1}{2} \times b \times h$	**Density**	**Pythagoras' Theorem** $a^2 + b^2 = c^2$	**Cosθ** $Cosθ = \dfrac{Adj}{Hyp}$
Square Number A number multiplied by itself $5^2 = 5 \times 5 = 25$	**Area of a Parallelogram** $A = b \times h$	**Pressure**	**Metric Length Conversions** 1km = 1000m 1m = 100cm 1cm = 10mm	**Tanθ** $Tanθ = \dfrac{Opp}{Adj}$
Cube Number A number multiplied by itself and then itself again $5^3 = 5 \times 5 \times 5 = 125$	**Area of a Trapezium** $A = \dfrac{1}{2} \times (a+b) \times h$	**Volume of a Cuboid** $V = l \times w \times h$	**Metric Mass Conversions** 1 tonne = 1000kg 1kg = 1000g 1g = 1000mg	**Exact Values of Sin**
Multiple The first 5 multiples of 12 are 12, 24, 36, 48 and 60	**Area of a Circle** $A = π \times r^2$	**Volume of a Prism** $V = area\ of\ cross-section \times length$	**Metric Capacity Conversions** 1l = 1000ml 1l = 100cl 1cl = 10ml	**Exact Values of Cos**
Factor The factors of 12 are 1, 2, 3, 4, 6 and 12	**Circumference of a Circle** $C = π \times d$	**Volume of a Cylinder** $V = π \times r^2 \times h$	**Error Interval** 7·4 rounded to 1dp $7.35 \leq x < 7.45$	**Exact Values of Tan**
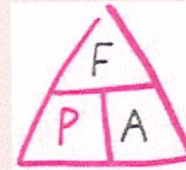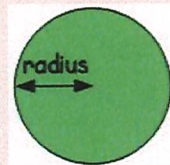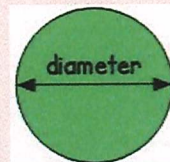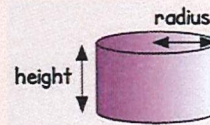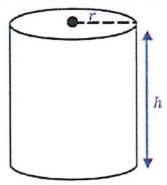
Exact Values of Sin

θ	0°	30°	45°	60°	90°
sinθ	0	$\dfrac{1}{2}$	$\dfrac{\sqrt{2}}{2}$	$\dfrac{\sqrt{3}}{2}$	1

Exact Values of Cos

θ	0°	30°	45°	60°	90°
cosθ	1	$\dfrac{\sqrt{3}}{2}$	$\dfrac{\sqrt{2}}{2}$	$\dfrac{1}{2}$	0

Exact Values of Tan

θ	0°	30°	45°	60°	90°
sinθ	0	$\dfrac{\sqrt{3}}{3}$	1	$\sqrt{3}$	

Cylinder

$Vol = \pi r^2 h$

Speed

(D over S, T triangle)

Percentage Change

$$\frac{actual\ change}{original} \times 100$$

Sinθ
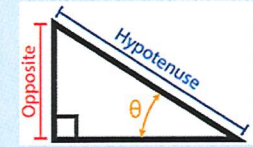
$$Sin\theta = \frac{Opp}{Hyp}$$

Quadratic Formula

$ax^2 + bx + c = 0$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Cone

$Vol = \frac{1}{3}\pi r^2 h$

Density

(M over D, V triangle)

Pythagoras' Theorem

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

Cosθ

$$Cos\theta = \frac{Adj}{Hyp}$$

Surds

$\sqrt{a} \times \sqrt{a} = a$

$\sqrt{a} \times \sqrt{b} = \sqrt{a \times b}$

$\frac{\sqrt{a}}{\sqrt{b}} = \sqrt{\frac{a}{b}}$

Sphere
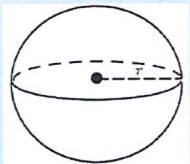
$Vol = \frac{4}{3}\pi r^3$

$S.A. = 4\pi r^2$

Pressure

(F over P, A triangle)
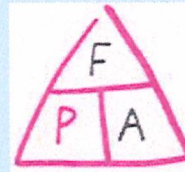
Trigonometry
Non-right angled triangles
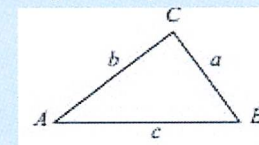
Tanθ
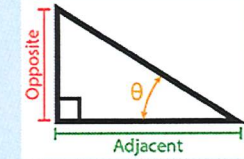
$$Tan\theta = \frac{Opp}{Adj}$$

Error Interval

7·4 rounded to 1dp

$7.35 \leq x < 7.45$

Angles in Polygons

Box Plots

Lowest Value, Lower Quartile, Median, Upper Quartile, Highest Value
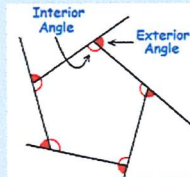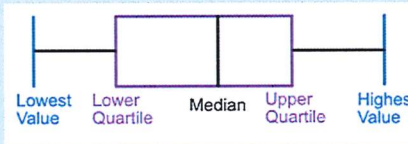
Sine Rule

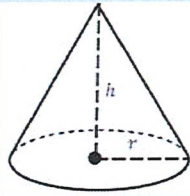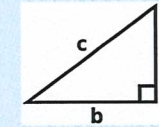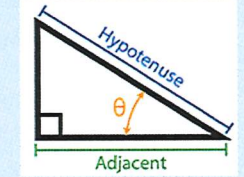$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

Exact Values of Sin

θ	0°	30°	45°	60°	90°
$\sin\theta$	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1

Direct Proportion

$y \propto x$

$y = kx$

Angles in Polygons
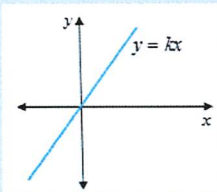
sum interior angles
= (n – 2) x 180°

sum exterior angles = 360°

interior + exterior = 180°

Histogram

bar chart with unequal bar width and frequency density on vertical axis

Frequency density = frequency ÷ class width

Cosine Rule

$a^2 = b^2 + c^2 - 2bc\ cosA$

Exact Values of Cos

θ	0°	30°	45°	60°	90°
$\cos\theta$	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0

Inverse Proportion

$y \propto \frac{1}{x}$

$y = \frac{k}{x}$

Bearings

The bearing of B from A

The bearing of A from B
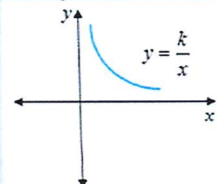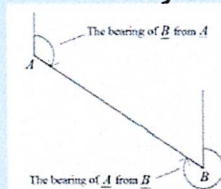
Rules of Indices

Rule 1: $a^0 = 1$

Rule 2: $a^m \times a^n = a^{m+n}$

Rule 3: $a^m \div a^n = a^{m-n}$

Rule 4: $(a^m)^n = a^{m \times n}$

Rule 5: $a^{-m} = \frac{1}{a^m}$

Rule 6: $a^{n/m} = \sqrt[m]{a^n}$

Area Triangle

$Area = \frac{1}{2}absinC$

Exact Values of Tan

θ	0°	30°	45°	60°	90°
$\sin\theta$	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	

Media Studies

Key Words

|	
Blockbuster	a Hollywood movie that's made with a large budget and big stars.
Independent Film	An indie film is any feature-length or short film that is made without a major studio or big production company attached.
Marketing	the action or business of promoting and selling products or services, including market research and advertising.
Vertical Integration	Vertical integration refers to the process of acquiring business operations within the same production vertical. A company that opts for vertical integration takes complete control over one or more stages in the production or distribution of a product.
Conglomerate	a large corporation.
Subsidiaries	a company controlled by a holding company.
Horizontal Integration	Horizontal integration and vertical integration are competitive strategies that companies use to consolidate their position among competitors. Horizontal integration is the acquisition of a related business. A company that opts for horizontal integration will take over another company that operates at the same level of the value chain in an industry.
Zeitgeist	the defining spirit or mood of a particular period of history as shown by the ideas and beliefs of the time.
Globalisation	the process by which businesses or other organizations develop international influence or start operating on an international scale.
Public Service Broadcaster	Public broadcasting involves radio, television and other electronic media outlets whose primary mission is public service.
Commercial Broadcaster	Commercial broadcasting is the broadcasting of television programs and radio programming by privately owned corporate media, as opposed to state sponsorship.
Manufactured Artist	artists who don't have any input in their music, have writing camps and have a big team of people working with them to make decisions.
Authentic Artist	Artists that influence their own music and image.
Performance Video	A video that is styled to be like a performance to an audience.
Narrative Video	A video with a story.
Convergence	Technological convergence, also known as digital convergence, is the tendency for technologies that were originally unrelated to become more closely integrated and even unified as they develop and advance.
Freemium Gaming	Freemium, a portmanteau of the words "free" and "premium," is a pricing strategy by which a basic product or service is provided free of charge, but money is charged for additional features, services, or virtual or physical goods that expand the functionality of the free version of the software.
Intrinsic Narrative	Story is written for the player to play.
Extrinsic Narrative	Story can be controlled and changed by the player.
Hyperreality	an inability of consciousness to distinguish reality from a simulation of reality, especially in technologically advanced postmodern societies

Key Theories

Connell's Theory of Gender	Subordinated Femininity: women are subservient to men and have little power. Emphasised Femininity: the idea that women must conform to the needs and desires of men, through their looks and sexual appeal. Resistant Femininity: women as resisting the stereotypes and presenting themselves as powerful. Hegemonic Masculinity: perpetuates the idea that men are dominant in society/ Stereotypical, manly man. Complicit Masculinity: men who subvert the stereotypes of men, often engaging more with 'feminine' roles such as the stay at home dad. Subordinated Masculinity: LGBTQ+. Considered to lack power in society.
Laura Mulvey's Male Gaze Theory	Laura Mulvey's Male Gaze Theory: Female images in media texts are objectified and viewed through the eyes of a heterosexual man.
Judith Butler's Theory of Gender Stereotypes	Suggests that the existence of stereotypes is due to the fact that they are repeated over and over again in the media.
Propp's Character Theory	Hero, Villain, False Hero, Donor (gives the hero something), Helper, Princess, Father, Dispatcher (sends hero on their way).
Todorov's Theory of Equilibrium	Equilibrium: state of balance. Disequilibrium: state of conflict/chaos. New Equilibrium: resolution.
Binary Opposites	opposition exists in narratives to propel a story forward.
Enigma Codes	questions/mystery exist in media texts to engage the audience.
Active Audience Theories	Suggests that audiences can respond to and interpret media texts in their own ways. Uses and Gratifications Theory: suggests audiences choose to go to media texts to gain: Personal Identity, Information, entertainment, education or social interaction. Dyer's Utopian Theory: suggests audiences go to media texts to gain a sense of escapism from their normal lives.
Passive Audience Theories	Suggests that audiences accept the messages of the media without questioning them. Hypodermic Needle Model: messages are injected into the minds of audiences, without them questioning it. Cultivation Theory: The more an audience is exposed to something, the more likely they are to believe it is true.

