



PUDSEY
GRAMMAR SCHOOL

EST.1905

KNOWLEDGE ORGANISER

YEAR 10

Student Name:

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Year and Form:

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GCSE Fine Art: AO1 Develop

Develop- AO1

This means you develop ideas/themes through researching different artists. Artist research pages must contain the following:

1. Artist title and written analysis of their work
2. Artist copy: this can be a section or the whole image (a direct copy)
3. Primary photographs
4. Artist response – work in the artist's style using your own images

Context

This refers to how the work relates to a particular time, place, culture and society in which it was produced.

- When was it made? Where was it made? Who made it?
- Who was the work made for?
- What do you know about the artist?
- How does the work relate to other art of the time?
- Does the work relate to the social or political history of the time?
- Can you link it to other arts of the period, such as film, music or literature?
- Does the work relate to other areas of knowledge, such as science or geography?

Content

The content is the subject of a piece of work.

- What is it? What is it about? What is happening?
- Is it a portrait? A landscape? Abstract?
- What does the work represent?
- The title - what does the artist call the work?
- Does the title change the way we see the work?
- Is it a realistic depiction?
- Have any parts been exaggerated or distorted? If so, why?
- What is the theme of the work?
- What message does the work communicate?

Mood

Mood means looking at how the artist has created a certain atmosphere or feeling.

- How does the work make you feel?
- Why do you think you feel like this?
- Does the colour, texture, form or theme of the work affect your mood?
- Does the work create an atmosphere?



Process

- Looking at process means studying how the work was made and what techniques were used.
- What materials and tools were used to make the piece?
- What is the evidence for this?
- Do sketchbooks provide any clues as to how the work developed?

GCSE Fine Art: AO2 Refine

Refine– AO2

This means you will refine your ideas by experimenting with different materials. This may include the use of the following within your sketchbook:

1. Pencil
2. Biro
3. Mark making
4. Colour
5. Water colour paints
6. Acrylic paints
7. Oil paints
8. Pencil crayons
9. Collage
10. Charcoal
11. Oil pastels
12. Chalk pastels
13. Drawing inks
14. Mix media work
15. Mono printing
16. Monochrome pieces
17. Textured pieces
18. Fine liner work
19. Pattern work
20. Photo-manipulation
21. Own photographs



Composition Techniques

There are a number of different ways composition can be developed: Move objects around in a still life or change the pose in portraiture or figure composition.

- Try different arrangements, e.g. linear, triangular or circular compositions
- Change how natural, organised, busy or sparse your composition is.
- Use different amounts of negative space, showing more or less background
- Experiment with leading lines to draw the viewer's eye into the composition
- Change the height and angle of your viewpoint
- Use frames within frames e.g. looking through objects to frame elements of the composition
- Create a cropped composition by zooming in to a specific area.
- Try different backgrounds

Refining Ideas

After your initial development you should select an idea and work on refining it. Refinement is the improvement of the idea. It does not involve radical changes, but is about making small changes which improve the idea in some way. This might be done by modification of the composition – e.g. replacing one object with another or changing a pose slightly...

- Variation of a technique – e.g. trying oil pastel rather than painting to achieve an expressive style
- Adaptation of the idea – e.g. including some detail in the foreground of a landscape to add more depth and distance
- Alteration of an aspect – e.g. arranging objects in a triangular composition instead of a linear grouping, or changing the colour of the sky in a coastal scene to achieve a more dramatic atmosphere
- Enhancing an element of the idea – e.g. improving the application of a particular technique, or harmonising the background colours with other aspects of the composition
- Fine-tuning a technique or an aspect of the composition.
- Tweaking the positioning of a subject to make the composition more balanced, or to create more tension, as appropriate.

GCSE Fine Art: AO3 Record

Record – AO3

This means you will use different methods to record your ideas and draw from observation. This may include the use of the following within your sketchbook.

1. Photographs
 2. Drawings
 3. Paintings
 4. Mix media
 5. Written analysis of your own work and the work of others
 6. Images of arts work
 7. Artist studies
 8. Descriptions of your work and the work of others
 9. Compositions of different ideas for personal response
- You can use a range of different materials

1. Pencil
2. Biro
3. Mark making
4. Colour
5. Water colour paints
6. Acrylic paints
7. Oil paints
8. Pencil crayons
9. Collage
10. Charcoal
11. Oil pastels
12. Chalk pastels
13. Drawing inks
14. Mix media work
15. Mono printing
16. Monochrome pieces
17. Textured pieces
18. Fine liner work
19. Pattern work
20. Photo-manipulation
21. Own photographs



Composition using Technology

Taking photographs of different arrangements can help development. You can try out different viewpoints and arrangements quickly. It is easy to change between landscape and portrait format to try different effects.

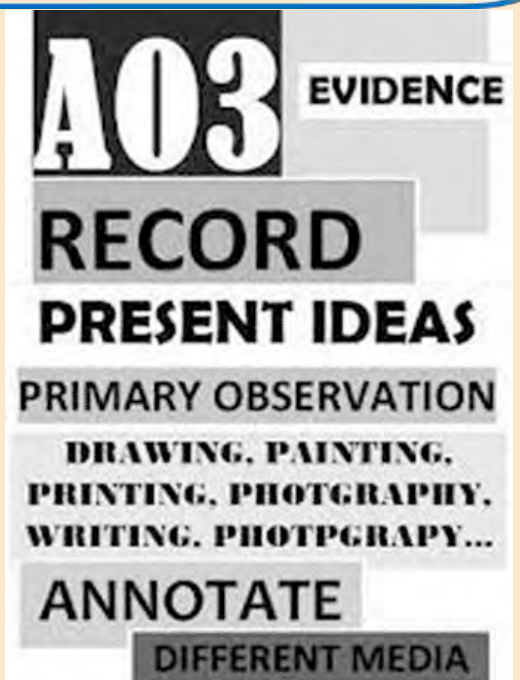
The camera's viewfinder can be used to 'frame' compositions and preview the result.

Working from photographs can be more practical for subjects that might move or where conditions might change.

New compositions can be created by cropping existing images digitally.

Remember that artists use photography as a tool to record visual information.

It is still important to create your own personal response to the image by experimenting with materials and techniques.





Business GCSE

The dynamic nature of business

Reasons new business ideas come about:

- Changing technology
- Changing consumer needs
- Obsolescence

The role of entrepreneurship

- What entrepreneurs do
- Have an idea
- Take a risk
- Organise the resources to set up a business
- Employ people
- Make business decisions
- Establish and grow a successful business

The importance of added value

Adding value is important to a business for a number of reasons. A business must decide how best to combine the features of its products to add value.

The added value of a product goes towards paying off a company's fixed costs. The higher the added value, the sooner costs can be paid off and the quicker a business will make a profit.

- Ways to add value:
- More convenience
- Unique selling point
- Better design
- Improved quality
- Branding
- More convenience
- Greater speed of service

Meeting customer needs

- Price
- Choice
- Convenience
- Quality

Risk and reward

Before an entrepreneur starts their own company, they will consider the risks and rewards associated with it.

Risks

- Business failure- through poor cash flow, fall in sales revenue or the actions of competitors
- Financial loss – and owner may lose the capital they invest in the business if it fails. This could include their personal belongings if the business has unlimited liability
- Lack of security- Not working for someone else means no guaranteed income, sick pay or holidays

Rewards

- Business success- Personal satisfaction, excellent product/services, growth, and awards and recognition
- Profit- Where revenue exceeds costs over a period of time
- Independence- Many business owners will value the freedom of working for someone else

Ways to compete

1. Wider product range
2. Better customer service
3. Stronger brand image
4. Higher quality
5. More convenient food
6. Lower prices
7. Better design

Consumer- someone who buys and uses goods and services

Demographics- relating to the structure of a population

Entrepreneur- A person who owns and runs their own business. They are risk takers who have an initial idea and the willingness and confidence to see it through

USP- something that makes a product or service stand out from its competitors

Enterprise- A person or organization with the purpose of producing goods and service

Enterprise skills- Skills that successful entrepreneurs share

Customer need- What customers want from a product

Market research- The process of gathering information about the market and customers' need and wants in order to help inform business decisions

Primary research- Collecting information that did not exist before.

Secondary research- Gathering secondary data which already exists

Qualitative data- information about people's opinions, judgements and attitudes

Quantitative data- Data that can be expressed as numbers and statistically analysed

Market segmentation- A group of buyers with similar characteristics and buying habits

Market maps- A diagram that can be used to position and compare products in a market

Product differentiation- Making a product different from others in some way

Competitive markets- A market is competitive when there are a large number of businesses relative to the number of potential customers

Aims- The general goals that a business sets. An aim can be the purpose for a business's existence

Objectives- are more specific than aims, but they contribute to a business achieving its aims. Objectives can be financial or non financial

Repeat purchase- When a customer tries a product and likes it so they buy it again

Financial aims and objectives

survival, profit, sales, market share, financial security

Non financial aims and objectives

social objectives, personal satisfaction, challenge, independence and control

Short term sources of finance

- overdraft
- trade credit

Long term sources of finance

- personal savings
- venture capital
- share capital
- Loans
- retained profit
- crowdfunding

The importance of cash flow

- to pay suppliers, overheads and employees
- to prevent business failure (insolvency)

Benefits of break even analysis

- Aids planning
- Can set staff sales targets
- Can see the impact of cost changes

Drawbacks

- Assumes fixed costs do not change
- Assumes everything is sold
- Assumes everything is sold for the same price

Whilst it is a useful tool, it should be used in conjunction with other planning tools.

Key formulae**Revenue**

Amount sold x selling price

Total cost

Fixed + variable costs

Profit

Revenue - total cost

Break even

Fixed cost/contribution

Contribution

Selling price - variable cost

Margin of safety

Projected sales - break even point

Net cash flow

Inflows- outflows

Closing balance

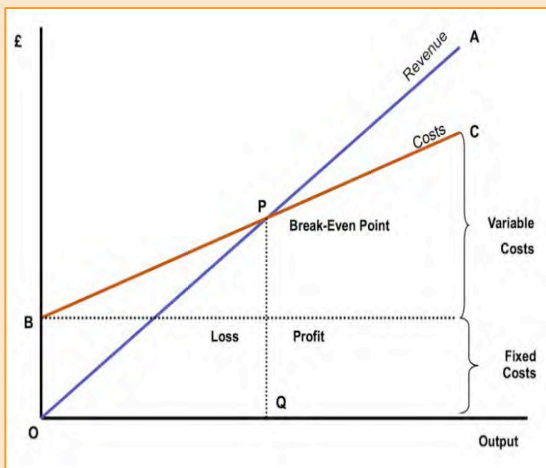
Net cash flow + opening balance

Market share

Share of the market/ total market size x 100

Average Revenue

Add up all the revenues and divide by the no. of years



Revenue- money coming into the business from sales

Fixed cost- a cost that does not increase in line with production

Variable cost- A cost that will increase inline with production

Profit- Money left after all costs have been paid

Interest- Money paid by the bank on savings or to the bank for borrowing

Break even point- The number of units a business needs to sell to cover their costs

Margin of safety- The number of sales a business can drop before it goes below the break even point
Financial objectives- Goals the business have relating to money

Non financial objectives- Objectives the business have that are not related to money ie acting ethically

Cash inflow- The money flowing into a business

Cash outflow- Money flowing out of the business

Net cash flow- Inflows - outflows

Short term finance- Money that is borrowed and is paid back within 12 months

Long term finance- Funds that are paid back for longer than 12 months

Overdraft- A form of borrowing where customers are allowed to spend more than they have in the bank

Trade credit- Buying supplies now and paying for them in the future

Share capital- Money gained from selling shares

Retained profit- money kept from last year for future use

Venture capital- Money gained from a venture capitalist company who are experts in investing in business

Loans- A long term source of finance where the bank loans a large amount and is repaid monthly

Crowd funding- Raising funds from the public through websites such as kickstarter often in return for discounted goods



Stakeholders

Stakeholders is someone or something that has an interest in a business.

Such as: the local community, customers, owners, shareholders, rival businesses, employees, managers and the Government.

Technology and Business

Technology changes quickly, meaning a business needs to change quickly to adapt to the market around them.

Benefits: staying competitive, increases efficiency and better customer reach.

Drawbacks: if not done could lead to business failure, could become irrelevant, it can be expensive to maintain the newest technologies..

Principles of Consumer Law

Law to protect consumers from receiving poor quality products or products that are wrongly advertised.

Benefits: business are less likely to be fined if they follow the law, compliant businesses could have more loyalty from customers as they trust, good publicity.

Drawbacks: Businesses need to keep up to date with the law, laws can be restrictive, changing products and policy with the law can be costly.

The Economy and Business

The level of demand in an economy refers to the spending that takes places, by governments or consumers. If spending increases businesses are more likely to be doing well this works the other way round too.

Different things could change the levels of demand such as:

Interest rates – if they fall borrowing and demand will increase.

Changes in exchange rates – if the pound gets weaker foreign demand will increase.

Consumer income – when people are earning more they have more disposable income.

Principles of employment law

Fair recruitment, fair pay, no discrimination health and safety in the workplace and fair dealing with discipline.

Companies need to be aware of different people and their needs, a business should be aware of the laws around having employees and the expectations to protect those same employees.

This can be costly for a business, especially for protective equipment or paying the minimum wage.

However, customer will see compliance as a positive thing.

Unemployment and Inflation

Unemployment exists when people who want to find work cannot do so.

High levels of unemployment makes it easier for businesses to recruit but over time the skills they need will no longer exist in the market. With many people out of work demand for certain products will drop. This will mean sales and revenue for many companies will fall.

Inflation is the change in average levels of prices in the economy. A freddo used to be 5p!!!