Shot Angles: Low, Eye-level, High, Worm's eye, Canted, Bird's eye

XLS, LS, MLS, MS, MCU, CU, BCU, XCU
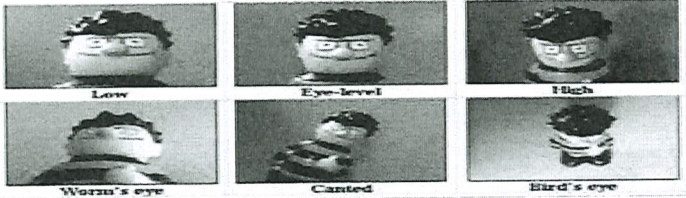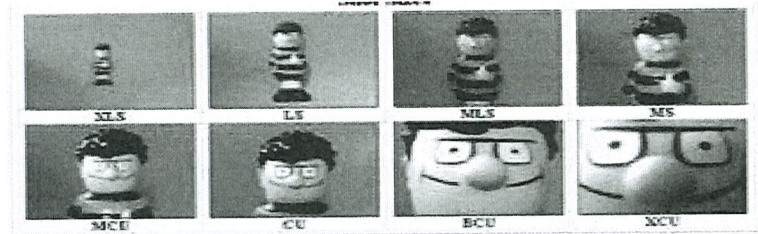
Codes	Technical, written and symbolic tools used to construct or suggest meaning in media forms and products.
Genre	a style or category of art, music, or literature.
Mise-en-scene	the arrangement of the scenery, props, etc. on the stage of a theatrical production or on the set of a film. The setting or surroundings of an event.
Anchorage	Where the meaning of a media text is fixed or stabilised by a caption, shot type, costume or so on (ie: it anchors the meaning).
Semiotics	the study of signs and symbols and their use or interpretation.
Signifier	a sign's physical form (such as a sound, printed word, or image) as distinct from its meaning.
Signified	the idea or meaning being expressed by that signifier.
Denotation	the literal meaning of a sign.
Connotation	the associated meaning of a sign.
Polysemic	a sign with multiple connotations can be described as polysemic.
Representation	the way a person or social group is presented.
Conform	following the rules or expectations.
Subvert	going against the rules or expectations.
Under-representation	a person or social group who isn't represented often or enough in media.
Misrepresentation	a person or social group is represented inaccurately through media.
Stereotypes	an assumption made about a person or social group.
Direct Mode of Address	visually, looking towards the audience, verbally, addressing them with "you."
Indirect Mode of Address	no reference made to the audience; lack of eye contact or direct speech.
Demographic	socioeconomic factors relating to an audience.
Psychographic	specific interests or attitudes of an audience.
Geographic	the location of a specific audience.

Social Mobility	the movement between social class levels.
Cultural Capital	social assets (education, intellect, style of speech, dress, etc.) The term was coined by 1970s French sociologist Pierre Bourdieu, who developed the idea as a way to explain how power in society was transferred and social classes maintained.
Mass Audience	a large audience, made up of varying demographics, psychographics and geographics.
Niche Audience	a specific audience type with specific interests and socioeconomic factors.
Diegetic Sound	Natural, ambient sound.
Non-Diegetic Sound	Edited or added sound.
Dialogue	Speech in a narrative.
Cross Cut	Transitioning between two lines of action, indicating they are happening at the same time.
Cutting on action	Transitioning from one angle of the action, to the other, to show what has happened.
Continuity editing	Editing that creates a smooth flow to the order of events.
Dissolve	A gradual scene transition, where the end of one shot is overlapped by another.
Montage	Many scenes edited together to create a summary of events.
Jump Cut	A cut that creates a lack of continuity, by leaving out parts of the action.
Smash Cut	An abrupt cut, going from loud to quiet, or quiet to loud.
Invisible Cut	Where the cut is hidden, so the audience are unable to see it.
Shot reverse shot	Cutting between over the shoulder shots, to show a conversation taking place.
Shallow Focus	Where the subject closest to the camera is in focus.
Deep Focus	Where the subject furthest away from the camera is in focus.
Focus Pull	Pulling the focus from shallow to deep, or deep to shallow.
J-Cut	Where the audio begins before the scene in which it appears.
L-Cut	When the audio from the previous scene continues into the next scene.
CGI	Computer Generated Image.
Panning, tracking and tilting	Panning – camera stays put, but pans the scene in front. Tracking – camera moves with the subject moving in the shot, or follows the subject around. Tilting – camera stays still, but tilts up and down.

Clarinet Concerto in A Major 3rd Movement Rondo

Solo instrument plays main melody

Piece with solo instrument and orchestral accompaniment

Overall key of the piece

We're just learning the final 3rd part of a full concerto which has 2 sections before ours

Form/structure of the piece with A,B,A,C,A sections

MUSIC

36 (242)

Horns in A

The natural horns can only play limited notes so Mozart uses the horn that is already in the key of A and it doesn't need a key signature. To play more notes, the horn player inserts crooks.

Diatonic

Overall the harmony of the piece is diatonic. This means it follows the rules of key signatures, chords and cadences

Tempo

The tempo is Allegro which means fast

Mozart Set Work

Rondo. Allegro. SOLO

Flauti. — Flutes
Fagotti. — Bassoons
Corni in A. — Horns
Clarinetto principale in A — Solo Clarinet
Violino I. — Violin 1
Violino II. — Violin 2
Viola. — Viola
Violoncello. — Cello
Contrabasso. — Double Bass

Compound Time Signature

The piece is in 6/8 which means 6 quaver beats in a bar split into two sets of 3 quavers.

Simple time split into two quavers:
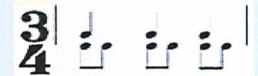
Compound time split into three quavers:

$\frac{3}{4}$

$\frac{6}{8}$

Balance and Contrast

The use of elements are balanced throughout:

Piano dynamics

Forte dynamics

Rondo form is symmetrical ABACA

A Sections in A Major

B and C sections in different keys

Section A melody dance like

Section B and C melodies lyrical

Balanced Phrases throughout

Transposing Instruments

Most instruments are in the key of C but the clarinet is a transposing instrument in the key of A. This means it has a different key signature than the other instruments.

Dynamics

The piece mostly uses piano (quiet) and forte (loud) dynamics creating a sense of balance. There are some crescendos (gradual change to loud) and *sfp* sforzando piano is used for sudden loud to quiet

	Section A	Section B	Section A1	Section C			Section A3	
					Section A2	Section B2		Coda
Melody	Conjunct 2 bar phrases Dance-like feel	Conjunct and disjunct 4 bar phrases Lyrical feel	Conjunct 2 bar phrases Dance-like feel	Disjunct 4 bar phrases Lyrical feel	Variation of main theme heard with just part of it	Conjunct and disjunct 4 bar phrases Lyrical feel	Conjunct 2 bar phrases Dance-like feel	
	— **All themes use chromatic notes**							
Tonality	Tonic key– A Major	Starts in Tonic key A Major Lots of modulations to different major and minor keys	Tonic key– A Major	Starts in relative minor key– F# Minor Lots of circle of fifths modulations	Changing key to lead back into tonic	Starts in Tonic key A Major Lots of modulations to different major and minor keys	Tonic key– A Major	
Harmony	Section A melody and whole section ends on **perfect cadence** to sound finished	Section B **ends on dominant** after lots of key changes to help lead back into tonic next section	**Starts on tonic** to re-establish tonic key A Major	Dominant chords used for quick circle of fifths key changes	Ends on dominant after key changes to help lead back into tonic next section	Ends on dominant after key changes to help lead back into tonic next section	**Starts on tonic** to re-establish tonic key A Major	Whole piece ends with **perfect cadence** to sound finished
Texture	Some unison and octaves used in accompaniment		Homophonic to end section with all parts moving together			Imitation used creating contrapuntal texture		Homophonic to end section with all parts moving together
	— **Mostly Melody and Accompaniment texture throughout to bring out the solo clarinet part**							
Rhythm	Section A melody has **anacrusis** to drive melody forward	Section B melody **does not have anacrusis** to contrast and help with lyrical feel	**Hemiola** used created by tremolo effect making it feel like a different time signature– builds tension at end of section	Section C melody has **anacrusis** similar to section A	Section A melody has **anacrusis** to drive melody forward	Two big **pauses** interrupt the flow of the pulse	Section A melody has **anacrusis** to drive melody forward	

GCSE PE – Paper 1
Ao1 Recall

Components of Fitness
Agility
Balance
Cardiovascular Endurance
Coordination
Flexibility
Muscular Endurance
Power/Explosive Strength
Reaction Time
Strength
Speed

Principles of Training
SPORT
Specificity
Progressive
Overload
Reversibility
Tedium

FITT
Frequency
Intensity
Time
Type

Training Seasons
Pre-season/preparation
Playing Season/Competition
Post-Season/Transition

Movement Analysis
PLANES
Frontal
Transverse
Sagittal

AXES
Longitudinal
Transverse
Sagittal

Volumes On A Spirometer
Tidal Volume
Expiratory Reserve Volume
Inspiratory Reserve Volume
Residual Volume

Blood Vessels
Arteries
Capillaries
Veins

Types of Movement
Flexion
Extension
Abduction
Adduction
Rotation
Circumduction
Plantarflexion
Dorsiflexion

Lever Systems
Fulcrum
Load
Effort

Components of Fitness – Testing Methods
Agility – Illinois Agility Test
Balance – Stork Stand Test
Cardiovascular Endurance – Mutli Stage Fitness Test
Coordination – Wall Toss Test
Flexibility – Sit and Reach Test
Muscular Endurance – Sit Up Bleep Test
Power/Explosive Strength – Vertical Jump Test
Reaction Time – Ruler Drop Test
Strength – Handgrip Dynamometer Test
Speed – 30 Metre Sprint Test

Types of Training
Circuit training
Continuous training
Interval training
Fartlek Training
Static stretching
Weight training
Plyometric training

Heart Structure
Right Atria
Left Atria
Right Ventricle
Left Ventricle

Breathing Mechanics
Intercostal
Rib Cage
Diaphragm

Pathway of Air
Mouth/Nose
Trachea
Bronchi
Bronchioles
Alveoli

GCSE PE – Paper 2 Ao1 Recall

Classification of Skills
Basic/Complex
Open/Closed
Self-Paced/Externally-Paced
Gross/Fine

Social Groups
Gender
Race/Religion/Culture
Age
Family/Friends/Peers
Disability

Types of Feedback
Positive/Negative
Knowledge of Results/Performance
Extrinsic/Intrinsic

Nutrition
Carbohydrates
Fat
Protein
Vitamins
Minerals

SMART Targets
Specific
Measureable
Accepted
Realistic
Time Bound

Commercialisation
Sport
Media
Sponsorship

Factors Affecting Participation
Attitudes
Role Models
Accessibility
Media Coverage
Sexism/Stereotyping
Culture/Religion
Family Commitments
Available Leisure Time
Familiarity
Education
Socio-economic Factors
Adaptability

Factors Effecting Energy Use
Age
Gender
Height
Energy Expenditure

Types of Guidance
Visual
Verbal
Manual
Mechanical

Somatotypes
Endomorph
Mesomorph
Ectomorph

PED
Stimulates
Narcotic Analgesics
Anabolic Agents
Peptide Hormones
Diuretics

Sedentary Lifestyles Causes
Obesity
Heart Disease
Hypertension
Diabetes
Poor Sleep
Poor Self Esteem

Types of Goals
Performance Goals
Outcome Goals

Types of Media
Television
Radio
The Press
The Internet
Social Media

Types of Sponsorship
Financial
Clothing
Equipment
Facilities

Conduct of Performers
Etiquette
Sportsmanship
Gamesmanship
Contract To Compete

Information Processing Model
Input
Decision Making
Output
Feedback

PhotogRaphY

AO1 Develop

This includes; visual references / mind-map / mood board / contextual research / analysis / gallery visit

- You must **complete contextual research and analysis** on your chosen photographer as well including other image references.
- Email contemporary photographers you are looking at and ask them contextual information
- You must **explain** how you intend to **develop your own ideas** from looking at the work of your chosen artist/ photographer/ reference
- Extensive photoshoot planning making connections between your idea and photographers techniques to develop your own ideas

- Visit galleries and complete trips, you must respond to these in your sketchbook.
- In your photoshoots, you should show **clear connections** to your photographer but then **develop your ideas** further through trying out different composition/clothing/props/lighting.
- Your ideas should link together in your sketchbook, so there is clear development / progression of an idea **(try not to jump randomly from one idea to another).**
- Your final outcome should be linked to the final experimentation in your sketchbook, to show how your ideas have developed. Alternatively, you can bring various ideas together into one last photo shoot. **Avoid using your first photo shoot as a final outcome.**

AO3 Record

This includes; Photoshoot plan / Photoshoot / Basic edits / Annotations / thumbnails

- Extensive photoshoot planning making connections between your idea and photographers techniques to develop your own ideas.
- In your photoshoots, you should show **clear connections** to your photographer but then **develop your ideas** further through trying out different composition/clothing/props/lighting.

Photoshoots must include and consider:

- Photoshoot plan / sketch of thumbnails
- 30-35 images - correctly exposed and lighting style considered
- Location/Background
- Varied composition, viewpoints, camera angle, Depth of field
- Connections to photographer and own ideas developed
- Contact sheet - annotated
- Basic edits of best photos x 3

AO4 Present

Personal response

- Demonstrate what the starting point, theme or brief means to you personally.
- Establish links between the starting point and your chosen sources?
- Show links between your sources and your own work?
- Present ideas or techniques from your sources that support your developed
- Selected and presented your studies carefully.
- Made clear links between your work and that of other contextual reference.
- Collected images to show your inspiration and stimuli?
- Present evidence of drawing, sketching, photographs and experiments with different media?
- Annotate images to explain how they fit into your development process?
- Demonstrated your understanding through correct use of photographic vocabulary?