Impact of inflation on a business:

A sharp rise in the rate of inflation will cause a businesses cost to rise unexpectedly. This can have a direct impact on the profits of that business.

Consumers costs rise when the rate of inflation rises. This reduces consumers disposable income, meaning they have to buy fewer goods and services from the same business. When an increase in inflation causes the business costs to rise the business has two choices. can either absorb the costs onto its customers by raising prices. Some essential products receive funding from the government as to keep them at the same price for all.

Key Words:

Stakeholder – Someone or something that has an interest in the business.

Shareholders – Someone that owns percentage share within a business.

They are also classed as stakeholders.

Competitive – When you as a business can challenge all the businesses for share of the market.

Efficiency – Doing things in the most time and/ or cost effective way.

Legislation – the laws are business has to abide by.

Compliance – Following the rules without need for intervention.

Unemployment – This is when people who want to find work cannot do so.

Interest rates – Interest rates is a percentage read set by the Bank of England that covers the cost of borrowing.

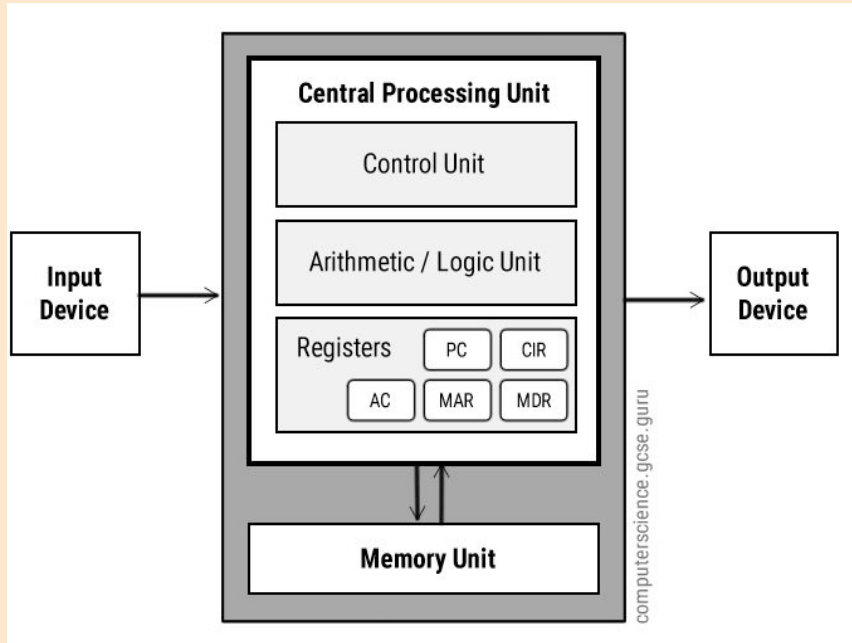
Consumer income – This is the amount consumers receive through things such as work or investment.

Taxation – An amount charged by the government to fund public services.

Inflation – Inflation is a change in the average levels of prices overtime.

Demand – Demand is the amount of something that is wanted either by the government, consumers or international investors.

Computer Architecture



- The **Von Neumann** architecture consists of a:

- Control Unit (CU)
- Arithmetic and Logic Unit (ALU)
- Memory Unit (typically RAM)
- Inputs and Outputs

- It is based on the concept of the stored-program concept.
- Both instruction data AND program data are stored in the same memory space in binary form.
- There is no way to know if the pure binary held in memory is representing instructions or data simply by looking at it.

Factors affecting speed of CPU

- Control Unit (CU):** executes instructions and controls the flow of data in the CPU.
- Program counter:** holds the memory address for the instruction of each cycle.
- Arithmetic Logic Unit (ALU):** does all of the calculations and logic operations.
- Accumulator:** holds the result of any calculations in the ALU.
- MAR (Memory Address Register):** holds the address about to be used by the CPU.
- MDR (Memory Data Register):** holds the actual data or instruction being processed by the CPU.

- Computer systems** take data (input), process it and then output it.
- Embedded systems** are computers built in to other devices like washing machines. They are dedicated to a single task so they are efficient.
- Clock speed:** the number of instructions a processor can carry out per/second. Higher clock speed = faster CPU.
- Number of Cores:** The more cores a CPU has the more instructions it can carry out at once (multitasking). More cores = faster processing.
- Cache size:** A larger cache gives the CPU faster access to more data

The number of duplicate CPUs on a single chip.

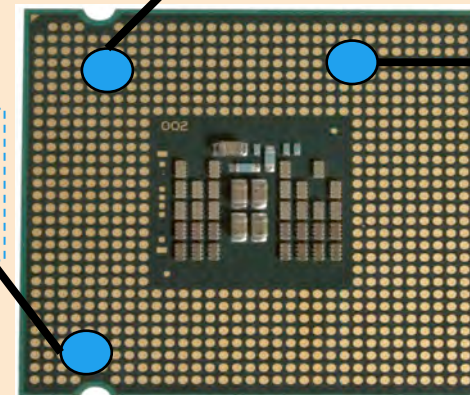
Number of cores

Clock speed

Cycles per second measured in hertz.

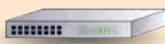

Cache size

Cache is a small amount of memory in the CPU. When an instruction or data is fetched from RAM it is copied into the cache so if it is needed again soon after, it can be fetched from the cache instead which is much quicker than going back to main memory.



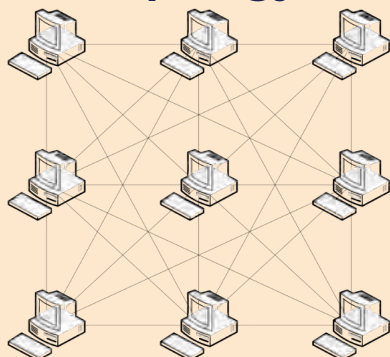
Computer Networks

Network Hardware

Router 	A router sends data between networks. It is needed to connect a local area network to a wide area network (Internet).
Switch	A switch sends data between computers on a local area network.
Wireless Access Point	Wireless access point allows wireless-enabled devices to access the network without cables.
Network Interface Controller (NIC)	A network interface controller (NIC) connects a device to a wired or wireless network connection.
Transmission Media (Cables) 	Connections between desktop computers and a switch are usually made with unshielded twisted pair (UTP) copper cable. Longer distance cables and wide area networks are usually connected with fibre optic cable.



Mesh Topology



In a star network, each device on the network has its own cable that connects to a switch or hub. This is the most popular way of setting up a LAN. You may find a star network in a small network of five or six computers where speed is a priority. Very reliable due to a dedicated connection to each device, although expensive to set-up and requires specialist knowledge.

In a Mesh network, each device has a direct connection to all other devices on the network. Each device has equal importance on the network, so data can take multiple routes to its destination in the event of a device failure. Due to each device requiring a connection to all other devices, it can be impractical to use a Mesh topology in a large network.

These factors can impact on network performance:

- **Bandwidth:** The more bandwidth, the more data that can be transferred at a time.
- **Number of Users:** Having a lot of people using a network means lots of data is being transmitted which can slow it down.
- **Transmission Media:** Wired connections are faster than wireless.
- Fibre optic cables are faster than copper cables.
- **Wireless**
- **Factors:** wireless can be affected by walls, distance, signal quality and interference from other devices.
- **Topology:** The layout of a network can impact on its performance.

Protocols are the rules for how devices communicate and transmit data across a network. Every device has a MAC address so that it can be identified on a network. Eg: 98-1C-B3-09-85-15 IP addresses are used when sending data between networks. They can be static (permanent) or dynamic (different each time the device connects).

- **TCP/IP:** Used to send data between networks in packets.
- **Transmission Control Protocol (TCP):** Splits the data into packets and re-assembles. Checks data is sent correctly.
- **Internet Protocol (IP):** does the packet switching
- **Hyper Text Transfer Protocol (HTTP):** for accessing websites
- **HTTPS:** The secure version of HTTP
- **File Transfer Protocol (FTP):** Moves files between devices
- **Post Office Protocol (POP3):** Retrieves emails from server. Once you download the email the server copy is deleted.
- **Internet Message Access Protocol (IMAP):** Retrieves email from server. Email is kept on server, you see a copy



Programming & Algorithms

What is an Algorithm?

An algorithm is a logical, step-by-step set of instructions used to solve a problem.

Algorithms: Pseudocode vs Flowcharts

Pseudocode is not a programming language, it is a simple way of describing a set of instructions that does not have to use specific syntax. Writing in pseudocode is similar to writing in a programming language. Each step of the algorithm is written on a line of its own in sequence.

```
01 x = 0
02 while True
03     print x
04 endwhile
```

A **flowchart** is a diagram that shows an overview of a program. Flowcharts normally use standard symbols to represent the different types of instructions. These symbols are used to construct the flowchart and show the step-by-step solution to the problem. Flowcharts are sometimes known as flow diagrams.

Flowchart Symbols

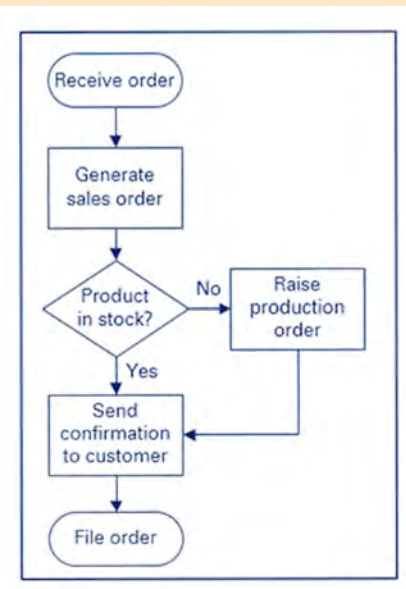
	Line		Input/Output
	Process		Decision
	Sub program		Terminal

Variables and Constants

- **Variable** - A value that may change when the program is running. Variables can be local or global. Local Variable – a variable which can only be used within the structure they are declared in.
- **Global Variable** – a variable which can be used in any part of the code after they are declared
- **Constant** – A value which cannot be altered as the program is running.

Programming Constructs

- **A Sequence** is when there are programming steps that are carried out one after another.
- **Selection** is where there are different paths in your code eg: IF, ELIF, ELSE
- **Iteration** is when there is repetition (loops) in code. This could be a WHILE loop (do something WHILE a condition is met) or a FOR loop (do something for a set number of times)



Boolean Operators	Logic Gate Symbol
AND (Conjunction)	

AND		
A	B	A AND B
0	0	0
0	1	0
1	0	0
1	1	1

An AND gate can be used on a gate with two inputs. AND tells us that both inputs have to be 1 in order for the output to be 1.

OR (Disjunction)	
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OR		
A	B	A OR B
0	0	0
0	1	1
1	0	1
1	1	1

The OR gate has two inputs. One or both inputs must be 1 to output 1, otherwise it outputs 0.

NOT (Negation)	
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NOT	
A	NOT A
0	1
1	0

A NOT gate has just one input. The output of the circuit will be the opposite of the input. If 0 is input, then the output is 1. If 1 is input, then 0 is output.



COMP 1 / COMP 2

User Interface

Graphical user interface (GUI)	The OS on most computers and smartphones provides an environment with tiles, icons and/or menus. The user interacts with images through a mouse, keyboard or touchscreen.
Command line interface (CLI)	An OS also provides a method of interaction that is non-graphical, called the command line interface (CLI). This is a text-only service with feedback from the OS appearing in text
Menu-Driven Interface	The menu-driven user interface provides you with a range of commands or options in the form of a list or menu displayed in full-screen, pop-up, pull-down, or drop-down. An ATM is an example of a menu-driven interface.

Design Principles

Colour	Using different colours and house style (A house style is a consistent colour scheme applied to a design)
Font	Ensuring text style/style is readable use of sans serif fonts for screen reading
Language	using appropriate language for user needs, e.g. age-appropriate language using language that is appropriate for user skill level
User perception of	colour, e.g. green to indicate go/successful interactions, orange to indicate warnings, red to indicate stop/errors sound, e.g. positive high-pitched sounds, negative low-pitched sounds
Retaining user attention	grabbing attention, e.g. pop-up messages, flashing graphics, sound, animation ensuring the screen is uncluttered clearly labelled items/features

Data and Information

Data	Data is - no meaning, no structure, no context and unprocessed.
Information	Information is - has meaning, has structure, has context and is processed.
Primary Source of Information	immediate, first-hand accounts of a topic, from people who had a direct connection with it. Examples include: Letters, diaries, minutes, photographs, artifacts, interviews, and sound or video recordings
Secondary Sources of Information	Secondary sources provide second-hand information and commentary from other researchers. Examples include journal articles, reviews, and academic books. A secondary source describes, interprets, or synthesizes primary sources.

Data Validation and Verification

Range Check	A range check is commonly used when you are working with data which consists of numbers, currency or dates/times.
Type Check	A type check will ensure that the correct type of data is entered into that field.
Lookup Check	A lookup check provides a list of valid data to be entered into a field.
Presence Check	A presence check makes sure that a critical field cannot be left blank, it must be filled in. If someone tries to leave the field blank then an error message will appear
Length Check	A length check can also be set up to allow characters to be entered within a certain range.