- Shown experimentation and selection of the most successful results for your project?
- Organised your recordings and presented them to show and explain your decisions?
- Clearly linked all of your work to your starting point?
- Clearly link your final piece with your preparatory work.
- Make sure your final piece links to your artist, photographer or designer research.
- Finish all of your preparatory work before you start your final piece -it's worth a lot more marks.
- Make sure your personal response isn't simply a larger version of your preparatory work.
- Review and refine your ideas so that you are completely happy with them.
- Complete your experiments with materials, composition and construction so that you feel in control of what you are doing before you start your final piece.
- Evaluate.

AO2 Refine

When you edit images you must ensure they...

- **Link to your chosen theme / photographer** - make sure they are **appropriate**
- Edit in three different ways, at least 1 x hand rendered and 1 digital.
- Be **imaginative** within your selection of media and techniques don't just copy or be obvious.
- **Screen shot** your editing process as you go to show your process. Use **labels** of the type of media used for hand rendering
- **Annotations** must be evaluative! If you think something could be improved make sure you apply it or evidence it in your book.

You can also show refinement through; **through photography (no edits) interpret with different styling/makeup/subject matter/composition**

Product Design

Isometric Drawing

Orthographic Drawing

12 12 12

36

Top

30

Front

10
10
10

36

Right Side
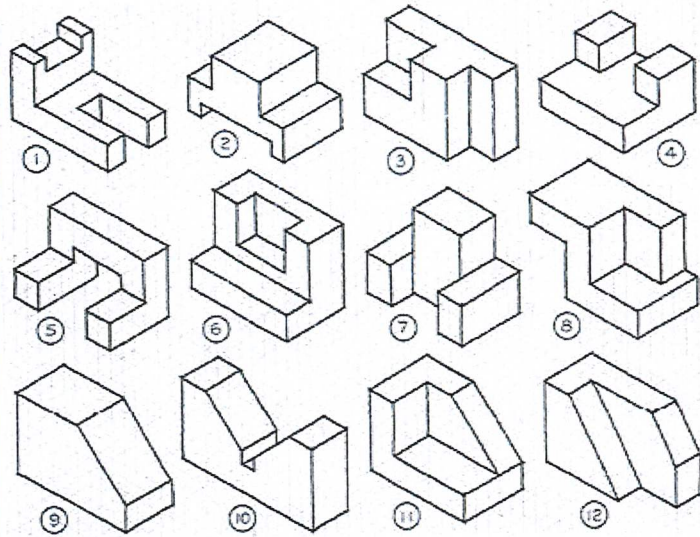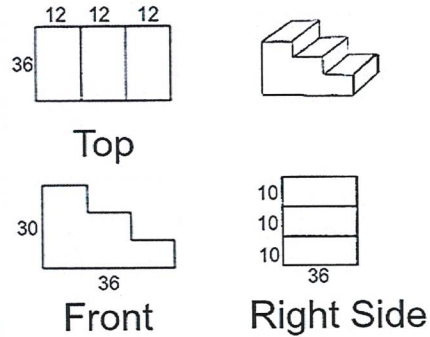
One Point Perspective
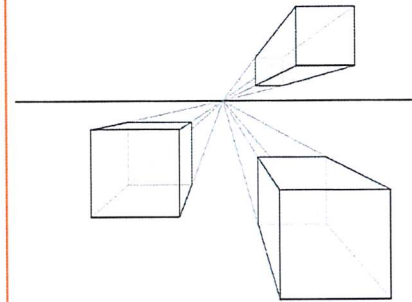
Two Point Perspective
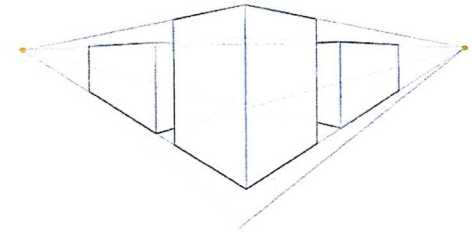
Research Types:
Location Analysis
Product Analysis
Designer
Design Movements
Museum

Freehand Drawing

Light Sketch   Refine   Refine   Define

Google Sketch Up Tools
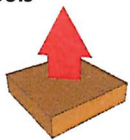
Rectangle Tool   Push/Pull Tool   Shape Tool   Eraser Tool   Pan Tool

Line Tool   Orbit Tool   Select Tool   Move Tool   Paint Bucket Tool

Key Words
Design Specification: This is a list of criteria that your design ideas should include.
Quality Control: The way in which you can ensure a product is good quality.
Hazard: An object or activity that could cause a risk (harm).
Risk: The harm/danger that is caused by the hazard.
Control: A way in which you can prevent the risk from happening.

Tone and Texture
Different marks/tones can be used to render a design idea to make it look 3D.
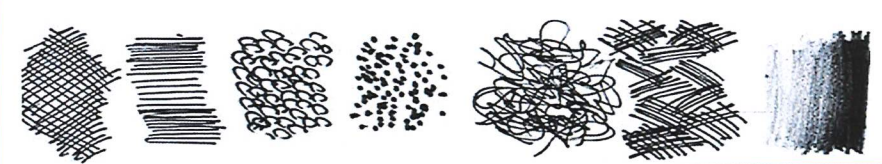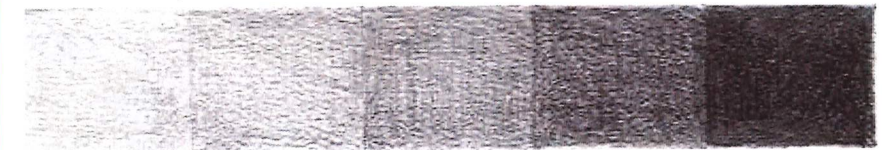
Product Design

Final Idea Modelling:
- *Remember to take pictures along the way.*
- What materials could you use to model your idea?
- Did it work? Explain your answer.
- Describe the quality of your work.
- What could you do to improve and refine your idea?
- What finishes will you apply to the final product?
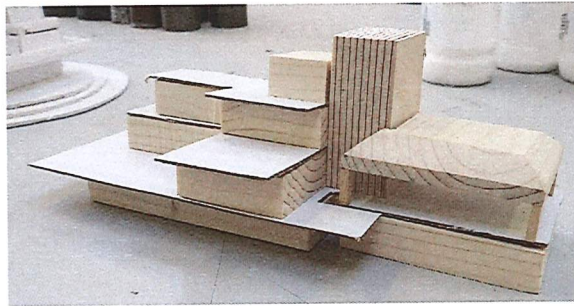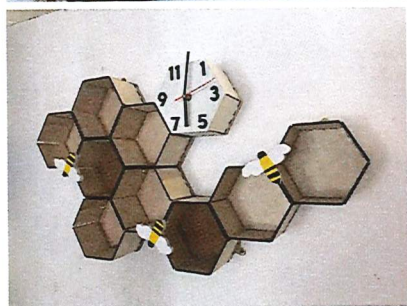
Annotating

All of your work must be accompanied by a brief annotation.

WHAT
What have you done?
What was your inspiration?

HOW
How did you come up with your ideas?
How did you create the piece?
How does the piece link to your artist/designer?

WHY
Why did you make the piece, how does it link to the project?
Why did you make the piece that way?

WWW/EBI
What has gone well?
What can be improved?
Which is the best one and why?

NEXT –
Your next steps are…?

When analysing or researching use **ACCESS FM:**

- **Aesthetics** – Shape, appearance, features, colours, design.
- **Cost** – How expensive is it/does it look/would it cost to make?
- **Customer** -How it is an effective product in relation to the user
- **Environment** – How environmentally friendly is it?
- **Safety** – Is it safe to use, was it dangerous to make?
- **Size** – Dimensions, proportions
- **Function** – What will it be used for? Is it suitable for it's intended use?
- **Materials** – What materials are used & are they suitable?

Writing about the work of other artists/ designers:

Paragraph 1 - Introduction
This should be brief. Look at their work and research key information about them to provide a contextual context.
• Nationality
• Dates - Are they contemporary or from a key historical movement
• Notable pieces of work and or style Avoid referring them by their first name, use a full name or surname.
Avoid irrelevant or uninteresting information.

Paragraph 2 - Form
1. Select one particular pieces to explore in detail.
2. Describe what you see as if explaining it to someone over the telephone.
3. Consider the formal element of line, shape, tone/value, colour, space, etc.

Paragraph 3 - Context
• What is the piece inspired by?
• How can you tell?
• How does the artist/designer link to your project?

Paragraph 4 - Opinion
Give your thoughts and feelings about their work.
What is effective about the artwork and would you change anything? Explain why.

Paragraph 5 - Inspiration
What will you take away as inspiration for your own work? How might you respond?

Key Words

Chanting	A type of worship that involves reciting from Buddhist scriptures	Samatha Meditation	A form of meditation focused on calming the mind and mindfulness
Karma	An ethical principle that explains how actions lead either to happiness or suffering	Shrine	A focal point for Buddhist worship and offerings in temples or at home
Karuna	Compassion – feeling concerned for the suffering of others	Skilful	Actions that lead to good karma, unskilful actions lead to bad karma
Mantra	A short sequence of syllables recited during worship	Stupa	A tiered tower structure that is designed to symbolise elements of Buddhist teaching
Metta	Loving-kindness – a desire for other people to be happy	Temple	The focal point of Buddhist worship – the building where Buddhists gather
Parinirvana Day	A Mahayana festival commemorating Buddha's passing into nirvana	Vihara	A monastery or community where Buddhists gather to meditate
Puja	Worship – it expresses gratitude and respect for Buddha and his teachings	Vipassana Meditation	A form of meditating on a teaching of Buddha to gain greater understanding
Rupa	A statue of Buddha used in worship and meditation	Wesak	A festival celebrating the life and teachings of Buddha

Key Ideas

Places of Worship + Puja 	**Places of Worship** Buddhists often worship in a **temple** where they gather to meditate together and perform puja. A temple or vihara will have **rupas** (statues of Buddha), **stupas** (towered structures designed to symbolise Buddhist teaching) and often **shrines** where offerings can be made.	**Puja** Puja is the name for Buddhist worship which is a ceremony that expresses gratitude and respect for Buddha and his teachings. Buddhists perform **chanting** where sacred texts are remembered and taught orally and with devotion. They also recite **mantras** which are short sequences of syllables that help concentrate the mind.
Meditation 	**Samatha Meditation** This is a type of meditation that involves calming the mind and developing **deepened concertation**. This can be done through **mindfulness** of breathing where Buddhists concentrate on the pattern of their breath to relax their mind.	**Vipassana Meditation** This type of meditation focuses on developing an **understanding of the nature of reality**. Buddhists focus on the **teachings of Buddha**, especially the Three Marks of Existence in order to move them closer to enlightenment.

Funerals + Festivals 	**Buddhist Funerals** Buddhists usually try as spend as little money as possible on funerals as they believe the cycle of samsara means their energy moves onto a new body. In a **Sky Burial** Tibetan Buddhists leave the body on a mountainside as an offering to the vultures. This reflects a belief in **anicca**, the impermanence of existence.	**Wesak** Wesak is a Theravada Buddhist festival which celebrates the Buddha's birth, enlightenment and passing away into nirvana. It is celebrated by lighting up **candles** and lanterns to represent **enlightenment** and by **attending the local temple** to take part in worship or meditation.	**Parinirvana Day** Parinirvana Day is a Mahayana festival that commemorates the **death** and passing into enlightenment of Buddha. It is celebrated by Buddhists reading and **studying** the last writings of Buddha, **meditating** at home or in a temple or going on a **retreat** to reflect and meditate.

Five Moral Precepts + Six Perfections 	**Five Moral Precepts** These form a Buddhist **ethical code**. They are five principles that Buddhists try to live their life by. 1. to abstain from **taking life** 2. to abstain from **taking what is not given** 3. to abstain from **sexual misconduct** 4. to abstain from **wrong speech** 5. to abstain from **intoxicants**	**The Six Perfections** These are six qualities that Mahayana Buddhists try to develop to become Bodhisattvas. They require practice and thought in order to develop them. They are: **generosity, morality, patience, energy, meditation** and **wisdom**.