COMP 1 / COMP 2

Project Keywords

Audience	Group of people who will use the product. This could include age, culture, status
Project Plan	defines project objectives, tasks and sub-tasks with time frames to start and end, identifies what resources will be needed
Gantt Chart	A Gantt chart is a graphical representation of activity against time. It plans work around deadlines and properly allocate resources
Pert Chart	A PERT chart is a visual representation of a series of events that must occur within the scope of a project's lifetime.
Moodboard	Mood boards are physical or digital collages that arrange images, materials, text, and other design elements into a format that's representative of the final design style.
Mindmap	A mind map is a graphical way to represent ideas and concepts. It is a visual thinking tool that helps structuring information, helping you to better analyze, comprehend, synthesize, recall and generate new ideas.
Storyboard	Visual representation of a design for a user interface outlining key features, tools, layouts and structure. Identification of colours, fonts and colours to be used.
Smart Targets	SMART goals stands for Specific, Measurable, Achievable, Relevant, and Time-Bound
Contingency Plan	is a course of action that would take if an unexpected event or situation occurs, outlining a plan of additional actions
Test Plan	A plan that outlines a series of tests to obtain the efficiency of a system

Google Sheet Keywords

Cells/Cell Referencing	A cell is a rectangle or block housed in a worksheet. Any data that you want to enter into your worksheet must be placed in a cell
Function	Functions pre-built into Sheets They are designed to help simplify potentially complex formulas in a worksheet., EG SUM, AVERAGE, MAX, OR MIN
Formula	A sequence inside a cell that is used to produce a value. It must begin with an equal (=) sign . This could be a mathematical equation, cell references, functions or operator. A formula is also known as an expression .
Countif	can be used to count cells that contain dates, numbers, and text. Eg, =countif(D1:D10,"Data") will count the word Data in a range of cells
Macro	are small programs you create inside of Google Sheets without needing to write any code. Usual written in Visual Basic Code
Conditional Format	Formatting is applied only when the cell meets determined criteria such as duplicate values or values above or below a threshold.
Data Validation	This feature helps to prevent incorrect data from being entered into your worksheet. This most commonly used to create drop-down lists for common terms.
IF statement	The IF function runs a logical test and returns one value for a TRUE result, and another for a FALSE result. For example, to "pass" scores above 70: =IF(A1>70,"Pass","Fail").
Pivot Tables	A function that allows you to compare two sets of data, from a given set of fields/records and produce a charts/graphs to visual represent that data.



User Interface	A type of system that provides a menu based or interface for users to interact with.
Navigation System	A system within an interface which allows the interaction of a user to navigate from one menu to another through the use of tools or features.
User requirements	A set of guidelines from a client or user which outlines the intent or requirements needed for a system, eg a navigation system or colourful etc.
Survey	Data collection surveys collect information from a targeted group of people about their opinions, behavior, or knowledge of a topic
Questionnaire	includes specific questions with the goal to understand a topic from the respondents' point of view. Questionnaires typically include closed-ended, open-ended, short-form, and long-form questions.
Strengths	Process of identifying the positives or good points of a system based on a given set of requirements
Weaknesses	Process of identifying the negative or bad points of a system based on a given set of requirements
Improvements	A process of making changes to a system based on identification of negatives in order to update, change or enhance
Project constraints	Problems encountered in completing the project, Not meeting deadlines, overrunning on tasks, Missing minor tasks
Design principles	A list of principles which include, colour, font, language, user perception.

Data Analysis	Data analysis is a process of inspecting, cleansing, transforming, and modelling data with the goal of discovering useful information, informing conclusions, and supporting decision-making
Pattern	A pattern is the repeated or regular way in which something happens or is done
Trend	A trends is a similarity of events or actions within a given set of data. This could be highest or lowest figures showing a repeating event
Data Duplications	occurs when an exact copy of a piece of data is created due an error or incorrect use of formulas/functions
Data Anomalies	are inconsistencies in the data stored in a spreadsheet as a result of an operation such as update or function not working properly
Dashboard	A summary of data outlining information in a logical structure, on a spreadsheet with charts/graphs to represent data (See below)

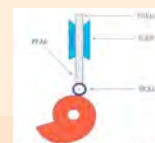
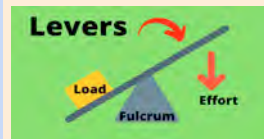
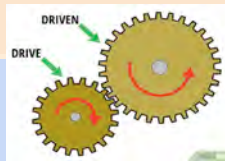




Mechanisms, Polymers, New Technologies

Mechanical devices - produce different sorts of movement that change the magnitude and direction of forces. To transform input motion and force into a desired output motion and force.

Mechanical systems - Increase or decrease speed of movement rotation; Change magnitude/direction of force, movement, rotation. Function of mechanical products: pulley systems, e.g. curtain rails, sewing machine; **gear systems**, e.g. whisk, hand drill; **levers & linkages**, e.g. scissors; **rack & pinion**, e.g. chair lift; **cams**, e.g. automata toys



Thermoforming and thermosetting polymers

Polymers can be made from both natural and synthetic resources. Polymers are sold as sheet, film, bar, rod and tube - Stock form. The differences between a thermoforming (thermoplastic) it can be reheated and reshaped whilst thermosetting material once heated and set it cannot be reheated and reshaped. **Properties of polymers:** weight, hardness, elasticity, conductivity/insulation, toughness and strength. **The types of thermoplastics:** polythene (HDPE/LDPE), polystyrene (PS), polypropylene (PP) and PVC, PET. **The types of the thermosetting plastics:** UF (urea formaldehyde), MF (melamine formaldehyde), PR (polyester resin) and ER (epoxy resin).

Design Focus: Philippe Starck – product designer:

Apple - Technology: Airbus –aeronautical designer, manufacturer: Dyson - Designer, Manufacturer: Matthew Williamson - fashion/interior designer

Ergonomics the study of the interaction between the human body, products & the surrounding environment. It is a key factor in design from furniture to handheld gadgets.

Scales of Production The different methods of production depend on the type of product being made, one off, batch, mass and continuous production.

How the critical evaluation of new and emerging technologies informs design decisions.

Ethics and the environment & the effects that Global production has on culture and people. Sustainability & environmental issues when designing and making. Social, cultural, economic and environmental responsibilities in designing and making of products. The **SIX R's** of sustainability; rethink, reuse, recycle, repair, reduce and refuse. **Life Cycle Analysis** to determine the environmental impact of a product. **Fair-trade** policies and **carbon footprint** and the **Ecological footprint** we leave. Modern ways forward for businesses, **Enterprise, crowdfunding, Virtual marketing & retail, Cooperatives, Fairtrade. Technology Push, Market Pull.** Changes to how people work. Developments in Automation & Robots, Buildings, **CAD, CAM, CNC** and there *advantages and disadvantages*. **Flexible Manufacturing systems (FMS), Lean Manufacturing & Just in time**, and there *advantages and disadvantages*. Manufacturers considering environmental and sustainable issues through **Life Cycle Assessment**, pollution and global warming, and examples of how manufacturers are continuously looking for improvement and efficient working. Finite and non-finite resources, waste disposal.

Culture & Societies have different needs, wants and values. Consumer choice and Legislation and **consumer rights** have to keep up with new technology, the latest is the Consumer Rights Act 2015.

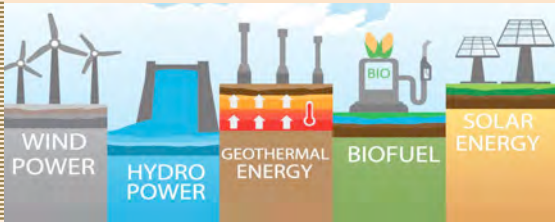
Selecting Materials - Looking at Functionality, Environmental factors, Availability of materials, Cost (from raw materials, manufacturing, packaging, shipping costs as well as the selling price), Cultural Factors, as well as Social and Ethical factors, for examples FSC logo on wood. Aesthetics, Ergonomics, and need of customer and end of use/product life disposal and reclaiming.



Energy Generation, Timber, Paper and Board, Technologies

Energy Generation

Energy is generated and stored in order to make products and to power systems. The types of renewable and non-renewable energy sources are: **wind, solar, geothermal, hydroelectric, wood/biomass, wave, coal, gas, nuclear and oil**. There are, *advantages and disadvantages* surrounding the use of fossil fuels: coal, oil and gas. Using renewable energy sources in modern manufacturing production systems e.g. the use of solar panels and wind turbines in manufacturing sites. Renewable energy sources for products: wind-up and photovoltaic cells. Energy generation and storage in a range of contexts: motor vehicles (e.g. petrol/diesel, electricity) and household products (e.g. battery, solar, mains).



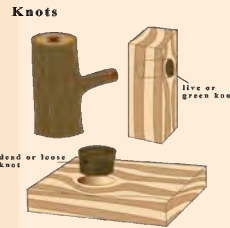
New and Emerging technologies

Impact of new and emerging technologies on: industry, enterprise, sustainability, people, culture, society, the environment, production techniques and systems.

Market pull – responding to demands from the market;

Technology push – development in materials and components, manufacturing methods; consumer choice – consumers wishing to own the latest technologies/products;

The Product Life Cycle; Global production and its effects on culture and people; Legislation to which products are subject; Consumer rights and protection for consumers when purchasing & using products; Moral & ethical factors. Sustainability: meeting today's needs without compromising the needs of future generations; *Advantages & disadvantages* of using computer aided design (CAD) & computer aided manufacture (CAM)



Paper and board

Properties:- **strength, folding ability, surface finish and absorbency**. Papers, cards and boards can be laminated to improve strength, finish and appearance. **Standard ISO sizes** of paper A4, A3 etc. Grammage i.e. **grams per square metre (gsm)** to measure weight of paper. **Microns** to measure thickness of card. Recycled materials to manufacture papers and boards. The aesthetic and functional properties of common papers, cards and boards: **layout paper, tracing paper, copier paper, recycled paper, corrugated board, cartridge paper, mounting board and folding boxboard**.

Natural and manufactured timber

Properties of hardwoods, softwoods and man-made boards: **toughness, flexibility, grain structure, strength, absorbency, surface finish, colour and hardness**.

Natural timber is harvested from **deciduous** (hardwoods) trees - beech, oak, mahogany, balsa and jelutong and **coniferous** (softwood) trees - scots pine, western red cedar and parana pine. **Defects**: shrinkage, splits, shakes, knots, fungal attack. It is available in the following forms: **plank, board, strip, square, and dowel**. They can be identified by: **weight, colour, grain, texture, durability and ease of working**.

Manufactured timbers are made from natural timbers and made from **particles/fibres or laminates**. Available in **standard sizes & forms**: plywood, MDF (Medium Density Fibreboard), chipboard, hardboard & veneered boards. **Timbers** are protected using different finishes and for aesthetics (What it looks like).

Shaping/joining Timber: Tools & equipment to mark out, hold, cut, shape, drill & form laminates of natural timbers and manufactured boards. The pillar drill, jigs and formers to ensure accuracy in the process of drilling, bending, cutting wood materials. Material joining can be **permanent or temporary**. Permanent jointing, veneering, laminating and steam bending. Joints as **frame or box construction**. Frame: mitre, dowel, mortise and tenon, halving and bridle joint. **Box/carcass**: butt, lap, housing, dovetail & comb joint. **Adhesives**: PVA (wood to wood), contact adhesive & epoxy resin (wood to other materials). **Temporary**: screw (countersunk and round head) & knock down fittings.



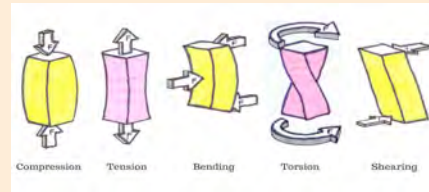
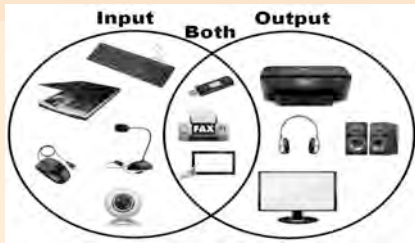
Metals, Electronics, Textiles, Smart materials, Forces

Smart Materials, Composites and Technical Textiles

Electroluminescent film or wire i.e. **LCD**. Quantum Tunnelling Composite (**QTC**) - when used in circuits the resistance changes under compression.

SMA – shape memory alloys. **Polymorph**. Smart fibres and fabrics that respond to the environment or stimuli: photo-chromic; thermo-chromic; micro-encapsulation; biometrics. **Carbon Fibre, Kevlar and GRP**.

Interactive textiles that function as electronic devices and sensors: circuits integrated into fabrics, such as heart rate monitors; wearable electronics such as mobile phones or music player, GPS, tracking systems and electronics integrated into the fabric itself. **Micro-fibres** in clothing manufacture. **Phase changing materials**: breathable materials; proactive heat and moisture management. Sun protective clothing. Nomex. Geotextiles for landscaping. Rhovyl as an antibacterial fibre.



Electronics components and systems

Electronic systems Sensors & control devices respond to a variety of inputs, and produce a range of outputs. Graphical conventions (what they look like) circuit diagrams, block diagrams and flowcharts. **The 'systems' approach** – input; process; output. Principles of a control system: **input data** from a sensor: light dependent resistor (LDR), thermistor; **processing** by control devices: semi-conductor, IC, microprocessor or computer; **output** where a signal is received that will perform a desired function: buzzer, light emitting diode (LED). Feedback systems. Control devices that include counting, switching and timing.

The use of programmable components to enhance & customise their operation. Sub routines or macros in control systems. Programmable **microcontrollers** to control a range of systems, interface with other devices & reprogrammed repeatedly. The benefits & limitations. **Programmable Interface Controllers (PIC)**.

Metal

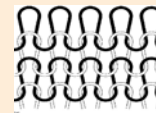
Ferrous metals, nonferrous metals and **alloys**. Properties of metals: **hardness, elasticity, conductivity, toughness, ductility, tensile strength and malleability**. Metals are sold as **sheet, bar, rod, tube and angle**. **Ferrous metals**: cast iron, Ferrous Alloys: mild steel, medium carbon steel and high carbon steel. Ferrous metals require a protective finish. **Non-ferrous metals**: aluminium, copper, silver & gold. Non-ferrous metal Alloys: brass, bronze, pewter etc. **Alloys** of metals are a base metal mixed with other metals or non-metals to change their properties or appearance. Ferrous and Non-ferrous metals may require a protective finish also to improve the aesthetic appeal.



Textiles

Natural, synthetic, blended and mixed fibres, and the fabrics: **woven, non-woven and knitted textiles**. The raw materials of textiles are classified according to their source.

Natural polymers: Animal polymers: wool/fleece – mohair, cashmere, angora, alpaca, camel (hair). **Insect polymers**: silk. **Plant polymers**: cotton, linen hemp, jute, rayon, viscose. **Manufactured polymers: Synthetic**: polyester, polypropylene, nylon, acrylic, elastane, lycra, aramid fibres. **Microfibres** – Tactel, Tencel (Lyocell). The properties of textiles fibres: **strength, elasticity, absorbency, durability, insulation, flammability, water-repellence, anti-static and resistance to acid, bleach and sunlight**. **Blending and mixing fibres** improves the properties and uses of yarns and materials.



The impact of **forces and stresses** on materials and objects and the ways in which materials can be reinforced and stiffened. **Stock forms**, types and sizes in order to calculate and determine the quantity of materials or components required. The impact on the **environment** of deforestation. Ecological and social footprint. Changing society's view on waste, encourage recycling. Living in a greener world. Life-cycle analysis of a material or product.

Food, Nutrition and Health

Eat Well Guide and Government Guidelines



The Eatwell Guide shows the proportions of food groups that should be eaten daily in a well-balanced diet. There are 8 main government guidelines for a healthy diet

1. Base your meals on starchy carbohydrates
2. Eat lots of fruit and veg (5-7 portion a day)
3. Eat plenty of fish, including oily fish
4. Cut down on saturated fat and sugars
5. Eat less salt – no more than 6g a day
6. Get active and maintain a healthy weight
7. Drink 6-8 glasses of water a day
8. Always eat a healthy breakfast

Energy Balance

- Energy balance is when you use the same amount of energy that you intake through food. This results in weight maintenance.
- Too much energy intake can result in weight gain.
- Too little energy intake can result in weight loss and lethargy.
- You can work out how much you should be eating: $BMR \times PAL = EAR$
- Guidelines suggest at least 60 minutes of activity a day.

Macronutrients

- **Protein:** Essential for growth, repair and maintenance of a healthy body. Make up the structure of cells in the body.
- **Fat:** Most concentrated source of energy. Used in the structure of every cell in the body. Supplies fat soluble vitamins (A/D/E/K) as well as essential fatty acids. Provides protection to organs in the body and warmth.
- **Carbohydrates:** Main source of energy in the diet.

Dietary Fibre

The body needs fibre to help keep the digestive system moving.

Life Stages

- **Children:** 1-3 years grow quickly so needs a well balanced diet for development. Toddlers are very active and need a good supply of fat for energy, this also helps with brain and nervous system development. New foods should be introduced in an attractive and appealing way. They should avoid sweets, fizzy drinks, sugary foods. Rapid growth.
- **Teenagers:** Rapid growth and puberty occurs. They need a higher amount of nutrients and energy. Boys need protein for muscle growth. Girls need more iron to replace blood loss during menstruation, they are prone to iron-deficiency anaemia.
- **Adults and Older People:** Adults need to maintain a healthy balanced diet to keep the body working properly and prevent diet-related problems. In older people, energy requirements decrease so they need smaller portions and less calories. They must keep hydrated and drink plenty of fluids. Osteoporosis may occur and so a diet high in calcium and vitamin D is needed to strengthen bones.

Water

The body needs water for:

- Normal brain function
- Decreased risk of kidney problems
- Normal blood pressure
- Help with bowel movement
- Regulate body temperature
- Maintain hydration
- Making body fluids
- 6-8 glasses of water should be drank every day.

Vitamins and Minerals

- Vitamins A/D/E/K = Fat soluble
- Vitamins B group/C = Water soluble
- Minerals = Calcium / Iron / Sodium / Fluoride / Iodine / Phosphorus
- Needed in the body to heal wounds, strengthen bones, support the immune system, convert food into energy and repair cell damage.

Dietary Needs

Specific Groups...

- Vegetarian / vegan diet
- Coeliac diet
- Lactose intolerance diet
- High fibre diet
- Low sugar diet
- Fat reduced diet
- Low salt diet

Diet-Related Diseases...

- Obesity
- Cardiovascular disease
- Coronary heart disease
- Skeletal disease
- Tooth decay
- Iron deficiency (anaemia)
- Type 2 diabetes

Food Science & Food Safety

Why do we cook food?

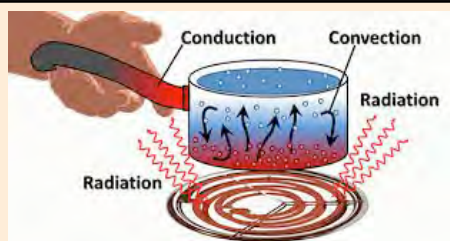
- Make it safe to eat.
- To change it from raw to cooked.
- To make it more palatable, improving texture, developing flavours and improving colour.
- To extend the shelf life of a product.
- To make it easier for us to digest.
- To give variety to the diet.

Heat Transfer

Conduction: Transferring heat through a solid object into food.

Convection: Transferring heat through a liquid or air into food.

Radiation (Microwave): Transferring heat by infrared waves that heat up what they come into contact with a solid object.

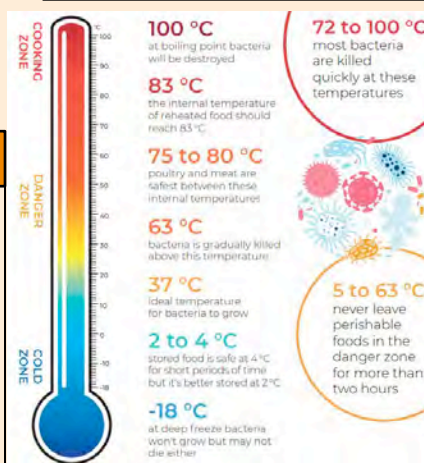


Different methods of cooking

- **Moist cooking methods** – boiling, braising, poaching, simmering, steaming and stewing.
- **Methods using oil** – shallow frying, deep fat frying, roasting, stir frying and sauteing.
- **Methods using dry heat** – grilling, dry frying, toasting and baking.

Food spoilage and contamination

- **Food poisoning** – an illness caused by pathogenic micro-organisms which have contaminated some food, e.g. salmonella in undercooked chicken.
- **Pathogenic** – something that is capable of causing illness in people.
- **High-risk foods** – foods that contain a lot of moisture and nutrients such as protein and easily allow pathogenic micro-organisms to grow and multiply, particularly bacteria.
- **Enzymic browning** – the discolouration of a fruit or vegetable due to the reaction of enzymes with plant cell substances and oxygen.
- **Cross-contamination** – how bacteria are spread from one source (place) onto some food.
- **Danger zone** – the range of temperatures (5°C to 65°C) that are just right for bacteria to multiply rapidly.



Functional and chemical properties of food

- **Denaturation** – the chemical bonds have broken and the protein molecule has unfolded and changed shape.
- **Coagulation** – the joining together of lots of denatured protein molecules, which changes the appearance and texture of food.
- **Gluten** – formed from two separate proteins glutenin and gliadin, which combine when liquid is added to flour.
- **Gelatinisation** – the swelling of starch granules when they are cooked with a liquid to the point where they burst and release starch molecules.
- **Dextrinisation** – the breaking up of starch molecules into smaller groups of glucose molecule when they are exposed to dry heat.
- **Caramelisation** – the breaking up of sucrose (sugar) molecules when they are heated, which changes the colour, flavour and texture of the sugar as it turns into caramel.
- **Plasticity** – the ability of a fat to soften over a range of temperatures and be shaped and spread with light pressure.
- **Shortening** – the ability of fats to shorten the length of gluten molecules in pastry.
- **Aeration** – the ability of some fats to trap air bubbles when beaten together with sugar.
- **Emulsification** – either, keeping drops of oil or fat, suspended in a liquid and preventing them from separating out; or keeping drops of water suspended in an oil or fat and preventing them from separating out.
- **Raising agent** – an ingredient or process that introduces a gas into a mixture so that it rises when cooked.

Food spoilage and contamination

- **Shelf-life** – how long a food product will last before it becomes unsafe/unpalatable (unpleasant) to eat.
- **Use-by date** – the date by which high-risk/perishable foods should be eaten.
- **Best before date** – after this date, a non high-risk food will still be safe to eat, but not be at its best quality.



Food Choice & Food Provenance

Factors that affect food choice



Food Labelling and marketing

- **Target group:** a specific group of similar people.
- **Nutritional profile:** the types and amounts of different nutrients a food contains.
- **Marketing:** advertising and promoting a food product to encourage people to buy it.

Environmental impact & sustainability

Food Provenance: Where foods and ingredients originally come from.

Grown ingredients: Plants grown for food (herbs, fruits, cereals).

Reared ingredients: Animals, birds and fish specially bred in captivity and brought up to be ready to eat.

Gathered ingredients: Plant foods gathered from the wild for eating.

Caught ingredients: Animals, birds, fish and shellfish hunted and caught from the wild for eating.

Intensive farming: Growing or rearing large numbers of plants or animals in one place.

Organic farming: Producing food using manure, compost and natural methods rather than chemical.

Genetic Modification: Scientific technique that enables foods to have unique characteristics.

Greenhouse gases: Form an insulating layer around the earth's atmosphere, which traps heat, raises the earth's temperature.

Carbon footprint: A measure of the contribution of something to the emission of greenhouse gases.

Climate change: Changes in the earth's temperature that can lead to unusual and extreme weather conditions.

Fossil fuels: Fuels such as coal, oil and gas that were created over millions of years by fossilised plants and animals.

Non-renewable energy: Energy produced from fossil fuels that cannot be renewed once they are used up.

Food security: The ability of people to buy sufficient safe, nutritious and affordable food.

Sustainability: Producing food in a way that can be maintained over a long period of time and protects the environment.

Fairtrade: A foundation set up to ensure that food producers in developing countries get paid fair prices.

Dietary laws for different religions

Buddhism, Christianity, Hinduism, Islam, Judaism, Sikhism, Rastafarianism

Sensory evaluation

- **Sensory analysis** is a way of measuring the sensory qualities of food.
- **How the senses affect what we choose to eat.** Five senses – sight, smell, taste, touch and sound. All senses work together.
- **How different tests are used:** Preference tests, discriminatory tests and grading tests.

British and international cuisine

What 'cuisine' means... A style of cooking and eating that is found in a particular country or region of the world.

Features of a cuisine ...

- Particular foods and ingredients that are used (often locally grown).
- Particular (traditional) ways of preparing and cooking foods.
- Particular (traditional) cooking equipment that is used.
- Particular (traditional) ways of presenting, serving and eating the food.

Processing and production

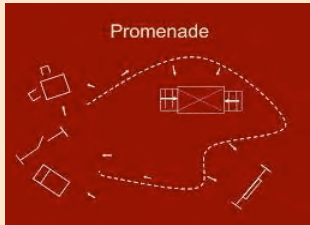
Primary processing: When foods are processed straight after harvest or slaughter, to get them ready to be eaten or ready to be used in other food products.

Secondary processing: When primary processed foods are either used on their own or mixed with other foods and turned into other food products.

Analysing Performance - Staging Styles

Promenade

In promenade theatre there is no formal stage, both the audience and the actors are placed in the same space. The performance starts when one of the actors draws attention to himself or light is pointed in such manner that draws attention to a particular person.



Site Specific

A piece of performance which has been designed to work only in a particular non-theatre space.



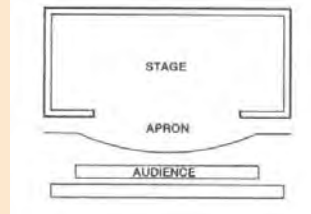
Composite set

A stage setting where several locations are represented in the same space and isolated or highlighted by lighting each area separately.



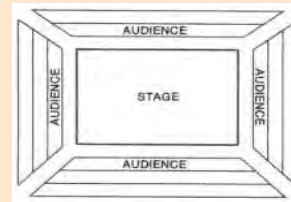
Proscenium Arch

The original staging for Blood Brothers. The audience sits in front of the stage, usually in straight rows. The audience views the stage as if looking at the action through a picture frame (the fourth wall)



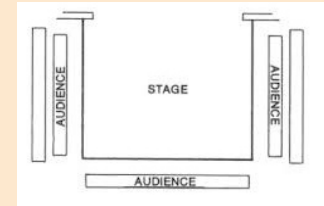
In-the-Round

Theatre in the Round is a form of audience seating layout where the acting area is surrounded on all sides by seating. There are often a number of entrances. Special consideration needs to be given to furniture and scenery as audience sightlines can be blocked.



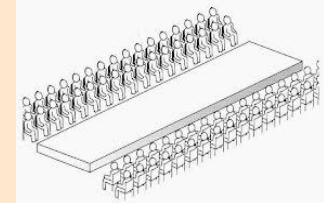
Thrust

The stage is a rectangle and the audience directly face the stage from each of the three sides.



Traverse

The acting area is down the middle of the space. The audience sits facing the acting area from two sides.



Black Box

A Black Box Theatre is a simple, open space consisting of four walls that are all painted black. It is a bare room with a movable seating area, a movable stage, and a flexible lighting system.