Karma, Karuna + Metta 	**Karma** Karma is the ethical idea that a Buddhist's actions lead either to **happiness** or **suffering**. **Skilful** actions result in good karma and happiness. **Unskilful** actions result in bad karma and suffering. When a Buddhist is **reborn** their new life will be affected by their karma from past lives.	**Karuna** Karuna is **compassion**, a feeling of concern for the suffering of others. It is one of **the four sublime states** that Buddha taught Buddhists should develop. Buddhists aim to recognise the **suffering** of others and do something to make their lives better.	**Metta** Metta is **loving-kindness**, another of the four sublime states. It means desiring other people to be happy and is an attitude of **warmth** and **kindness** that Buddhists try to feel toward other people. It leads to a feeling of peace and contentment.

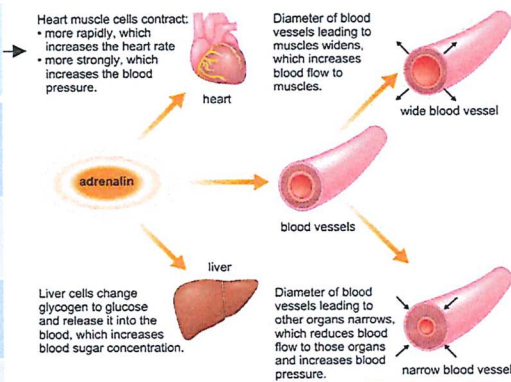| Key Words			
Believer's Baptism	Service where those old enough to decide for themselves are welcomed into the church	Liturgical Worship	Formal worship with set prayers, hymns and Bible readings
Christmas	Christian festival which celebrates the incarnation (birth) of Christ	Mission	The calling to spread the word of God and evangelise
Consecration	When a priest blesses bread and wine in order to use it for Eucharist	Non-liturgical worship	Worship with no set pattern, may have modern music and sermons
Easter	Christian festival which celebrates the resurrection of Christ	Persecution	Hostility and ill-treatment of a group of people
Eucharist	Service where bread and wine is received by Christians to remember Jesus' sacrifice	Pilgrimage	Going on a journey to visit a holy site
Evangelism	Spreading the word of God through action or speech	Prayer	A communication with God, can be private or during worship
Infant Baptism	Service where babies are welcomed into the church with holy water	Reconciliation	Restoring friendly relations after a conflict or falling out

Key Ideas			
Worship + Prayer 	**Liturgical Worship** - This form of worship takes place in a church and is led by a priest - **Formal**, **set prayers** are read out - A more **traditional**, and formal form of worship **Non-liturgical Worship** - Also takes place in a church but **less formal** - No set prayers, instead people take turns to preach and read from the **Bible** - Can be modern and appealing to young people		**Prayer** - Prayer means **communicating with God**, either silently or out loud, sometimes through song - It is one of the most important parts of the spiritual life of a Christian and enables them to have a personal relationship with God - **Intercessions** are prayers made on behalf of others - **Thanksgiving** is when people pray to say thank you to God - **Set prayers** are written down and used in liturgical worship - **Informal prayer** is off-the-cuff and often used in non-liturgical worship
Eucharist + Baptism 	**Eucharist** - Eucharist and baptism are both sacraments meaning special occasions in a Christian's life - In Eucharist a priest **consecrates** (blesses) **bread** and **wine** and the congregation then receives these - **Catholics** believe the Holy Spirit transforms the bread and wine into Jesus' body and blood - **Anglicans** believe the bread and wine are symbolic - Christians take part in this ritual in order to remember the **sacrifice** Jesus Christ made for them by being **crucified** on the cross *"For whenever you eat this bread and drink this cup, you proclaim the Lord's death until he comes"* – 1 Corinthians 11:26		**Infant Baptism** - This is a **formal** service welcoming a new child into the Christian church - **Holy water** is sprinkled over the baby's head - All Catholics baptise their children close to birth in order to ensure they go to heaven **Believer's Baptism** - A believer's baptism welcomes someone into the church who is **old enough** to decide themselves - They are submerged in a pool of **holy water** - They make promises to stay away from evil - **Baptists** only practice this type of baptism
Pilgrimage + Festivals 	**Pilgrimage** - A pilgrimage is a journey made by a Christian to a holy site - Catholics go on pilgrimage to Lourdes where a vision of Mary was once seen, they believe the water there has healing effects		**Christmas** - Christmas celebrates the incarnation (birth) of Jesus Christ - Christians give gifts to commemorate the gift of God sending his own son to the world **Easter** - Easter celebrates the resurrection of Jesus Christ - Christians celebrate by saying *"he is risen"* and by eating chocolate eggs that represent new life
Evangelism + Church in the Community 	Christians have a duty to **evangelise** (tell others of the word of God). An example is the **Alpha Course** which is an educational course that tells people more about the life of Jesus.		Christians also have a duty to **help others in the local community**. Two examples of this are **Street Pastors** who help drunk people at night and **Food Banks** that provide food to people in poverty.
Reconciliation 	- Christians across the world play an important role in **reconciliation** (seeking to restore friendly relations after a conflict or falling out) - An example is **Coventry Cathedral** which was bombed during World War II but now seeks to create peace and reconciliation elsewhere in the world. **The World Council of Churches** also works to help after conflict. - In some places Christians face **persecution** where they are treated badly for their faith. Churches around the world work together to try and overcome this.		

Control of metabolic rate

	Adrenaline	Thyroxine
	Produced by the adrenal glands	Produced by the thyroid gland
	Target organs: Heart and lungs	Target organs: Heart, liver, lungs
	Increase heart and breathing rate, causing vasodilation in order to supply more oxygen and glucose to the working muscles	Increase the heart, breathing rate and respiration rate

Negative feedback thyroxine

Heart muscle cells contract:
- more rapidly, which increases the heart rate
- more strongly, which increases the blood pressure.

heart

Diameter of blood vessels leading to muscles widens, which increases blood flow to muscles.

wide blood vessel

adrenalin

blood vessels

liver

Liver cells change glycogen to glucose and release it into the blood, which increases blood sugar concentration.

Diameter of blood vessels leading to other organs narrows, which reduces blood flow to those organs and increases blood pressure.

narrow blood vessel

B7 HOMEOSTASIS

Homeostasis

Regulation of a constant internal environment. The conditions are maintained to ensure optimum conditions for metabolism and changes in response to both internal and external fluctuations

Hormones

Chemical messengers produced by glands and transported in blood to target organs to activate a response

Control of menstrual cycle

Hormone	Where It Is Produced	Response Caused	Interaction with Other Hormones (HT only)
FSH	pituitary gland	An egg to develop in one of the ovaries.	Stimulates the production of oestrogen.
oestrogen	ovaries	The lining of the uterus builds up and thickens.	Stimulates the production of LH. Inhibits the production of FSH.
LH	pituitary gland	Ovulation (at around day 14 of the cycle).	Indirectly stimulates the production of progesterone.
progesterone	ovaries	The uterus lining to maintain.	Inhibits the production of LH.

FSH stimulates growth and maturation of egg follicle.

LH surge triggers ovulation.

growth of follicle   ovulation   corpus luteum

ovary

Maturing follicles stimulate oestrogen production.

Corpus luteum releases progesterone.

blood concentration of progesterone

Falling oestrogen and progesterone trigger menstruation.

Increasing oestrogen causes thickening of wall.

blood concentration of oestrogen

Day   4   14   28

Control of blood glucose

normal blood glucose concentration

blood glucose concentration becomes too **high**

pancreas releases **insulin** which causes the cells to absorb **glucose**

liver and **muscles** convert the glucose into **glycogen** to be stored

normal blood glucose concentration

blood glucose concentration becomes too **low**

pancreas releases **glucagon** which causes the cells to release **glucose**

liver and **muscles** convert the **glycogen** into glucose to be released

Diabetes type 1	Diabetes type 2
Pancreas produces little or no insulin	Pancreas produces little insulin or person become resistant to insulin
Treatment: Insulin injection and limited intake of sugars	**Treatment:** Healthy diet and regular exercise

50

Diffusion

Movement of particles following a **concentration** gradient. From **high** to **low** concentration

Small blood vessels, called capillaries, have walls just one cell thick.

Oxygen molecules (not shown) diffuse out of the capillary.

Glucose molecules (not shown) diffuse out of the capillary.

The continual flow of blood maintains the concentration gradient.

nucleus

There is an overall movement of carbon dioxide molecules down their concentration gradient.
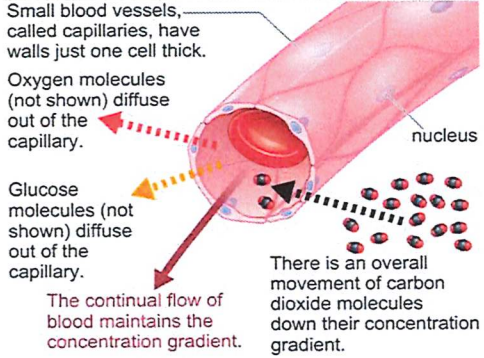
B Substances diffuse down their concentration gradients into and out of narrow blood vessels called capillaries.

Surface area: volumen ratio

Exchange Surface area are adapted to **increase** the rate of diffusion

20 µm
10 µm
10 µm
10 µm
20 µm
20 µm
20 µm

surface area = 6 × (10 × 10) = 600 µm²	surface area = 6 × (20 × 20) = 2400 µm²
volume = 10 × 10 × 10 = 1000 µm³	volume = 20 × 20 × 20 = 8000 µm³
SA:V = 600/1000 = 0.6	SA:V = 2400/8000 = 0.3

C Cells of different sizes have different SA:V ratios. The **surface area:volume ratio** (**SA:V**) is the surface ar divided by the volume, or

surface area / volume

Blood enters from the rest of the body with a higher concentration of carbon dioxide and a lower concentration of oxygen.

air moves in and out

Blood goes to the rest of the body with a lower concentration of carbon dioxide and a higher concentration of oxygen.

blood direction

one-cell thick wall of alveolus

net movement of carbon dioxide

net movement of oxygen

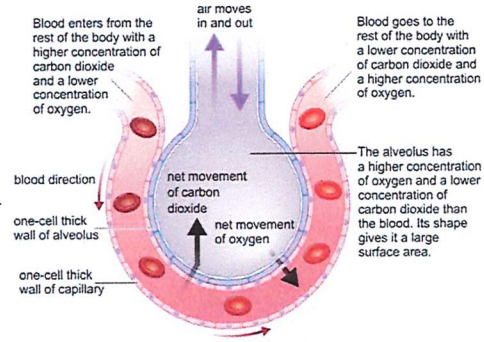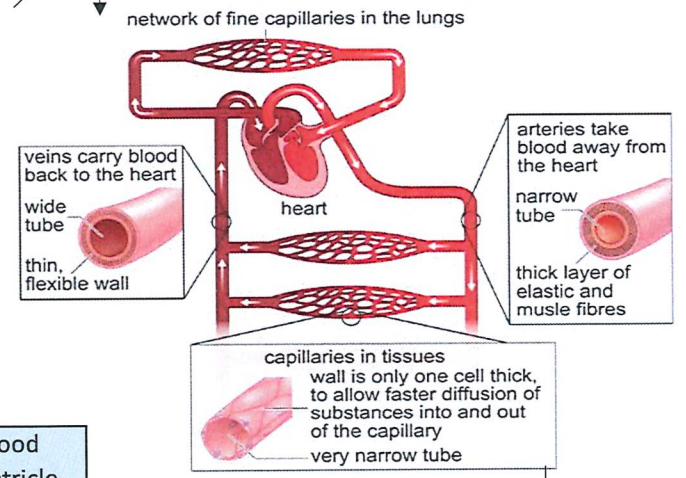The alveolus has a higher concentration of oxygen and a lower concentration of carbon dioxide than the blood. Its shape gives it a large surface area.

one-cell thick wall of capillary

D The drawing shows an alveolus, which is adapted for fast gas exchange (swapping of gases). An adult lung contains about 500 million alveoli, which are grouped together in clusters at the ends of tiny tubes.

B8 TRANSPORT AND EXCHANGE

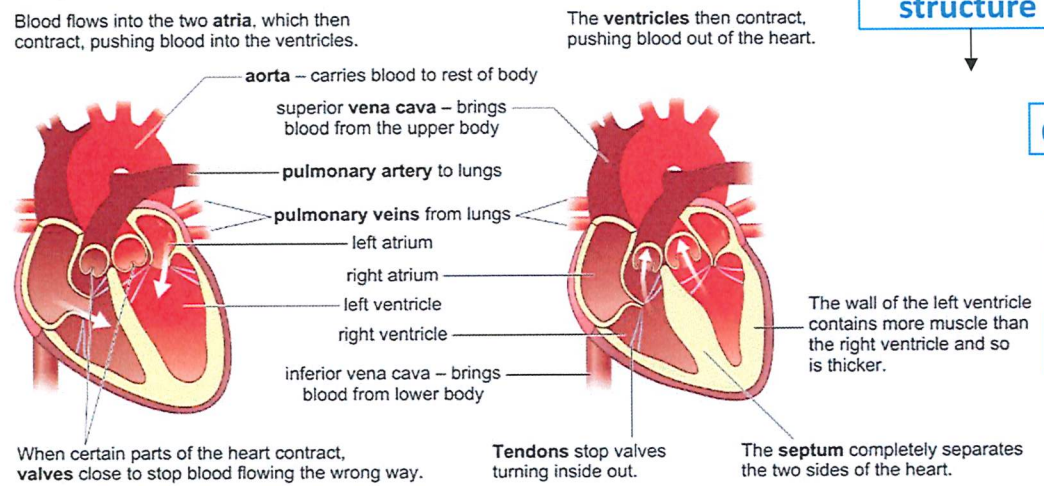## Heart structure

Blood flows into the two **atria**, which then contract, pushing blood into the ventricles.

The **ventricles** then contract, pushing blood out of the heart.

aorta – carries blood to rest of body

superior **vena cava** – brings blood from the upper body

pulmonary artery to lungs

pulmonary veins from lungs

left atrium

right atrium

left ventricle

right ventricle

inferior vena cava – brings blood from lower body

When certain parts of the heart contract, **valves** close to stop blood flowing the wrong way.

Tendons stop valves turning inside out.

The **septum** completely separates the two sides of the heart.

The wall of the left ventricle contains more muscle than the right ventricle and so is thicker.

B A heart is always drawn as though the person were facing you.

Cardiac output

Is the total volumen of blood pumped out by the left ventricle every minute

$cardiac\ output = stroke\ volume \times heart\ rate$

$CO = SV \times HR$

CO (cm³/min)
SV (cm³)
HR (beats/min)

Cellular respiration

Aerobic respiration: Glucose is broken down **completely** in presence of O_2

glucose + oxygen ⟶ carbon dioxide + water

$C_6H_{12}O_6 + 6O_2 \longrightarrow 6CO_2 + 6H_2O$
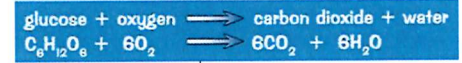
Anaerobic respiration: Glucose is broken down **partially** in **absence of O_2**. Less energetic than aerobic.

glucose ⟶ lactic acid

Blood vessels

network of fine capillaries in the lungs

veins carry blood back to the heart

wide tube

thin, flexible wall

heart

arteries take blood away from the heart

narrow tube

thick layer of elastic and musle fibres

capillaries in tissues
wall is only one cell thick, to allow faster diffusion of substances into and out of the capillary

very narrow tube

Blood vessels

	Arteries	Veins
	Carry blood **away** from the heart (**Oxigenated blood**)	Carry blood **to** the heart (**deoxygenated blood**)
	Thick muscular elastic walls	**Thin** and **flexible** walls
	Narrow lumen	**Wide** lumen and **valves** to prevent blood back flow

Urinary system

The renal veins carry blood with wastes removed back to the body.

The ureters carry urine from the kidneys to the bladder.

The bladder stores urine.

Urine flows through the urethra to the outside of the body.

The renal arteries carry blood from the body to the kidneys.

The kidneys remove substances from the blood and make urine.

A muscle keeps the exit from the bladder closed until a person decides to urinate.

Dialysis

artery vein

dialysis fluid in

Blood carrying wastes passes to the machine from a vein.

dialysis fluid   blood

dialysis fluid containing the same concentration of glucose as blood plasma

partially permeable membrane

thin, partially permeable membrane separating blood from dialysis fluid

dialysis fluid out

blood

→ diffusion of urea and other waste substances
→ diffusion of glucose

C During dialysis, substances are exchanged between the blood and dialysis fluid by diffusion across the dialysis membrane (which is partially permeable to very small molecules such as water, glucose and urea).

Thermorregulation

hair

Hair is pulled upright by contraction of erector muscle.

epidermis

temperature receptor

dermis

network of capillaries

reduced blood flow to the skin

Sweat evaporates and cools the skin.

Hair lies flat as erector muscle is relaxed.

Sweat gland secretes sweat.

increased blood flow to the skin

D how the skin responds when the core body temperature is too low (left), and when core body temperature is too high (right)

TOO COLD   **TOO HOT**

Body temperature is controlled by hypothalamus

B7 and B8 TRIPLE

OSMORREGULATION

Is the **control** of the **balance** of **water** and **mineral salts** in the body. If the balance of water and mineral salts is wrong, then the cells migh lose or take in too much water by **osmosis**.

Bowman's capsule + Glomerulus: Ultrafiltration

First convoluted tubule: Selective reabsorption of glucose and mineral ions through **active transport**

Loop of Henle: Reabsorption of water through **osmosis**

Collecting duct: Reabsorption of water through **osmosis**

Structure of a nephon

outer edge of kidney

first convoluted tubule

Bowman's capsule

blood from renal artery

glomerulus (network of capillaries)

capillary

second convoluted tubule

blood to renal vein

collecting duct

loop of Henle

centre of kidney

to ureter

→ direction of flow in tubule
→ filtration
→ reabsorption of water
→ selective reabsorption of some mineral ions
→ selective reabsorption of glucose

ADH (Antidiuretic hormone) secreted by the **pituitary gland** controls the water content in blood

ADH present: collecting duct highly permeable to water

no ADH: collecting duct is not permeable to water

collecting duct

reabsorption of water

small volume of concentrated urine

large volume of dilute urine
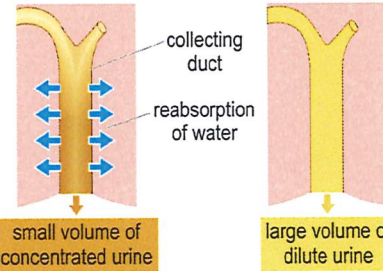
D ADH changes the permeability of the collecting duct and so the amount of urine formed.

Factors affecting rate of diffusion

Surface area	Concentration gradient	Diffusion distance
Increased surface area on exchange surface increases diffusion.	A large difference in concentration will increase rate of diffusion.	The smaller the diffusion distance the faster the rate of diffusion

Fick's law

Calculate the rate of diffusion

$$rate\ of\ diffusion\ \alpha\ \frac{surface\ area \times concentration\ difference}{thickness\ of\ membrane}$$

COMBINED SCIENCE CHEMISTRY

Fuels and hydrocarbons

Crude oil is a mixture of hydrocarbons.
Hydrocarbons are molecules of Hydrogen and Carbon only.

Long chain alkanes can be cracked into more useful short chain alkanes and alkenes
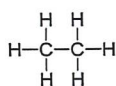
Homologous formula: C_nH_{2n+2}
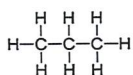
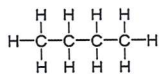**Crude oil, hydrocarbons and alkanes**

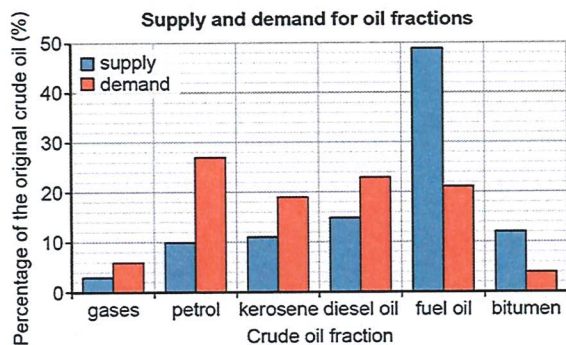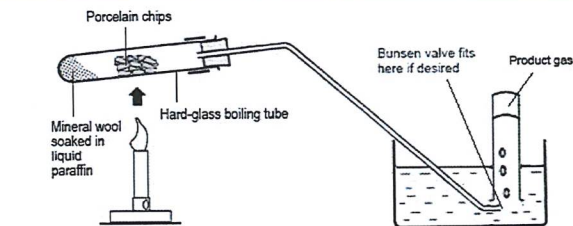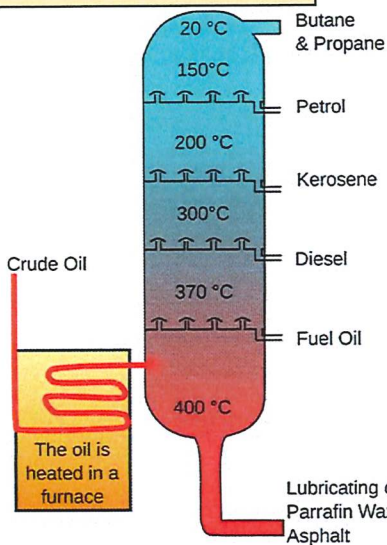Display formula for first four alkanes

Methane (CH_4) Ethane (C_2H_6)

Propane (C_3H_8) Butane (C_4H_{10})

Fractional distillation

- 20 °C — Butane & Propane
- 150°C — Petrol
- 200 °C — Kerosene
- 300 °C — Diesel
- 370 °C — Fuel Oil
- 400 °C
- Crude Oil
- The oil is heated in a furnace
- Lubricating oil, Parrafin Wax, Asphalt

Porcelain chips
Bunsen valve fits here if desired
Product gas
Hard-glass boiling tube
Mineral wool soaked in liquid paraffin

Supply and demand for oil fractions

- supply
- demand

Percentage of the original crude oil (%)

gases, petrol, kerosene, diesel oil, fuel oil, bitumen

Crude oil fraction

Combustion of fuels	Source of atmospheric pollutants. Most fuels may also contain some sulfur.
Gases from burning fuels	Carbon dioxide, water vapour, carbon monoxide, sulfur dioxide and oxides of nitrogen.
Particulates	Solid particles and unburned hydrocarbons released when burning fuels.

As you go up the fractionating column, the hydrocarbons have:
- lower boiling points.
- lower viscosity (they flow more easily)
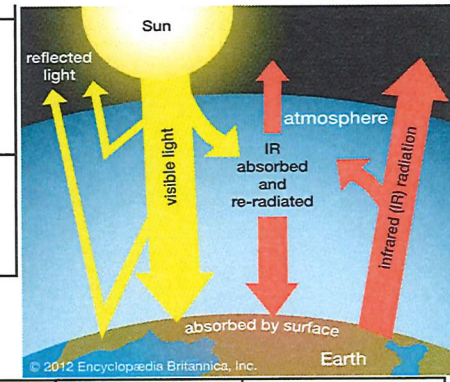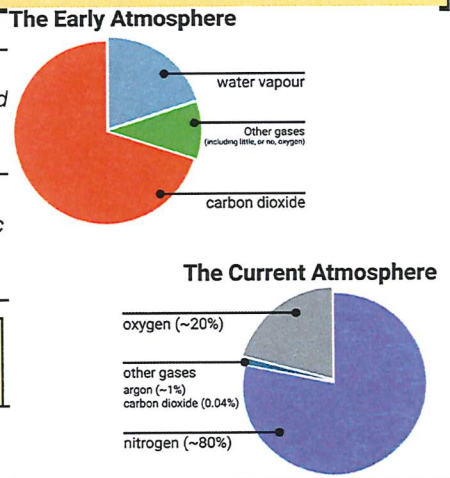- higher flammability (they ignite more easily)

Carbon dioxide	Human activities that increase carbon dioxide levels include burning fossil fuels and deforestation.
Methane	Human activities that increase methane levels include raising livestock (for food) and using landfills (the decay of organic matter released methane).
Climate change	There is evidence to suggest that human activities will cause the Earth's atmospheric temperature to increase and cause climate change.