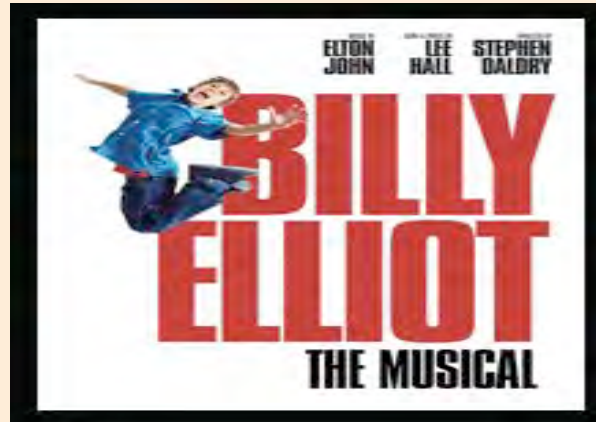
Key Context**Breaking Gender Roles**

Billy Elliot's character faces backlash from the dated stereotypical male opinion of his father and brother when they discover he takes up dancing.

When Billy's family finds out he has been dancing and not boxing they are furious. But with Michael; his best friend and the dance teacher, Mrs Wilkinson's help he continues to dance which is shown in "**Born to Boogie**" and "**Expressing Yourself**".

Social Context

The 1984-85 miners strike, Billy Elliot's personal struggle to continue dancing is contrasted powerfully to choreographed violence due to the strike. The repetition of '**Solidarity Forever**' is an empowering musical motif to represent the perceived power of the miners union.

Contextual Overview of Billy Elliot

Billy Elliot is set in the North East of England in the mid 1980s.

The story follows a lower class family affected by the 1984 Miners strike which was brought on to try and prevent the closure of mines in the North of England.

The Conservative government, led by Margaret Thatcher, had begun trying to close numerous mines which led to the strike.

The mass unemployment of the 80's meant that the social divide between the lower and upper classes.

Furthermore, when the strikes were in effect, police officers from the south were sent to the north to help keep the peace, in fact, they ended up causing more harm through their brutal treatment of the striking miners.

Key Context**Miners Strike**

Miners went on strike to protest the National Coal Board plan to shut 20 coal mines, which meant a loss of **20,000** jobs. The year-long strike was unsuccessful, which was a major victory for Prime Minister Margaret Thatcher and the Conservative Party government. At the end of Billy Elliot we see a final version of "**Once we were Kings**" which explains how the miners went back to work knowing that they stood up.

Police Brutality

During "**Solidarity**" we see the clashes between the Police and the Miners. The lyrics also tell us how the power balance was changed by the southern police force coming up and abusing their power and control. One report on the police's treatment of protestors reads that the Government: "equip a large, mobile squad of police, ready to employ riot tactics in order to uphold the law against violent picketing."



Published 2015



Devising - Responding to Stimulus

Devising theatre

Genre: A way of categorising different types of drama. Comedy, Tragedy, Musical Theatre, Horror, Documentary, Theatre in Education, Melodrama

Style: The way the actors perform. Naturalistic, non-naturalistic, abstract physical theatre

Scene by Scene plan: As a group you plan out the context for each scene making sure that each scene has an intention and you know what impact on the audience.

Context: The situation or circumstances in which a piece of drama is set or devised, including historical, cultural or social influences. In simple terms: Who? What? Where? & When?

Intention

Performance intention: What you want the audience to think or feel about your performance. The overall meaning or message.

Scene intention: What information you want the audience to know

Character intention: What you want the audience to think or feel about your character

Responding to stimulus

Stimulus - A stimulus is a starting point for devising Drama

When you are given your stimulus it's important to understand the themes and features of that particular stimulus.



If we take this Banksy as a stimulus the key themes are:

Hope
Love
Childhood
Loss
Wanting/Wishing

These themes then form the basis of the piece of drama that you create. So instead of just doing a piece about graffiti you can do a piece about any of those other themes.

You could also use the little girl from the picture as inspiration for a character in your piece.

Devising theatre

Important key terminology to consider when beginning the devising process:

Structure - The structure of a play is the order of the action and scenes are placed. Stories can either have linear or non linear structure. Dramatic tension can be an effective device in storytelling

Character - Are The role or multirole you perform, using physicality and vocal skills to communicate character intention

Lighting and sound - Lighting and sound can be used to create and enhance a mood or atmosphere for your scene/performance

Hot Seating - Actors are asked questions while in character to develop a deeper understanding of their characters personality and thoughts

Direct address - When the character talks directly to the audience. No other characters can hear. The character to reveal information on the situation, their emotions, move the drama on or use of dramatic irony

Role on the Wall - A way of visualising the makeup of a character, information about the character such as their relationships, opinions and motives are placed around an outline.

An Inspector Calls



Act 1	Events of 'AIC'	Key characters/key adjectives		Context
1) The family are celebrating the engagement of Sheila and Gerald. 2) Inspector Goole arrives announcing the death of Eva Smith. 3) Mr Birling & Sheila are each responsible for Eva's dismissals. 4) Eva changed her name to Daisy Renton.		Mr Birling	1) "hard-headed, practical man of business" Manufacturer. 2) "A man has to make his own way – has to look after himself – and his family too." Capitalist/ proud/ individualistic/ social climber.	JB Priestley (1894-1984): born in Bradford, worked in a wool firm, socialist, fought in WW1, influential in setting up the Welfare State. His work is controversial and politically charged. AIC encourages people to seize the opportunity the end of war had given them, to build a better, more caring society. The play is set in 1912 but published in 1946. A 1946 audience would have recognised the huge changes that had taken place in the last 34 years (class distinctions were reduced, women had more rights, the Welfare State had been established). WW1: 1914-1918, WW2: 1939-1945.
		Mrs Birling	1) "about fifty, a rather cold woman and her husband's social superior." Higher social status than her husband/ upper class. 2) "I did nothing I'm ashamed of." Unsympathetic/ doesn't learn from the Inspector.	
		Sheila	1) "I'm not a child." Younger generation. She is not content with her role. 2) "You and I aren't the same people who sat down to dinner here" She learns the lesson of responsibility.	
Act 2	1) Gerald admits affair with Daisy. 2) We discover that Mrs Birling refused to offer Eva charity. 3) It is revealed that Eva was pregnant. Suspicion turns to Eric.			Capitalism: - An economic system that is based on the private ownership of industry. It focuses on the individual and often leads to the few, who have money, exploiting the man – the poor. Socialism: - The belief that as a society we have to look out for one another. Rich have a responsibility to look out for the poor. They believe there should be a collapse of the class system.
		Gerald	1) 'We're respectable citizens and not criminals'. Defensive 2) 'Well-bred, young-man-about-town' - Wealthy aristocrat	
		Eric	1) 'I was in that state when a chap easily turns nasty.' Taking responsibility for his actions 2) 'not quite at ease, half shy, half assertive'. Lacks confidence	
Act 3	1) Eric admits guilt and having stolen money. 2) The Inspector leaves, lecturing the family on the consequences of social irresponsibility. 3) Gerald discovers the Inspector was a fake and there is no recorded death of Eva Smith.	The Inspector 1) "Need not be a big man but he creates at once an impression of massiveness, solidity and purposefulness." Authority/strong presence		Welfare State: - The term for all the organisations designed to help people. Set up in 1945 because of the Labour Party (Priestley helped set this up.)



Macbeth

Characters	
Macbeth	Title character (protagonist), ambitious and ruthless despite initial loyalty, symbolises the evil within us all
Lady Macbeth	Defies expectations, often seen controlling her husband in the beginning, strong and ambitious, goes mad, dies
Witches	Supernatural beings, prophecy, could represent conscience, clear appeal to James I (Shakespeare's patron)
Banquo	Macbeth's friend, sons prophesied to rule, killed and returns as ghost, James I could trace his lineage back to Banquo
Duncan	Good king, praises Macbeth at start, murdered in Act 2
Macduff	Wife and children killed; kills Macbeth; born by caesarian
Malcolm	Duncan's son, heir to the throne, good man, flees to England and returns with an army, finally crowned

Key Themes	
Fate and free will	Are Macbeth's actions predetermined as the witches suggest or does he make his own destiny?
Ambition	The Macbeths' ambition drives the play
Acting	Macbeth's duplicitousness, Lady Macbeth's refusal to act the role of a traditional woman
Supernatural	Witches, ghosts, prophecies
Violence	Many conflicts throughout the play – both large and small scale
Kingship	Ideal kings should be honest, fair and have integrity – contrast between Macbeth and Duncan/Malcolm

Context	
Scotland V England	Traditional enemies, united by James I, unpopular with many English lords, play attempts to promote Scotland
Plots/treason	James I (a Scottish King), new to the throne of England, faced many plots in his early reign (Gunpowder plot)
Witchcraft	James I intensely fascinated by witchcraft, terrified that they would threaten his reign

Plot	
Act 1	Macbeth and Banquo meet witches, Cawdor executed, Lady Macbeth reads letter, taunts Macbeth, Duncan arrives
Act 2	Macbeth kills Duncan, Lady Macbeth helps cover up the murder, Malcolm flees, Macbeth crowned
Act 3	Banquo suspects Macbeth, murder of Banquo, Fleance escapes, Macbeth haunted by Banquo's ghost at a banquet
Act 4	Witches show Macbeth future kings – sons of Banquo, Macduff's family murdered, Malcolm says he is dishonest to test Macduff's loyalty
Act 5	Lady Macbeth sleepwalks, dies, Macduff kills Macbeth, Malcolm restored as King

Dramatic/Stylistic Devices	
Soliloquy	One character speaking to audience, sharing genuine thoughts and feelings; Macbeth uses to make audience complicit
Dramatic irony	Audience knows more than characters; e.g. audience knows Duncan will die
Tragic Flaw	Key convention of tragedies, one character trait which leads to the central character's downfall. Macbeth's ambition.
Hubris	Intense pride – links to Macbeth and Lady Macbeth
Pathetic Fallacy	Play opens in the middle of storm – reflects how volatile the politics of Scotland (and England) was
Rhyme	Used by the witches in their chants – links to supernatural in the play, many soliloquies end with rhyming couplets to emphasise key ideas.
Symbolism	Dagger, battle
Juxtaposition	Initially Macbeth and Lady Macbeth, Act 1 Scene 5 and Act 1 Scene 6
Antithesis	People or things that oppose each other, Duncan/Malcolm vs Macbeth in Kingship, Macbeth's outward allegiance vs inner ambition

Key vocabulary

- Prophecy-Sceptical-Courage
- Betrayal-Malevolent-Eerie-
- Conscience-Suspicious
- Regicide-Vulnerable-Sinister

Descriptive Writing Q5

Purpose: Reason you are writing

-You are writing to **describe, entertain and impress**.
-You want to show how impressively you can **describe the picture in front of you** and show the examiner you can **create imagery in the reader's mind through your use of the English language**.

Timings

Planning	5 minutes
Writing description	30 minutes
Proof reading	5 minutes to proof-read

Assessment Objectives

AO5	Communication and organisation. The structure of the description
A06	Technical accuracy-punctuation, sentence structure, ambitious vocabulary

Techniques to use

Show, don't tell	Try to use figures of speech to describe. Try to use expanded noun phrases, metaphors etc. Be more creative
Be like a camera	Start with a long shot of whole picture Zoom in on one area of the image Track across the image and zoom in on another area
Be in the image	Write in 1st person as if you are something in the image. Show us the image from your perspective.

Vocabulary:

What vocabulary should I try to use?

-Instead of 'dark' try... dim, unlit, black, inky, unilluminated, the abyss
Instead of 'bright' try... dazzling, beaming, radiant, vivid, blazing

-Instead of 'happy' try... glad, joyous, contented, cheerful, blissful, euphoric

- Instead of 'sad' try: miserable, melancholic, despairing, dismal, forlorn, despondent
Instead of 'eerie' try... unnerving, sinister, abnormal, strange, unsettling

-Instead of 'mysterious' try... secretive, enigmatic, peculiar, curious, inexplicable



Techniques to use:

Simile- Example: He was as timid as an urban fox.

Metaphor- Example: He was a night owl.

Pathetic Fallacy- Example: The sky became cloudy and darkness fell.

Personification-Example: The thorns gripped my shirt as I ran through.

Impressive Vocabulary-Example: Guile, Radiant, Irksome, Serpentine.

Noun, Adjective, Noun- Example: Blood red shoes

Alliteration- Example: Colin can't catch!

Sensory Language- Example: I could taste blood streaming from my lip

Extended Metaphor When a writer exploits a single metaphor or analogy at length throughout a poem or story.

Declarative A statement

Juxtaposition The fact of two things being placed closely together with contrasting effect

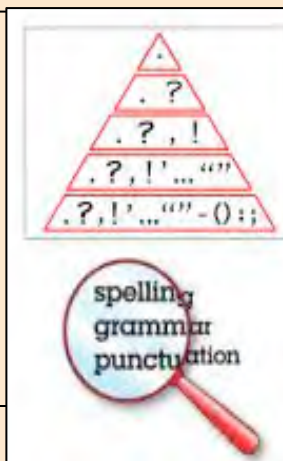
Pathetic fallacy A type of personification where emotions are given to a setting, an object or the weather.

Vary Your Sentences:

Simple = one verb / very short - try a cluster of three for pace or tension!

Compound = and/but/or
Complex = subordination, commas or semicolons.

Use plenty of punctuation for pace and to add meaning.





Anthology Poetry

War Photographer

Content/summary

- Duffy was inspired to write this poem by her friendship with a war photographer. She was especially intrigued by the peculiar challenge faced by these people whose job requires them to record terrible, horrific events without being able to directly help their subjects.
- Duffy perhaps shares an affinity with these photojournalists - while they use the medium of photography to convey certain truths about the human condition, she uses words and language to do the same job. Throughout the poem, Duffy provokes us to consider our own response when confronted with the photographs that we regularly see in our newspaper supplements, and why so many of us have become desensitised to these images.
- By viewing this issue from the perspective of the photographer, she also reveals the difficulties of such an occupation. By the end of the poem, it is clear her subject straddles two vastly different worlds yet increasingly feels he belongs to neither.

Bayonet Charge

Content/summary

Bayonet Charge by Ted Hughes describes the few desperate moments of a soldier's charge against a defended position, dramatising the feelings of fear, dislocation and confusion.