Atmospheric pollutants from fuels

Carbon monoxide	*Toxic, colourless and odourless gas. Not easily detected, can kill.*
Sulfur dioxide and oxides of nitrogen	*Cause respiratory problems in humans and acid rain which affects the environment.*
Carbon Particulates	*Soot causes global dimming and health problems in humans.*

early atmosphere was probably **formed from the gases given out by volcanoes**.
The proportion of oxygen went up because of **photosynthesis** by plants.
The proportion of carbon dioxide went down because:
it was locked up in **sedimentary rocks** (such as limestone) and in **fossil fuels**
it was absorbed by plants for photosynthesis
it dissolved in the oceans

Earth and Atmosphere

The Early Atmosphere

- water vapour
- Other gases (including little, or no, oxygen)
- carbon dioxide

The Current Atmosphere

- oxygen (~20%)
- other gases argon (~1%) carbon dioxide (0.04%)
- nitrogen (~80%)

Sun
reflected light
visible light
atmosphere
IR absorbed and re-radiated
Infrared (IR) radiation
absorbed by surface
Earth
© 2012 Encyclopædia Britannica, Inc.

Proportions of gases in the atmosphere

| Gas	Percentage
Nitrogen	~80%
Oxygen	~20%
Argon	0.93%
Carbon dioxide	0.04%

Group 0

The elements in Group 0 of the periodic table are called the noble gases.

They are unreactive and do not easily form molecules because their atoms have stable arrangements of electrons.

The noble gases have eight electrons in their outer shell, except for helium, which has only two electrons.

The boiling points of the noble gases increase with increasing relative atomic mass (down the group).
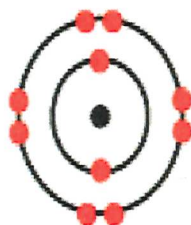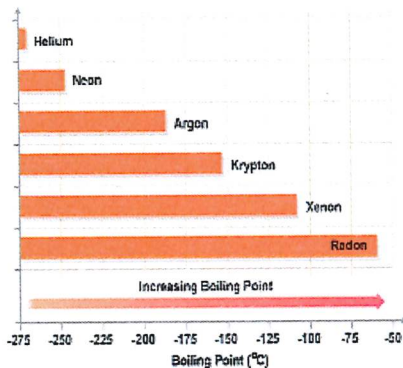
He
Ne
Ar
Kr
Xe
Rn

| Group 0 Noble gases |
|---------------------|
| *Melting point of noble gases
 Gases at room temperature but the melting and boiling point increase down the group. |
| *Reactivity of group 0 Because group 0's outer shells are already complete, they do not react. (Inert) |

Group 1

The elements in Group 1 of the periodic table are known as the alkali metals and have characteristic properties because of the single electron in their outer shell.

Lithium   Sodium
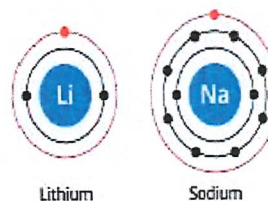
How does electron structure affect reactivity?

The reactivity of alkali metals increases going down the group. What is the reason for this?

increase in reactivity
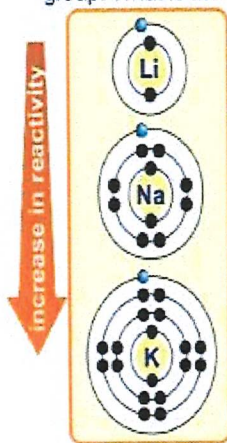
- The atoms of each element get larger going down the group.

- This means that the outer shell electron gets further away from the nucleus and is shielded by more electron shells.

- The further an electron is from the positive nucleus, the easier it can be lost in reactions.

- This is why the reactivity of the alkali metals increases going down group 1.

Group 7

The elements in Group 7 of the periodic table are known as the halogens and have similar reactions because they all have seven electrons in their outer shell.

The halogens are non-metals and consist of molecules made of pairs of atoms.

In Group 7, the further down the group an element is the higher its relative molecular mass, melting point and boiling point.

In Group 7, the reactivity of the elements decreases going down the group.

A more reactive halogen can displace a less reactive halogen from an aqueous solution of its salt.
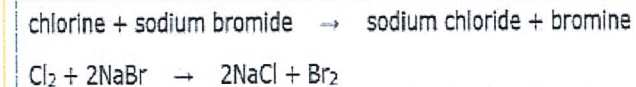
F

Cl

Displaced is just a chemist's word for pushed out.

chlorine + sodium bromide $\rightarrow$ sodium chloride + bromine
$Cl_2 + 2NaBr \rightarrow 2NaCl + Br_2$

Science Chemistry Triple

Alkenes

ETHENE PROPENE BUTENE PENTENE

Alcohols

A class of organic compounds in which a carbon (C) atom is bonded to an oxygen (O) atom by a double bond and to a hydroxyl group (—OH) by a single bond.

an alcohol is a type of organic compound that carries at least one hydroxyl (−OH) functional group bound to a saturated carbon atom.

Burning alcohols core practical

Alcohols (R-OH)

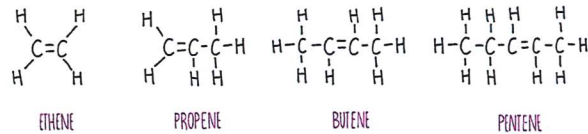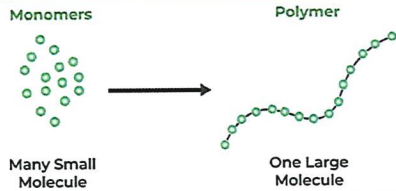methanol CH_3OH ethanol CH_3CH_2OH propanol $CH_3CH_2CH_2OH$

Polymerisation

Monomers → Polymer

Many Small Molecule → One Large Molecule
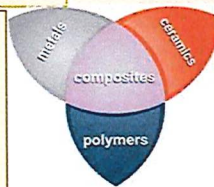
A polymer is any of a class of natural or synthetic substances composed of very large molecules, called macromolecules, which are multiples of simpler chemical units called monomers.

The Basic Difference Between Addition and Condensation Polymerization is that Addition Polymerization involves only one monomer and does not lead to a loss in smaller molecules e.g PVC and Teflon while Condensation Polymerization involves two different kinds of monomers and lead to loss of simple molecules like HCl or H_2O

Nanoscience. is the study of structures that are between 1 and 100 nanometres (nm) in size. Most **nanoparticles**. are made up of a few hundred atoms .
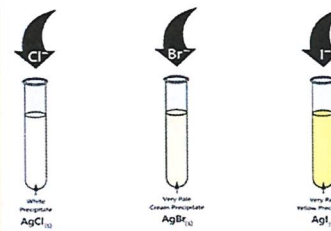
Carboxylic Acids

methanoic acid ethanoic acid propanoic acid
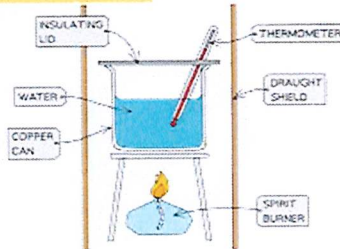
butanoic acid pentanoic acid
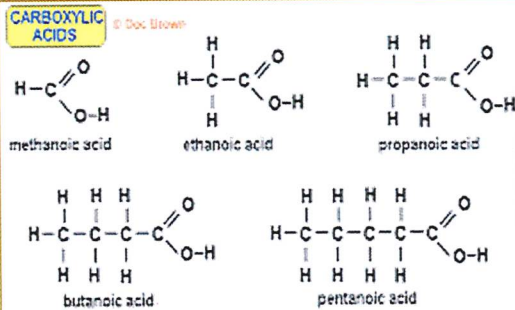
Testing for halide ions

1. First, add a few drops of dilute nitric acid (HNO_3) to the sample.
This will remove carbonate atoms, which can give a false positive result.
2. Then add a few drops of dilute silver nitrate ($AgNO_3$)solution.
If halide ions (chloride, bromide or iodide) are present, then a silver halide precipitate is formed. Each precipitate is a different colour, so we can identify the halide ion.
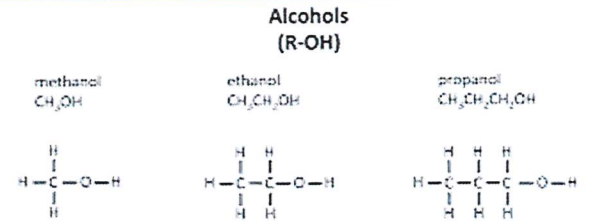

White Precipitate $AgCl_{(s)}$ Very Pale Cream Precipitate $AgBr_{(s)}$ Very Pale Yellow Precipitate $AgI_{(s)}$

Bulk surface properties

Physical properties of materials
- density.
- melting point.
- thermal conductivity.
- electrical conductivity (resistivity).
- thermal expansion.
- corrosion resistance.

Testing for ions

Flame Tests for Metal Ions

Metal Ion	Flame Colour
Potassium(K^+)	Lilac
Sodium(Na^+)	Yellow
Lithium(Li^+)	Crimson
Calcium(Ca^{2+})	Red
Copper(II)(Cu^{2+})	Blue-green

Hydration of ethene	Fermentation of glucose
Raw material is ethene, which comes from crude oil (non-renewable source)	Raw material is glucose, which comes from plants such as sugar cane (renewable source)
Continuous process (efficient) - the reaction occurs as long as the reactants are constantly provided	Batch process (less efficient) - all the reactants are mixed in a reaction vessel and left for several days to react. A new reaction is set up when the first batch of reaction is over
Is a fast reaction	Is a slow reaction
Produces pure ethanol	Produces impure ethanol, so need further processing
Requires high temperature and pressure, so need a lot of energy	Requires moderate temperature, so less energy required

Tests for Aqueous Cations

Cation	Aqueous Sodium Hydroxide	Aqueous Ammonia
Ammonium(NH_4^+)	Ammonia produced turns damp red litmus paper blue	-
Aluminium(Al^{3+})	White ppt, soluble in excess giving a colourless solution	White ppt, insoluble in excess
Zinc (Zn^{2+})	White ppt, soluble in excess giving a colourless solution	White ppt, soluble in excess giving a colourless solution
Calcium(Ca^{2+})	White ppt, insoluble in excess	No ppt. or very slight white ppt
Copper(Cu^{2+})	Light blue ppt, insoluble in excess	Light blue ppt, soluble in excess giving a dark blue solution
Chromium(Cr^{3+})	Green ppt, soluble in excess	Grey-green ppt, insoluble in excess
Iron(II) (Fe^{2+})	Green ppt, insoluble in excess	Green ppt, , insoluble in excess
Iron(III) (Fe^{3+})	Red-brown ppt, insoluble in excess	Red-brown ppt, insoluble in excess

Periodic Table

Groups: 1, 2, 3, 4, 5, 6, 7, 0

Key

relative atomic mass
atomic symbol
name
atomic (proton) number

1	2											3	4	5	6	7	0
					1 **H** hydrogen 1												4 **He** helium 2
7 **Li** lithium 3	9 **Be** beryllium 4											11 **B** boron 5	12 **C** carbon 6	14 **N** nitrogen 7	16 **O** oxygen 8	19 **F** fluorine 9	20 **Ne** neon 10
23 **Na** sodium 11	24 **Mg** magnesium 12											27 **Al** aluminium 13	28 **Si** silicon 14	31 **P** phosphorus 15	32 **S** sulfur 16	35.5 **Cl** chlorine 17	40 **Ar** argon 18
39 **K** potassium 19	40 **Ca** calcium 20	45 **Sc** scandium 21	48 **Ti** titanium 22	51 **V** vanadium 23	52 **Cr** chromium 24	55 **Mn** manganese 25	56 **Fe** iron 26	59 **Co** cobalt 27	59 **Ni** nickel 28	63.5 **Cu** copper 29	65 **Zn** zinc 30	70 **Ga** gallium 31	73 **Ge** germanium 32	75 **As** arsenic 33	79 **Se** selenium 34	80 **Br** bromine 35	84 **Kr** krypton 36
85 **Rb** rubidium 37	88 **Sr** strontium 38	89 **Y** yttrium 39	91 **Zr** zirconium 40	93 **Nb** niobium 41	96 **Mo** molybdenum 42	[98] **Tc** technetium 43	101 **Ru** ruthenium 44	103 **Rh** rhodium 45	106 **Pd** palladium 46	108 **Ag** silver 47	112 **Cd** cadmium 48	115 **In** indium 49	119 **Sn** tin 50	122 **Sb** antimony 51	128 **Te** tellurium 52	127 **I** iodine 53	131 **Xe** xenon 54
133 **Cs** caesium 55	137 **Ba** barium 56	139 **La*** lanthanum 57	178 **Hf** hafnium 72	181 **Ta** tantalum 73	184 **W** tungsten 74	186 **Re** rhenium 75	190 **Os** osmium 76	192 **Ir** iridium 77	195 **Pt** platinum 78	197 **Au** gold 79	201 **Hg** mercury 80	204 **Tl** thallium 81	207 **Pb** lead 82	209 **Bi** bismuth 83	[209] **Po** polonium 84	[210] **At** astatine 85	[222] **Rn** radon 86
[223] **Fr** francium 87	[226] **Ra** radium 88	[227] **Ac*** actinium 89	[261] **Rf** rutherfordium 104	[262] **Db** dubnium 105	[266] **Sg** seaborgium 106	[264] **Bh** bohrium 107	[277] **Hs** hassium 108	[268] **Mt** meitnerium 109	[271] **Ds** darmstadtium 110	[272] **Rg** roentgenium 111							

Elements with atomic numbers 112 – 116 have been reported but not fully authenticated

* The Lanthanides (atomic numbers 58 – 71) and the Actinides (atomic numbers 90 – 103) have been omitted.