While the soldier and the conflict are only described in general terms, meaning that the experience is universalised, Hughes may have been imagining his father's experience as one of the soldiers in the First World War, whose charges 'over the top' of the trenches have passed into legend.

Remains

Content/summary

- The poem is told anecdotally and begins with 'On another occasion', implying that this account is not the only unpleasant account the soldier has in his memory. He tells how he and 'somebody else and somebody else' opened fire on a looter who may or may not have been armed. They shot him dead and one of them put the man's 'guts back into his body' before he's carted away.
- Later the soldier thinks about the shooting every time he walks down the street. Then later again, when he returns home he is still haunted by the thought of what he has done. He tries drink and drugs to drown out the memory, but they do not work. The line 'he's here in my head when I close my eyes' indicates this.
- The final lines show that the memory was not left behind in the place of war in a distant land, but is with the speaker all the time. He feels as though he will always have blood on his hands.

Exposure

Content/summary

- Wilfred Owen's poem focuses on the misery felt by World War One soldiers waiting overnight in the trenches. Although nothing is happening and there is no fighting, there is still danger because they are exposed to the extreme cold and their wait through the night is terrifying. The eight **stanzas** are gripping because the speaker describes the trauma of living and struggling in such poor conditions. There is a sense of despair and of lost hope.
- The immediate and repeated use of the **pronouns** 'our' and 'we' show that Owen is describing a situation he was part of. The individual is sharing in the collective suffering and horror of the war. The poet has a sense of injustice about the way the soldiers are being treated. If being 'exposed' to gunfire does not kill them, then exposure to the brutal weather conditions might do. Alongside the more obvious meanings of the title, there is also the idea that Owen has set out to expose the conditions the soldiers have experienced to the world.
- By repeating the phrase 'But nothing happens', the poem emphasises the agony of waiting and that war is not all about action. By the end of the poem there is a sense of hopelessness and despair where the men see their deaths as inevitable. The poet's tone is deliberately provoking and emotive language is used with the intention of involving and even upsetting the reader.



Paper 2 Q5: Article Writing

Before you start writing think about: PAF

Purpose – what are you trying to achieve?

Audience – who are you writing for?

Format – what are you being asked to write?

Vocabulary and tone need to be precisely match to task:

Modal verbs are used for advice: can, could, may, might, must, ought to, should, shall, will, would.

Informative/explanatory: after all; as can be expected; generally; namely; naturally; obviously.

Opinionated vocabulary: without a doubt; the fact is; clearly; it is vital that.

Anecdotal vocabulary: As a matter of fact; one incident that can be recalled; a great illustration of this was.

Persuasive techniques: Anecdotes, Facts, Opinions, Rhetoric, Emotive language

Connectives/Discourse Markers

Position

At the start

Firstly

Secondly

Thirdly

Next

Meanwhile

Subsequently

Finally

In conclusion

Emphasis

Importantly

Significantly In particular

Addition

Furthermore

Additionally

In addition

As well as

Contrast

Although

Whereas

Steps to success

- ☐ Think about the PAF
- ☐ Open with a welcome/greeting – e.g. 'Good afternoon ladies and gentlemen' or 'Fellow classmates'
- ☐ Outline what the speech will be about: 'I will talk to you about...'
- ☐ Make 3/4 key points and expand on them.
- ☐ Conclusion to summarise ideas
- ☐ End acknowledging the audience: 'Thank you for listening'.
- ☐ CAFOREST techniques

Writer's Methods

Command

Alliteration & anecdotes

Facts

Opinions

Repetition, rhetorical questions, reader (direct address)

Emotive language and exaggeration

Statistics

Threes (rule of three)

The structure of the form, its sentences and paragraphs need to be carefully planned and written for effect.

Parts of a paragraph:

Topic sentence – tells the reader the main idea of what the paragraph will be about.

Supporting sentence 1 – gives specific details relating to the main idea.

Supporting sentence 2 – gives another set of specific details supporting the main idea.

Supporting sentence 3 – gives another set of specific details supporting the main idea.

Concluding sentence – refers to the topic sentence and sums up the main idea of the paragraph.

Sentence stems to learn:

- Research, funded by _____, has revealed that....
- Consequently, many people have found that...
- Differing variables must be considered...
- Perhaps it might be fair to....
- Often the challenges are numerous...
- Every year hundreds...
- Over recent decades many experts have...
- A reasonable conclusion might be...
- Critically important is...
- Despite definitions varying, it is possible to



Component 1A

Business/Enterprise - A business is an organization that offers for exchange, the goods and services that satisfy consumers wants and needs

Customer - Customers the purchaser of a product/service that could be resold

Consumer - The end buyer or user.

Goods - Products are physical, tangible items

Services - Services are non- physical and intangible

Need - A need is something that is essential to survive.

Want -A want is a luxury item that we desire.

Aims - A broad statement of what a business would like to achieve over a long period

Objective - A specific target for a business to meet.

Entrepreneur - Person who sets up their own enterprise.

Methods the business can use to add value:

Branding
Design
Quality
Convenience
USP

Small and Medium Enterprises (SMEs)

Micro enterprises (employ up to 10 people

Small enterprises -11-49 people

Medium enterprises -50 -249 people

Enterprise aims:

Profit
Survive
Expand
Improve quality
Increase sales

Why an enterprise might fail:

Don't listen to customers
Not unique
Not enough cash

Qualities/characteristics/mind-set – the features that belong to them and make them recognisable.

Confident, resilient, adaptable, innovative, proactive, focused, dedicated, motivated, passionate, competitive, inspirational, enthusiastic, reflective, honest, driven,

Skills –Interpersonal, communication, planning, time management, technical, prioritising, problem solving, negotiating, managing risks, leadership, listening, creative, business, numeracy, literacy, practical, job/industry specific.

Types of Ownership

Sole Trader – runs or owns their business as an individual and they are self-employed.

Advantages

Easy to set up, You make all of the decisions, You decide what happens to the profits

Disadvantages

You have to work long hours

Unlimited liability – If something goes wrong or the business goes into debt, you are responsible.

Made up of two or more sole traders. Partners have an equal say in making decisions and an equal share of the profits unless they have some form of agreement.

Partnership – owned and run by two or more people.

Advantages

More owners means more ideas and more people to share the decisions. More owners means more capital (money) can be put into the business.

Disadvantages

Each partner is legally responsible for what the other partner does.

Most partnerships have unlimited liability too. More owners mean more disagreements as there are more than one boss.

Component 1B

Purpose of Market Research <ol style="list-style-type: none"> To reduce risk To understand the market To promote the business To help in the decision making To gain customers views and understand their needs To inform product development 		How market research is done: <p>Step 1: carrying out market research. Here the firm will make decisions about its aims and research methods.</p> <p>Step 2: doing the research. Here the firm will need to decide on the sample size.</p> <p>Step 3: analysing the research. Here the firm will need to decide how it's going to use the information. Have the aims been fulfilled? They will highlight any trends.</p>		Qualitative Research: based on <u>opinions, attitudes, beliefs and intentions.</u> <p>Aims to understand why consumers behave in a certain way or how they may respond to a new product. Given that these opinions are often obtained from small numbers of people, the findings are not necessarily statistically valid. However, such data can highlight potential issues which can be explored in quantitative research.</p> <p>Focus groups and interviews are common methods used to collect qualitative data. This kind of data is often revealing and useful, but it is costly and time consuming to collect, particularly for a start-up or small business.</p>
Primary (Field) Market Research <p>Where a business will gather data from its source for its own specific reasons</p>		Secondary (Desk) Market Research <p>Where a business uses data and information that have already been generated previously.</p>		
Methods	<ol style="list-style-type: none"> Observations Questionnaires Surveys Focus Groups Consumer trials 	Methods	<ol style="list-style-type: none"> Internal data Books/newspapers/Trade magazines Competitors data Government publications and statistics Purchased research material (e.g. Mintel) 	Quantitative research: based on larger samples and is therefore more statistically valid <p>The results of quantitative research will generally be in numerical form – for example:</p> <ul style="list-style-type: none"> 70% of potential customers use the internet to buy their hotel accommodation in Dorset. 3 out of 5 customers will buy a new food product after being offered a free in-store sample. The main methods of obtaining quantitative data are the various forms of survey – i.e. telephone, postal, face-to-face and online.
Advantages	<ul style="list-style-type: none"> Relevant and up to date Specific to the business Only available to the business 	Advantages	<ul style="list-style-type: none"> Quicker to collect May be gathered on a much larger scale Can be very cheap or even free to access 	
Disadvantages	<ul style="list-style-type: none"> Can be costly and time consuming Poor design could produce biased results 	Disadvantages	<ul style="list-style-type: none"> Might be outdates and therefore inaccurate Data might not be relevant Data might be biased. 	

Component 1C

External factors which may impact an enterprise might be:

- Cost of energy (variable costs) – Gas, Electricity, Oil
- The cost of raw materials – producing the product.
- The cost of borrowing money – Paying interest.
- Rent on a premises – if rent goes up.

MARKETING (External factor)

- Marketing costs a lot of time and money and these costs can also fluctuate.

SELLING COSTS (External factor)

- When selling the enterprise must consider wages, packaging the goods and delivering the goods.

GOVERNMENT REGULATIONS

- Costs can also rise when governments make changes such as to wages, taxation and pensions.

What are common aims of SMEs?

- Survival
- Breaking even
- Making a profit
- Meeting customer needs

Reasons for SME success?

Hard work and effort
Determination
Resilience
Ability to develop and train staff
Ability to motivate staff
Providing a good service
Meeting and exceeding customer needs
Relevant skills and experience

Customer satisfaction: Measuring customer satisfaction is done by looking at whether the enterprise has a good reputation.

Survival: This means continuing to operate for a long time after the enterprise has started.

Making a living: If an entrepreneur is happy and conformable financially then they're a success.

Profit: This is the revenue left after all costs have been taken away.

Customer satisfaction: Has the enterprise established a good reputation.

S	<u>Strengths of an enterprise</u> <ul style="list-style-type: none"> • They might keep customers satisfied. • They might offer a good quality service. 	Understanding the market	Who are the competition? What makes our product unique?	Revenue is how much an enterprise earns from selling its goods and services.	
W	<u>Weaknesses of an enterprise</u> <ul style="list-style-type: none"> • Staff members might lack training. • Their improvement plan might not be effective. 	Satisfying customers	<ul style="list-style-type: none"> • What is the quality of the product? • How is the product priced? 	Factors that impact on REVENUE	
O	<u>Opportunities the enterprise might want to exploit</u> <ul style="list-style-type: none"> • These are different for each enterprise depending on what their strengths and weaknesses are. 	Planning / Financing	<ul style="list-style-type: none"> • How / When can orders be taken? Online? In person? 	<u>Competitors</u> What are competitors doing which might impact your revenue? What new enterprises are coming into your market? How can you attract customers or encourage repeat purchase?	<u>Consumer Confidence</u> This means how much confidence consumers have in the economy. <ul style="list-style-type: none"> • If the economy is growing peoples jobs will be safe and they'll spend. • If the economy is in recession people will be uncertain.
T	<u>Threats on an enterprise</u> Anything which might prevent success :Changes in tastes New competitors entering the market	Marketing and promoting	<ul style="list-style-type: none"> • Are budgets getting used effectively? Do we advertise? 		
		HR Costs	Examples: Advertising for a new role/cover/training.	<u>Consumer behaviour</u> Consumer tastes have an impact on revenue - this creates a social pressure on enterprises to change their product portfolio.	<u>Consumer legislation</u> Things which enterprises sells are: Banned – they become illegal T&Cs change – for example how goods can be packages/promoted
		Political	Economic	Social	Technological
		Legislation	Employment levels	Fashion	Developments in computing
		New party in power	Exchange rates (import / exports)	Trends	Mobile device developments
		Effect of wars, tax, environment	Wage levels	Ethical Issues	



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

Food in the UK

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.

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

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.

Water in the UK

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

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).

Water Transfer - involves moving water through pipes from areas of surplus (Wales) to areas of deficit (London).

Energy in the UK

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

<u>Keyword</u>	<u>Definition</u>
Agribusiness	Farming is being treated like a large industrial business. This is increasing food production. + Intensive farming maximises the amount of food produced. + Using machinery which increases the farms efficiency. - Only employs a small number of workers. - Chemicals used on farms damages the habitats and wildlife.
Sustainable Foods	Organic foods that have little impact on the environment and are healthier have been rising. Local food sourcing is also rising in popularity. • Reduces emissions by only eating food from the UK. • Buying locally sourced food supports local shops and farms. • A third of people grow their own food .
Carbon footprint	A measurement of all the greenhouse gases we individually produce
Food miles	The distance covered supplying food to consumers
Energy mix	The range of energy sources of a region or country
Fossil fuels	A natural fuel formed in the geological past from the remains of living organisms
Surplus	When supply of a resource (such as food, water and energy) is higher than the demand. For example if you have a demand for 100 million litres of water but you have a supply of 500 million, you have a surplus of 400 million litres.
Deficit	When demand of a resource (such as food, water and energy) is higher than the supply. For example if you have a supply for 100 million litres of water but you have a demand of 500 million, you have a deficit (shortage) of 400 million litres.
Consumption	The act of using up resources or purchasing goods and produce.
Carry Capacity	A maximum number of species that can be supported.



Physical Landscapes in the UK

Key Definitions:

Abrasion: an area damaged by scraping or wearing away.

Attrition: The particles are knocked about as they are transported, and they gradually become more rounded and reduced in size.

Erosion: the process of eroding or being eroded by wind, water, or other natural agents.

Freeze-Thaw Weathering: water enters the cracks during the warmer day and freezes during the colder night. As the water turns into ice it expands and exerts pressure on the surrounding rock.