Relative atomic masses for **Cu** and **Cl** have not been rounded to the nearest whole number.

# P12-13: Particle model, forces and matter

1. Particles and density

State of matter: solid, liquid or gas.	
Changes of state	Melting: solid → liquid Freezing: liquid → solid Evaporation: liquid → gas Condensation: gas → liquid Sublimation: solid → gas Deposition: gas → solid
Solid	Particles touching, neatly ordered, vibrating around a fixed point.
Liquid	Particles touching, random order, moving slowly.
Gas	Particles widely spaced, random order, moving fast.
Forces of attraction	Forces holding particles close to each other: strong in solids, weak in liquids, gone in gases.
Changing state	Increasing temperature gives particles more (kinetic) energy, allowing them to break the forces of attraction.
Density	The mass of 1 cm³ of a substance. Units = kg / m³
Density and state	Solid > liquid > gas, due to particles being closer together.
Density calculations	Density (kg/m³) = $\frac{mass\ (kg)}{volume\ (m^3)}$ $\rho = m / v$

Eureka can

Measuring cylinder
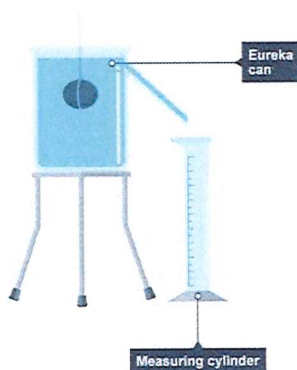
3. Energy and changes of state

Thermal energy and motion	The hotter an object is, the faster its particles are moving.
Temperature	A measure of the average kinetic energy of the particles.
Temperature vs thermal energy	A very small hot object has less thermal energy than a very large cold object, because thermal energy is the energy of all the particles added up.
Thermal energy	Depends on temperature and mass of material.
Specific heat capacity, Q	The amount of energy required to increase the temperature of 1 kg of a substance by 1 °C.
Specific latent heat of evaporation	The amount of energy required to change 1 kg of a substance (at its boiling point) from liquid to gas.
Specific latent heat of melting	The amount of energy required to change 1 kg of a substance (at its melting point) from solid to liquid.
Heating curve	As you heat a substance, the temperature rises steadily, with flat sections on the graph first as it melts, and later as it evaporates.
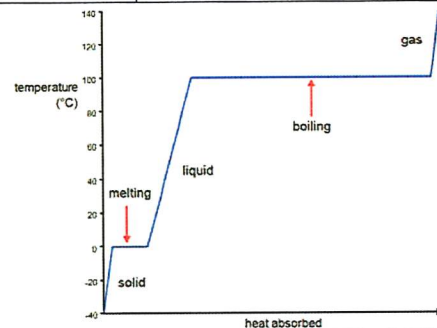
4. Energy calculations

Temperature change calculations	Thermal energy change (J) = mass (kg) x specific heat capacity (J/kg/°C) x temperature change (°C) $\Delta Q = m \times c \times \Delta T$

State change calculations

|	
State change calculations	Thermal energy (J) = mass (kg) x specific latent heat (J/kg) $Q = m \times L$

6. Gas temperature and pressure

Temperature	A measure of the average kinetic energy of the particles.
Gas pressure	Every time a gas particle hits a surface it pushes with a small force; gas pressure is the sum of these forces.
Increasing gas pressure	Gas pressure increases with temperature and number of particles.
Pascals, Pa	The unit of pressure: 1 Pa = 1 N / m²
Absolute zero, 0K	The coldest possible temperature when particles completely stop moving.
Kelvins	Measures temperatures relative to absolute zero: 0 K = absolute zero.
Kelvins and degrees Celsius	A kelvin is the same size as a degree Celsius, but 0 K = -273°C, 273 K = 0 °C
Converting K to °C	Subtract 273
Converting °C to K	Add 273
Gas pressure and Kelvins	Gas pressure is directly proportional to temperature in K.
Absolute zero and gas pressure	Pressure is 0 Pa at 0 K because the particles are not moving.

7. Bending and stretching

Elastic	When something returns to its original shape after force is applied.
Inelastic	When something doesn't return to its original shape after force is applied.
Elasticity and force size	Some objects are elastic when a small force is applied, but inelastic when a large force is applied.
Extension	The increase in length of a spring when a force is applied.
Direct proportion	Doubling A doubles B, a graph of B vs A goes through the origin.

| Metal spring extension	The relationship between force and extension is linear and directly proportional, but becomes non-linear with large forces.
Rubber band extension	The relationship between force and extension is non-linear.
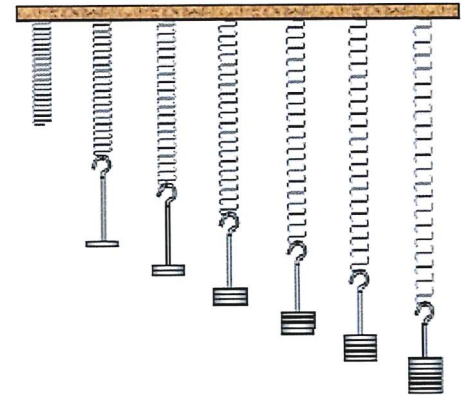
9. Extensions and energy transfers

|	
Spring constant	A measure of the strength of a spring: units = N/m
Spring constant and graphs	The spring constant is the gradient of a graph of force vs extension.
Force and extension calculations	Force = spring constant x extension $F = k \times X$ Force = N Spring constant = N/m Extension = m
Extension is greater when...	Force is higher, spring constant is lower
Work done	The energy transferred by a force.
Spring energy calculations	Energy transferred in stretching = ½ x spring constant x extension² $E = ½ \times k \times X^2$ Energy = J Spring constant = N / m Extension = m

P10-11: Magnetism and electromagnetic induction

1. Magnets and magnetic fields

Permanent magnet	A magnet that is always magnetic.
Temporary magnet	A magnet that is not always magnetic.
Induced magnet	When something becomes temporarily magnetic when close to another magnet.
Uses of magnets	Motors, loud speakers, generators, door locks, knife holders.
Magnetic field	The area of magnetic force around a magnet.
Magnetic field direction	From north to south
Bar magnet field shape	Curved lines going from north to south – see diagram below.
Uniform magnetic field shape	The field between two opposite poles. Straight parallel field lines connect north to south
Plotting a magnetic field	Draw around a magnet. Place a plotting compass on it and draw a small arrow to show needle direction. Move a cm in that direction and repeat. Connect arrows to form lines. Repeat.
Earth's magnetic field	The geographic North Pole is a magnetic south pole (because it attracts the north of bar magnet).
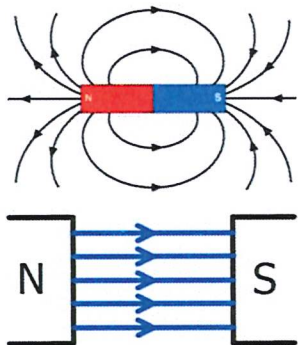
2. Electromagnetism

Electromagnetism	Current flowing through a wire creates a magnetic field around it.
Wire magnetic field shape	Concentric circles.
Wire magnetic field strength	Stronger nearer the wire and with higher current.
Wire magnetic field direction	Right hand grip rule – thumb points towards negative, field in same direction as fingers.
Solenoid	A coil of wire with current running through it.
Solenoid magnetic field shape	Outside: similar to bar magnet. Inside: almost uniform
Solenoid magnetic field direction	From negative to positive.
Electromagnet	A temporary magnet made by placing an iron core inside a solenoid.

Electromagnetic field due to the flow of current

Solenoid Coil
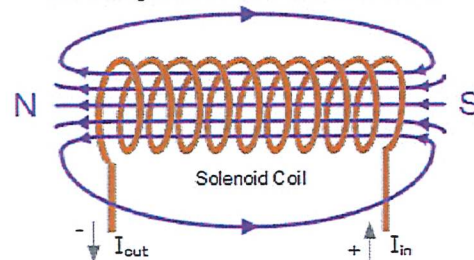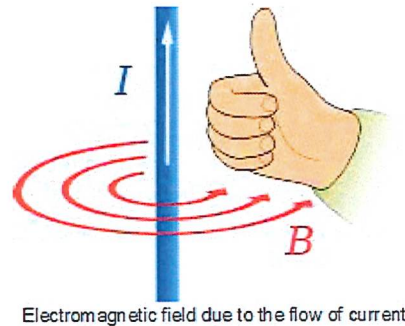
## 3. Magnetic forces (HT)

Motor effect	Force produced when the magnetic field from a permanent magnet pushes a magnetic field from a wire.
Direction of force from motor effect	Flemming's left-hand rule – index finger points in direction of magnetic field, middle finger points from + to – current, thumb points in direction of force.
Force from motor effect …	Is greatest when the magnetic field and electric field are at right angles, wire is longer, current is greater, magnet is stronger.
Magnetic flux density, B	The strength of a magnetic field. Units are: newtons per amp metre (N / A m)
Tesla, T	Same as newtons per amp metre.
Calculating force of the motor effect	Force (N) = magnetic flux density (T) x current (A) x length (m) $$F = B \times I \times L$$
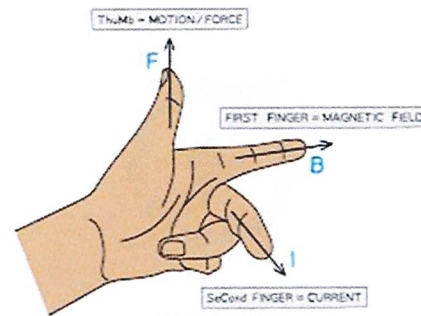
4. Transformers

Transformer	are devices that change the potential difference of an electricity supply.
Electromagnetic induction	A wire cutting through a magnetic field causes a voltage in the wire. (can move the wire or the magnetic field)
Transformer structure	Two coils of wire wrapped around an iron core. Current goes in the primary coil and comes out from the secondary coil.

How transformers work	Changing current in the primary coil creates a changing magnetic field in the core which induces a current in the secondary coil of higher voltage and lower current (or vice versa). **Transformers only work with alternating current.**
Conservation of energy in transformers	If the voltage increases, the current decreases, so energy is conserved since: Power = current x voltage
Transformer calculations	Primary current (A) x primary voltage (V) = secondary current (A) x secondary voltage (V) $$V_p \times I_p = V_s \times I_s$$
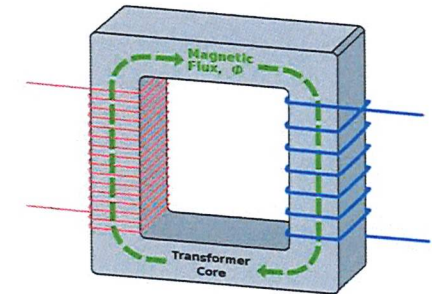
5. Transformers and energy

National grid	The system of cables and transformers that transfers electricity from power stations to homes and businesses.
Voltage in the national grid	Power station = 25 kV Overhead cables = 400 kV Factories = 33 kV Homes = 230 V
Step-up transformer	Increase voltage and decreases current.
Step-down transformer	Decrease voltage and increases current.
Factors affecting the potential difference induced in a transformer	Coils: more coils → higher voltage Frequency: how many times the magnetic field changes or moves past the wire

Hacia un mundo mejor *Making the world a better place*

International and Global Dimension

¿Cuáles son los problemas globales más serios hoy en día?
What are the most serious global problems these days?