Hard engineering - Management strategies which involve major construction work, they are often obtrusive.

Hydraulic Action: The sheer force of the water by itself can erode material.

Mechanical Weathering: the process that breaks rocks apart without changing their chemical composition.

Saltation: material bounced along the bed of the river.

Soft engineering - Management strategies which work with the natural coastal processes

Solution: some rocks such as limestone are subject to chemical attack and slowly dissolve in the water.

Traction: the rolling or sliding of particles along a stream bed by running water, over the ground surface by wind, or on a beach by waves and currents.

River Landforms

Stage	Main activity	Main features
Upper course (steep gradient)	Vertical (downward) erosion	Source, tributaries, V-shaped valley, interlocking spurs, waterfalls, rapids, gorges
Middle course (gentle gradient)	Lateral (sideways) erosion starts, transportation	River beaches (slip-off slopes), meanders, river cliffs
Lower course (very low gradient)	Deposition	Floodplains, levées, delta,

Coastal Landforms

Type	Main landforms
Erosional Landforms	Cliffs, wave-cut platforms, headlands, bays, cracks, caves, arches, stacks and stumps.
Depositional Landforms	Beaches, spits, tombolos,

Case Studies

Rivers	<p>Banbury Floods</p> <p>It has a history of large floods that have shut down the town's railway station and local roads. In 1998 the cost of the flood was £12.5 million and 150 homes and business have been affected. £18.5 million has been spent on the flood alleviation scheme.</p>
Coasts	<p>Holderness Coast</p> <p>The Holderness Coastline is one of Europe's fastest eroding at an average annual rate of around 2 metres per year. This is around 2 million tonnes of material every year. Approximately 3 miles (5kms) of land has been lost since Roman times including 23 towns/villages.</p>

Urban Issues and Challenges

Key terms:

Brownfield site: Land that has been used, abandoned and now awaits some new use.

Greenfield site : A plot of land, often in a rural or on the edge of an urban area that has not yet been subject to any building development.

Inequalities: Differences between poverty and wealth, as well as in people's' wellbeing and access to things like jobs, housing and education.

Integrated transport systems: When different transport methods connect together, making journeys smoother and therefore public transport more appealing.

Rural-urban fringe: A zone of transition between the built-up area and the countryside, where there is often competition for land use. It is a zone of mixed land uses, from out of town shopping centres and golf courses to farmland and motorways.

Sanitation: Measures designed to protect public health, including the provision of clean water and the disposal of sewage and waste.

Social deprivation: The degree to which an individual or an area is deprived of services, decent housing, adequate income and local employment.

Squatter settlement: An area of poor-quality housing, lacking in amenities such as water supply, sewerage and electricity, which often develops spontaneously and illegally in a city in an LIC.

Sustainable urban living: A sustainable city is one in which there is minimal damage to the environment, the economic base is sound with resources allocated fairly and jobs secure. Sustainable urban living includes several aims including the use of renewable resources, energy efficiency, use of public transport, accessible resources and services.

Urban greening: The process of increasing and preserving open space such as public parks and gardens in urban areas.

Urbanisation: The process by which an increasing percentage of a country's population comes to live in towns and cities.

Urban regeneration: The revival of old parts of the built-up area by either installing modern facilities in old buildings (known as renewal) or opting for redevelopment (ie demolishing existing buildings and starting afresh).

Urban sprawl: The unplanned growth of urban areas into the surrounding countryside.

NEE Case Study: Rio De Janeiro

Social Opportunities: Cultural diversity, Education, Community and Culture.

Economic Opportunities: Industry, tourism and sport.

Environmental Opportunities: Beaches and urban forests.

Social Challenges: Migration, Housing, Transport, Education, Healthcare, Crime.

Economic Challenges: Poverty, Job opportunities (informal job sector).

Environmental Challenges: Urban Sprawl, Pollution, Waste Disposal.

Favela Bairro Project: In the 1990s, the Favela Bairro Project was set up to help improve life in the favelas. This work has been carried out with government funding to provide facilities like electricity, sewage systems, rubbish collection and public transport.

UK Case Study: Bristol

Social Opportunities: St Paul's Carnival, construction of bars/clubs/museums

Economic Opportunities: Investment from high-tech firms, building of shopping centres,

Environmental Opportunities: Urban Greening, gentrification of brownfield sites.

Social Challenges: Housing shortages, social inequality, social exclusion.

Economic Challenges: Low-skilled jobs are harder to access. Services being moved away from the inner-city impacts the most deprived.

Environmental Challenges: Dereliction, waste and pollution, urban sprawl.

Bristol is one of the UK's ten core cities and is considered to be of major importance to the economy and development of the UK.

Sustainable City: Freiburg

Freiburg is in west Germany. The city has a population of about 220,000. In 1970 it set the goal of focusing on social, economic and environmental sustainability.

The city's waste water allows for rainwater to be retained.

The use of sustainable energy such as solar and wind is becoming more important. Freiburg is a world leading city in the development of solar panels and the associated industries. Over 10000 people are employed in this sector by 1500 different companies.

40% of the city is forested with many open spaces, clean air and reducing flood risk.

Freiburg: Transport

The city has an integrated traffic plan (ITP) which is updated every 10 years. The most important part of Freiburg's ITP is the tram network. This provides cheap, efficient and accessible public transport.

Compared with other German cities, Freiberg has a low car density.

400 km of cycle paths with 9000 bike parking spaces including "Bike and Ride" facilities at railway stations.

Restrictions on car parking spaces (each one costs £20,000)

As a result of Freiburg's transport plan (ITP), tram journeys have increased by over 25,000 in one year, while car journeys have decreased by nearly 30,000.

70% of the population live within 500m of a tram stop.



Learning outcome A: Understand human growth and development across life stages and the factors that affect it.

P.I.E.S.

Physical - Physical growth, muscles, strength, balance, co-ordination, illness, health.

Intellectual - Development of thinking and language skills, brain development.

Emotional - Development of feelings, emotions, sense of self and understanding of others.

Social - Forming relationships, socialising and communicating with others.

Factors Affecting Growth and Development

Physical Factors - Inherited conditions / experience of illness and disease / mental ill health / physical ill health / disabilities / sensory impairments.

Lifestyle Factors - Nutrition / physical activity / smoking / alcohol / substance misuse.

Emotional Factors - Fear / anxiety and worry / upset and sadness / grief and bereavement / happiness and contentment / security / attachment.

Social Factors - Supportive and unsupportive relationships with others / social inclusion and exclusion / bullying / discrimination.

Cultural Factors - Religion / gender roles and expectations / gender identity / sexual orientation / community participation / race

Environmental Factors - Housing needs, conditions, location / home environment – living with a high level of parental conflict, experiences of abuse and neglect / exposure to pollution – air, noise and light.

Economic Factors - Employment situation / financial resources – income, inheritance, savings.

Life Stages

Infancy (birth to 2 years): **Physical:** rapid physical growth of weight and height, development of gross and fine motor skills, same pattern of growth and development but at different rates. **Intellectual:** rapid development of language and thinking skills such as memory/recall. **Emotional:** attachments are formed, emotional wellbeing is based on bonding/attachment, security and contentment. **Social:** strong dependence on adults/carers, socialisation through family, engage in solitary play.

Early childhood (3–8 years): **Physical:** continued growth of weight and height, mastery of gross and fine motor skills. **Intellectual:** increased curiosity, language fluency develops, strong grasp of memory/recall. **Emotional:** increased independence, wider range of relationships are formed, emotional wellbeing is based on attachment, security and contentment. **Social:** social circle widens and close friendships are formed, socialisation continues through family, friends and carers, social play develops.

Adolescence (9–18 years): **Physical:** puberty, differences between males and females, primary and secondary sexual characteristics. **Intellectual:** complex and abstract thinking develops. **Emotional:** independence increases further, more freedom to make own decisions, concerns over self-image and self-esteem may increase, wellbeing is based on attachment, security and contentment. **Social:** wide range of formal/informal relationships develop and have influence, intimate relationships are formed.

Early adulthood (19–45 years): **Physical:** peak physical fitness, full height reached, sexual maturity reached, women at their most fertile. **Intellectual:** mastery of abstract and creative thinking, careers become important, may return to education. **Emotional:** independent living and control over own lives. **Social:** intimate and long-lasting relationships are formed.

Middle adulthood (46–65 years): **Physical:** end of this life stage the ageing process begins, menopause for women. **Intellectual:** use knowledge and experience for decision making, may retire. **Emotional:** experience changes in self-image and self-esteem linked to retirement or ageing. **Social:** may have more time to socialise.

Later adulthood (65+ years): **Physical:** ageing process continues, decline in strength and fitness, loss of mobility, loss of muscle tone and skin elasticity. **Intellectual:** may experience decline in cognitive ability such as loss of memory/recall. **Emotional:** may start to become more dependent on others, emotional wellbeing is based on attachment, security and contentment. **Social:** may experience bereavement and reduction of social circle.

Learning outcome B: Understand how individuals deal with life events.

Different Types of Life Event

Health and wellbeing

- Accident/injury.
- Physical illness.
- Mental and emotional health and wellbeing.

Relationship changes

- Entering into relationships.
- Marriage, civil partnership, long-term relationship.
- Divorce, separation for non-married couples.
- Parenthood.
- Bereavement.

Life circumstances

- Moving house, school or job.
- Exclusion from education.
- Redundancy.
- Imprisonment.
- Changes to standards of living.
- Retirement.

Circumstance - A situation which a person may find themselves in.

Adapt - Getting used to a change, making adjustments.

Informal (Support) - Casual, relaxed, family or friend.

Formal (Support) - Offered by professionals such as GPs.

Coping with Change Caused by Life Events

When an individual experiences a life event, they may adapt easily or they may require support to help them. People who experience the same life event can have two different ways of coping and adapting.

The character traits that influence how individuals cope

- Resilience.
- Self-esteem.
- Emotional intelligence.
- Disposition – a person's character traits, e.g. positive, negative.

The sources of support that can help individuals adapt

- Family, friends, neighbours, partners.
- Professional carers and services.
- Community groups, voluntary and faith-based organisations.
- Multi-agency working, e.g. social services working with mental health trust, children's services working with the justice system.
- Multidisciplinary working, e.g. a health visitor working with a GP, psychiatric nurse with an occupational therapist.

The types of support that can help individuals adapt:

- Emotional support.
- Information, advice, endorsed apps.
- Practical help – financial assistance, support with childcare, domestic chores, transport.

Types of Support

Effective support is not about making decisions for people. It is about giving them the confidence they need to adapt using support to help them.

Informal support is given by partners, family and friends and is often the first level of support that a person receives. Informal support is usually given alongside formal support. Informal support can help with:

- Reassurance.
- Encouragement.
- Advice.
- A sense of security.
- Someone to talk through options.
- Practical help.

In some situations people may need **formal support**. This is provided by professionals who have skills and experience to understand and support each person's needs. Formal support can include:

- Statutory care services: provided by the state.
- Private care services: privately funded.
- Charitable organisations: non-profit making.



Health and Social Care Services and Barriers

Learning outcome A: Understand the different types of health and social care services and barriers to accessing them.

Healthcare Services

Health conditions

- Arthritis.
- Cardiovascular conditions.
- Diabetes (type 2).
- Dementia.
- Obesity.
- Respiratory conditions.
- Additional needs – sensory impairments, physical impairments, learning disability.

Health services

- Primary care – GP surgeries, dental care, out-of-hours services, telephone services, accident and emergency department.
- Secondary care – specialist medical care to include rheumatology, respiratory medicine, cardiology, endocrinology.
- Tertiary care – specialist medical care to include oncology, transplant services.
- Allied health professions – physiotherapy, speech and language therapy, occupational therapy, dietetics.
- Multidisciplinary team working – how services work together, including referrals between services.

Social care Services

Social care – help with day-to-day living because of illness, vulnerability or disability.

Social care services

- Services for children and young people – foster care, residential care, youth work.
- Services for adults or children with specific needs (learning disabilities, sensory impairments, long-term health issues) – residential care, respite care, domiciliary care.
- Services for older adults – residential care, domiciliary care.

Additional care

- Informal care – given by relatives, friends, neighbours, partners.
- Voluntary care – community groups and faith-based organisations, charities.

Barriers to Accessing Services

Barriers: something unique to the health and social care system that prevents an individual to access a service.

Physical barriers – issues getting into and around the facilities.

Ways to overcome: ramps, wider doorways, accessible toilets/rooms, stair lifts, hoists.

Barriers to people with sensory disability – hearing and visual difficulties.

Ways to overcome: hearing loops, British Sign Language, communication cards, large print, braille.

Barriers to people with different social and cultural backgrounds – lack of awareness, differing cultural beliefs, social stigma, fear of loss of independence.

Ways to overcome: awareness campaigns, posters and leaflets, clinics, choice of service provider, community and faith groups.

Barriers to people that speak English as an additional language or those who have language or speech impairments

Ways to overcome: literature in other languages, interpretation services, longer appointments, use of advocates, staff training and awareness of common speech and language difficulties.

Geographical barriers – distance of service provider, poor transport links.

Ways to overcome: local community transport schemes, home / community visits, community clinics, telehealth schemes.

Text barriers to people with learning disabilities

Ways to overcome: use of advocates, use of Learning Disability Nurses and support workers, 'Quiet Clinics', quiet waiting areas, longer appointment times, communication cards, 'easy read' texts.

Financial barriers – charging for services, cost of transport, loss of income while accessing services.

Ways to overcome: NHS exemption certificates, Low Income Scheme, NHS vouchers, NHS Healthcare Travel Costs, charitable schemes such as community transport.