Desde mi punto de vista los problemas globales más serios hoy en día son los problemas del medio ambiente y la diferencia entre ricos y pobres. Es terrible que haya tanta desigualdad social y tanta polución.

¿Cómo se pueden solucionar los problemas?
How can these problems be solved ?

No será fácil solucionar estos problemas, pero es necesario que cuidemos el planeta utilizando productos verdes. También es esencial que reducimos el uso de combustibles fósiles y ahorremos agua. Hay problemas como la crisis económica, pero tendremos que cambiar la ley o el gobierno para solucionar este problema.

¿Para qué sirven los eventos deportivos internacionales?
What is the purpose of international sporting events?

En mi opinión, los eventos deportivos internacionales sirven para promover la participación en el deporte y para elevar el orgullo nacional. Desafortunadamente, el coste de estos eventos es enorme y hay el riesgo de la deuda para la ciudad anfitriona.

¿Qué opinas de los grandes eventos musicales?
What do you think about large music events ?

¡Opino que los grandes eventos musicales son divertidísimos! Hay mucha marcha y se puede pasar tiempos con sus amigos riendo y celebrando. El año pasado fui al festival de Reading y fue súper alucinante. Vimos nuestros grupos favoritos pero los servicios fueron asquerosos.

¿Cómo se debería cuidar el medio ambiente?
How should we look after the environment?

A mi modo de ver para cuidar el medio ambiente se debería hacer todo lo posible. Por ejemplo, se debería reciclar el plástico y el vidrio en casa y desenchufar los aparatos eléctricos para ahorrar energía. Además, se puede apagar la luz y no se debería usar bolsas de plástico. Es importante que reduzcamos nuestra huella de carbono.

¿Te gusta tu casa? ¿Por qué?
Do you like your house Why?

Por lo general, sí, a mí me gusta mi casa. Vivo en una casa adosada que está en el centro de mi pueblo y es bastante grande. Tiene cuatro dormitorios, un cuarto de baño, una cocina bien equipada y un jardín grande. En el futuro me gustaría vivir en una ciudad como Londres con mis amigos en un apartamento porque tendría más independencia.

Si fueras millionario, ¿cómo sería tu casa ideal? ¿Qué tendría?
If you were a millionaire, what would your ideal house be like? What would it have?

Si fuera millionari@, tendría una casa enorme que está en la montaña donde puedo hacer esquí en invierno o senderismo en verano. La casa tendría una piscina climatizada y mi proprio cine también con una máquina de palomitas.

¿Qué haces en casa para proteger el medio ambiente?
What do you do at home to protect the environment?

En casa, hacemos mucho para proteger el medio ambiente. Yo separo la basura y cierro el grifo cuando me cepillo los dientes. Pues mi madre usa bolsas de algodón en vez de bolsas de plástico cuando va de compras cada semana.

¿Es importante ser solidario? ¿Por qué (no)?
Is it important to be charitable ? Why (not)?

Para mí, es fundamental ser solidario porque hoy en día hay tantos problemas como el paro y la pobreza. Es esencial que apoyemos productos de ayuda y creemos oportunidades de trabajo para todos dado que en mi opinión no es justo que haya tanta gente sin trabajo y sin techo.

Si tuvieras mucho dinero ¿cómo ayudarías a los demás?
If you had a lot of money, how would you help others?

Si tuviera mucho dinero, construiría muchas casas de bajo precio para ayudar a los jóvenes y los sin techo. Asimismo, organizaría conciertos para recaudar dinero para organizaciones de caridad.

Question you will ask:

Fancy phrases:

PRESENTE

hablar *to speak*	comer *to eat*	vivir *to live*
habl-o	com-o	viv-o
habl-as	com-es	viv-es
habl-a	com-e	viv-e
habl-amos	com-emos	viv-imos
habl-áis	com-éis	viv-ís
habl-an	com-en	viv-en

The present tense is used to describe what you're doing at the present moment in time, e.g: "I am eating breakfast" or what you do routinely, e.g: "I eat breakfast every day".

FUTURO SIMPLE

nadar *to swim*	beber *to drink*	abrir *to open*
nadar-é	beber-é	abrir-é
nadar-ás	beber-ás	abrir-ás
nadar-á	beber-á	abrir-á
nadar-emos	beber-emos	abrir-emos
nadar-éis	beber-éis	abrir-éis
nadar-án	beber-án	abrir-án

The future tense is used to say what you will do in the future.

PRETERITO

preguntar *to ask*	comer *to eat*	escribir *to write*
pregunt-é	com-í	escrib-í
pregunt-aste	com-iste	escrib-iste
pregunt-ó	com-ió	escrib-ió
pregunt-amos	com-imos	escrib-imos
pregunt-ásteis	com-ísteis	escrib-ísteis
pregunt-aron	com-ieron	escrib-ieron

The preterite is sometimes known as the simple past. It's used to talk about events in the past, e.g. I asked, I ate, I wrote.

PRESENTE CONTINUO

hablar *to speak*	comer *to eat*	vivir *to live*
estoy hablando	estoy comiendo	estoy viviendo
estás hablando	estás comiendo	estás viviendo
está hablando	está comiendo	está viviendo
estamos hablando	estamos comiendo	estamos viviendo
estáis hablando	estáis comiendo	estáis viviendo
están hablando	están comiendo	están viviendo

The present continous tense is used to indicate what is happening at the time of speaking, or when one action is happening at the same time as another. Estar+past participle

CONDICIONAL

nadar *to swim*	beber *to drink*	abrir *to open*
nadar-ía	beber-ía	abrir-ía
nadar-ías	beber-ías	abrir-ías
nadar-ía	beber-ía	abrir-ía
nadar-íamos	beber-íamos	abrir-íamos
nadar-íais	beber-íais	abrir-íais
nadar-ían	beber-ían	abrir-ían

The conditional is recognised in English by the use of the word "would" or sometimes "should", e.g. "I would swim"

IMPERFECTO

trabajar *to work*	comer *to eat*	escribir *to write*
trabaj-aba	com-ía	escrib-ía
trabaj-abas	com-ías	escrib-ías
trabaj-aba	com-ía	escrib-ía
trabaj-ábamos	com-íamos	escrib-íamos
trabaj-ábais	com-íais	escrib-íais
trabaj-aban	com-ían	escrib-ían

The imperfect tense is used for things that 'used to happen' or 'were happening' e.g.I worked, I used to work, I was working

PARTICIPIO PRESENTE / PARTICIPIO PASADO

-AR	-ando	hablando	-AR	-ado	hablado
-ER	-iendo	comiendo	-ER	-ido	comido
-IR	-iendo	viviendo	-IR	-ido	vivido

The present participle or gerund is recognised in English by the ending –ing .e.g. talking, eating, living.

To find the past participle of a verb in English, just imagine that the words ' I have' are in front of it. E.g. 'to eat' put 'I have' in front of it you would say 'I have eaten' so 'eaten'.

FUTURO INMEDIATO   (I am going to +Verb)

voy	a	trabajar	*I am going to work*
vas	a	estudiar	
va	a	beber	
vamos	a	comer	
vais	a	abrir	
van	a	vivir	

The immediate future tense can be used to express what is going to happen in the future. E.g. I am going to work, I am going to study, I am going to drink, I am going to eat….

PRESENTE PERFECTO

hablar *to speak*	comer *to eat*	vivir *to live*
he hablado	he comido	he vivido
has hablado	has comido	has vivido
ha hablado	ha comido	ha vivido
hemos hablado	hemos comido	hemos vivido
habéis hablado	habéis comido	habéis vivido
han hablado	han comido	han vivido

The present perfect in English always contains 'has' or 'have' in it. E.g.I have spoken, I have eaten, I have lived.

There is/are= hay
There was/were= había

In Spanish the infinitive form of a verb always ends with the letter r and falls into three categories:
1) those which end with -ar (ar verbs) e.g. *hablar* = to speak
2) those which end with -er (er verbs) e.g. *comer* = to eat
3) those which end with -ir (ir verbs) e.g. *vivir* = to live

For regular verbs in the present, preterite and imperfect tenses, you must first remove the -ar, -er or -ir endings from the infinitive form of the verb, and then add the correspondent endings.

Most verbs in Spanish have **six** forms which correspond to their respective pronouns and which will be listed in the following order:
1) **yo** (I)
2) **tú** (you-familiar a person you know well, a familiar relationship)
3) **él/ella/usted** (he/she/you-formal a person you don't know, a formal relationship)
4) **nosotros/nosotras** (we)
5) **vosotros/vosotras** (you-plural-familiar [only used in Spain])
6) **ellos/ellas/ustedes** (they/you-plural-formal [Spain]/you-plural [L. America])
It's **essential** that you get the **correct ending** for the person you're talking about in Spanish because **pronouns don't tend to be used in Spanish**.

PASADO PERFECTO

hablar *to speak*	comer *to eat*	vivir *to live*
había hablado	había comido	había vivido
habías hablado	habías comido	habías vivido
había hablado	había comido	había vivido
habíamos hablado	habíamos comido	habíamos vivido
habíais hablado	habíais comido	habíais vivido
habían hablado	habían comido	habían vivido

The past perfect is used to indicate an action that happened and was completed before another action took place in the past. E.g.I had spoken/lived/eaten

TEXTILES

AO4 Present

Personal response
- Demonstrate what the starting point, theme or brief means to you personally.
- Establish links between the starting point and your chosen sources?
- Show links between your sources and your own work?
- Present ideas or techniques from your sources that support your developed
- Selected and presented your studies carefully.
- Made clear links between your work and that of other contextual reference.
- Collected images to show your inspiration and stimuli?
- Present evidence of drawing, techniques, samples, photographs, processes and experiments with different media?
- Annotate work to explain how they fit into your development process?

- Demonstrated your understanding through correct use of textiles vocabulary?
- Shown experimentation and selection of the most successful results for your project?
- Organised your recordings and presented them to show and explain your decisions?
- Clearly linked all of your work to your starting point?
- Clearly link your final piece with your preparatory work.
- Make sure your final piece links to your artist or designer research.
- Finish all of your preparatory work before you start your final piece - it's worth a lot more marks.
- Make sure your personal response isn't simply a larger version of your preparatory work.
- Review and refine your ideas so that you are completely happy with them.
- Evaluate.

AO1 Develop

This includes; visual references / mind-map / mood board / contextual research / analysis / gallery visit

- You must **complete contextual research and analysis** on your chosen designers/textiles area as well including other image references.
- You must **explain** how you intend to **develop your own ideas** from looking at the work of your chosen artist/ designer/ reference

AO3 Record

This includes; Annotations / planning / drawing / photography

- Extensive sample planning making connections between your idea and research/designer techniques to develop your own ideas.
- In your planning, you should show **clear connections** to your research but then **develop your ideas** further through trying out different techniques/colours/motifs.
- Drawings should be relevant to the theme – you could also explore painting, digital drawing and photography.
- Annotations should make clear links between your own work and research. State clearly whether you'll use techniques again and how you will develop them.

AO2 Refine

When you complete media experiments they must...
- **Link to your chosen theme / research** - make sure they are **appropriate.**
- Refine – combine techniques together to develop your ideas.
- Be **imaginative** within your selection of media and techniques don't just copy or be obvious.
- **Experiment** with both machine and hand techniques to develop your work.
- **Annotations** must be evaluative! If you think something could be improved make sure you apply it or evidence it in your book.

- If you visit galleries and complete trips, you must respond to these in your sketchbook.
- In your practical work, you should show **clear connections** to your research but then **develop your ideas** further through trying out different techniques/themes.
- Your ideas should link together in your sketchbook, so there is clear development / progression of an idea **(try not to jump randomly from one idea to another).**
- Your final outcome should be linked to the final experimentation in your sketchbook, to show how your ideas have developed.

Notes

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Notes

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Notes