Crime and Punishment 1000-Modern Day



Medieval (1000-1500)	Early Modern (1500-1700)	Industrial Revolution (1700-1900)	Modern (1900-present day)
Theft usually small items Drinking in public Not attending Church is a crime as people are very religious Forest Laws stop hunting in King's forests	Witchcraft usually women targeted Poaching grows due to poverty Vagrancy increases as people move looking for work Heresy accusations increase due to religious turmoil	Smuggling increases to avoid tax, Hawkhurst gang Tolpuddle martyrs are punished for creating a union Highway robbery increases then declines	Car crimes increase due to new tech Drug smuggling Race Relations Act makes racism a crime Conscientious Objectors as people refuse to fight in WWI and WWII Terrorism such as IRA in 80s or ISIS
Wergild paid to victim Mutilation for repeat offenders Corporal punishment physical harm Capital punishment for most serious crimes Murdrum fine to protect Normans - payment to all Normans	Transportation to America Hung, Drawn and Quartered is new type of capital punishment House of Correction for vagabonds Carting through streets Bloody Code makes 200+ crimes punishable by death	Transportation to Australia Bloody code is ended as seen as ineffective as crime rates rise Prison becomes most common punishment Separate system and silent system attempt to make prisons more effective	Community Service an example of a non-custodial sentence Death Penalty is ended Borstals for Young offenders, they were closed in 1980s Youth Detention Centre for young offenders, provided military like regime for a "Short, Sharp, Shock"
Hue and cry local people catch thieves Tithing group of 12 each responsible for others Trial by local jury to decide guilt Sanctuary allows accused to hide in church for 40 days Benefit of clergy to avoid death penalty Church courts for clergyman Trial by ordeal to allow God to decide guilt, ended in 1215 Trial by combat added to trial by ordeal by Normans Sherriff to work across a county catching criminals Coroner to investigate suspicious deaths	Justices of the Peace usually a lord can hand out fines Habeas Corpus gives right to fair trial Manor Court for less serious crimes County Assize for serious crimes royal judge Town Watchmen to help stop crime in growing towns Rewards causes a growth in thief takers	Customs officer to catch smugglers but few of them The Bow Street Runners set up by Fielding brothers act as a local law enforcement and inspire creation of police The Metropolitan police force set up in 1829 to tackle rising crime in cities	National police force with more officers and women involved New technology like ANPR, PNC, DNA, CCTV help police to catch criminals Community Support Officer to help provide greater numbers in police force Youth Court for young criminals Parole lets people out of prison earlier for good behaviour
Henry II shows balance between power of King and Church Local community v important to law enforcement William the Conqueror takes over England and introduces new laws	Matthew Hopkins witchfinder general 200 people killed Guy Fawkes a Catholic executed for treason / heresy Religious turmoil between Catholics and Protestants Printing press pamphlets made spreading fear of crime	Robert Peel creates police and ends Bloody Code Elizabeth Fry and John Howard campaign for prison reform The Enlightenment makes people want to rehabilitate Growth of cities makes crime rates increase	Roy Jenkins ends capital punishment Derek Bentley wrongly executed for murder Liberal attitudes make people want to rehabilitate even more Immigration to UK increases after WWII



Whitechapel 1870-1900

Key Individuals

George Peabody
funded 11 blocks of flats affordable housing in East End

Charles Booth
found that 35.7% of population lived in poverty in the East End

Jack the Ripper
name given to individual thought to have killed at least 5 women

Charles Warren
MET
Commissioner who oversaw police force as reputation declined. Blamed for not catching Jack the Ripper

George Luske
founder of the Whitechapel vigilance committee, set up local people trying to catch Jack the Ripper

Problems in Policing Whitechapel for H Division

- **The environment** – dark and narrow alleyways
- **Alcohol** – pubs sold strong alcohol cheaply. This often fueled violence and became an addiction
- **Prostitution** – some women had to turn to prostitution to survive. They were vulnerable to violence and abuse
- **Gangs** – professional gangs of thieves and pickpockets. Well trained in stealing and committing crime often.
- **Poverty** – High levels of poverty meant that people turned to crime in order to feed their families
- **Lodging Houses** – temporary accommodation meant people had no fixed address
- **Vigilance Committee** – disrupted police investigations

Problems Catching Jack the Ripper

- **Bloodhounds** – they would often pick up the wrong scent, potentially of one of the women's customers
- **Sketches** – many people at the time were drunk making the sketches unreliable
- **Racism/xenophobia** – witnesses gave false accounts believing Jack the Ripper to be Jewish due to negative attitudes towards immigrants
- **Communication** – The different parts of the police force (H division Vs City of London) refused to work together effectively and did not share evidence

The Media

- They caused problems for the police as media coverage encouraged people to come forward with information, but it attracted hoax letters and false theories on the identity of the killer.
- It stirred up racial hatred, leading to violence
- It added to the pressure on the Police by criticizing the investigation.

Attitudes Towards the Police

- Attitudes varied. The police still had some people's trust.
- Many working class people felt that the police were against them and only worked for middle and upper classes.
- Failure to catch Jack the Ripper made them less popular
- Trial of the Detectives associated them with corruption

Key Words

Anarchism – belief in the abolition of all government

Socialism – public or collective ownership

Rookeries – densely populated, low-quality housing

Lodging Houses – cheap accommodation

Brothels – a place where people engage in sexual activity with prostitutes

Workhouse – those unable to support themselves were offered accommodation and employment

Fenian – fighting for Irish independence

Anti-Semitism – hatred/prejudice of Jews

Beat – patrolling a set route of streets

Poor Relief – financial assistance given to the poor

H Division – policed the area of Whitechapel

Sweatshops – a factory or workshop, especially in the clothing industry

Dear Boss – Letter sent to the Police thought written by Jack the Ripper



Weimar and Nazi Germany 1919-1939

1. Origins (1918-1919)

1. Armistice - November 1919
2. Kaiser abdicates - November 1919
3. "German Revolution"
4. New constitution
5. Very democratic
6. Reichstag, Chancellor, President
7. Proportional Representation and Article 48
8. Coalition governments

2. Early challenges (1919-23)

9. Treaty of Versailles 1919
10. Blame - Article 231 War Guilt
11. Reparations - £6.60 billion
12. Army reduced to 100,000
13. Territory removed e.g. colonies
14. Spartacist Uprising 1919
e.g. Rosa Luxembourg / Communist
15. Kapp Putsch 1920 (failed, just!)
e.g. Right-wing nationalists
16. Freikorps - ex soldiers
17. French invasion of the Ruhr 1923
18. Hyperinflation 1923

3. "Golden Years" (1924-1928)

19. Gustav Stresemann - Foreign Min
20. Rentenmark
21. Dawes Plan - loans from USA
22. Young Plan - reduced debt 20%
23. Locarno Pact - respect borders
24. Kellogg Briand Pact - 64 countries
25. League of Nations - 1925
26. "Dancing on a volcano"
27. Cabaret, Bauhaus, art, culture
28. Freedom for women
29. Rising living standards

4. Early Nazi Party (1919-23)

30. Founded 1919
21. German Workers Party- DAP
22. Hitler joined 1920 (NSDAP)
23. Made up of ex-soldiers
24. Nationalist, racist ideology
25. Anti-communist, anti-semitic
26. Anti-democratic
27. 25 Point Programme
28. Munich, Bavaria
29. Munich Putsch 1923
30. Prison - Mein Kampf

5. Nazi Lean Years (1924-1928)

31. 1926 Bamberg Conference
32. Hitler takes back control
33. New strategy: win elections
34. Goebbels - propaganda
35. Hitler Youth created
36. Nazi Women's League created
37. Limited votes - 1928 - 2.8%

6. Nazi Growth (1929-33)

38. Wall Street Crash - 1929
39. 6 million unemployed by 1933
40. 17 million people on the dole
41. Nazis biggest party by 1932
42. Communists grew - helps Nazis
43. Propaganda "work and bread"
44. Hitler's speeches - charismatic
45. Political breakdown
46. Von Brüning - "Hunger Chancellor"
47. Von Papen - schemed with Hitler
48. President Hindenburg is persuaded
49. Hitler Chancellor Jan 1933

7. Creating a dictatorship (1933-1934)

50. Reichstag Fire - Feb 1933
51. Removing the Communists
52. Enabling Act - Mar 1933
53. Banning political parties 1933
54. Banning trade unions 1933
55. Censoring the press 1933
56. Night of the Long Knives 1934
57. Ernst Rohm executed
58. Death of Hindenburg
59. Oath of Army
60. Catholic Church - Concordat 1933
61. Nazi Reich Church 1936
62. Legal system: "People's Courts"

8. Nazi Control (1933-39)

63. SS - Heinrich Himmler
64. Concentration Camps (Dachau)
65. SD - Intelligence Service
66. Gestapo and informants
67. Persecution of political opponents
68. Propaganda - Goebbels
69. Mass rallies
70. Art, books, cinema
71. Film: "The Eternal Jew"
72. Berlin Olympics 1936

9. Opposition (was limited)

73. Edelweiss Pirates
74. Swing Youth
75. Martin Niemöller
76. Confessional Church
77. Limited strong opposition
78. Assassination attempt e.g.
79. George Elser 1939

10. Life in Nazi Germany: Women and young people

80. 3 Ks - Kinder, Küche, Kirche
81. Traditional role for women
82. Motherhood Cross
83. Marriage Loans
84. Lebensborn programme
85. Aryan women celebrated
86. Hitler Youth
87. League of German Maidens
88. School curriculum e.g. Eugenics, History books changed.

11. Life in Nazi Germany: Employment

89. National Labour Service (RAD)
90. Public Works e.g. autobahns
91. "Invisible" unemployment
92. Conscription
93. Rearmament
94. Women back to work 1938
95. Strength Through Joy

12. Life in Nazi Germany: Persecution of minorities

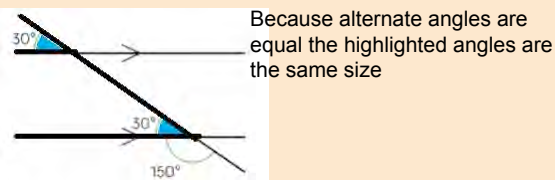
- Anti-Semitism
99. Boycott of shops 1933
100. Nuremberg Laws 1935
101. Removal of citizenship
102. Marriage restrictions
103. Kristallnacht Nov 1938
104. Synagogues destroyed
105. Other groups:
Mentally/physically disabled - euthanasia programme
106. Gypsies, homosexuals, Jehovah's Witnesses

Similarity

Enlarge	To make a shape bigger (or smaller) by a given multiplier (scale factor)	Constant	A value that remains the same
Scale Factor	The multiplier of enlargement	Cosine ratio	The ratio of the length of the adjacent side to that of the hypotenuse. The sine of the complement.
Centre of enlargement	Centre of enlargement: the point the shape is enlarged from	Sine ratio	The ratio of the length of the opposite side to that of the hypotenuse.
Similar	When one shape can become another with a reflection, rotation, enlargement or translation.	Tangent ratio	The ratio of the length of the opposite side to that of the adjacent side.
Congruent	The same size and shape	Inverse	Function that has the opposite effect.
Corresponding	Items that appear in the same place in two similar situations	Hypotenuse	Longest side of a right-angled triangle. It is the side opposite the right-angle.

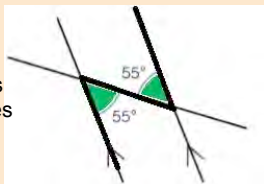
Angles in parallel lines

Alternate angles



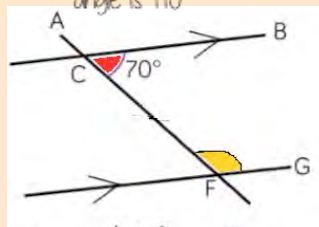
Corresponding angles

Because corresponding angles are equal the highlighted angles are the same size



Co-interior angles

Because co-interior angles have a sum of 180° the highlighted angle is 110°

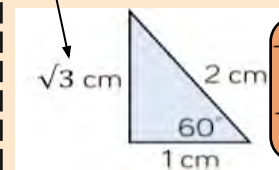


As angles on a line add up to 180° co-interior angles can also be calculated from applying alternate/ corresponding rules first

Key angles

Because trig ratios remain the same for similar shapes you can generalise from the following statements.

This side could be calculated using Pythagoras



$$\tan 30 = \frac{1}{\sqrt{3}}$$

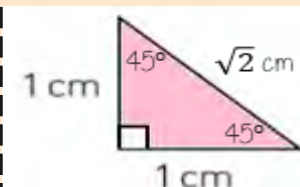
$$\tan 60 = \sqrt{3}$$

$$\cos 30 = \frac{\sqrt{3}}{2}$$

$$\cos 60 = \frac{1}{2}$$

$$\sin 30 = \frac{1}{2}$$

$$\sin 60 = \frac{\sqrt{3}}{2}$$



$$\tan 45 = 1$$

$$\cos 45 = \frac{1}{\sqrt{2}}$$

$$\sin 45 = \frac{1}{\sqrt{2}}$$

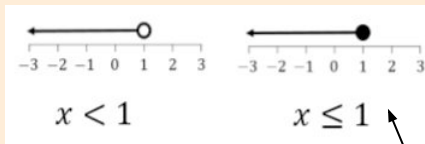


Developing Algebra



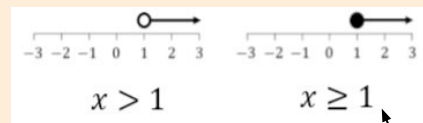
Solution	A value we can put in place of a variable that makes the equation true	Variable	A symbol for a number we don't know yet
Equation	An equation says that two things are equal - it will have an equals sign =	Expression	Numbers, symbols and operators grouped together to show the value of something
Identity	An equation where both sides have variables the cause the same answers	Linear	An equation or function that is the equation of a straight line
Intersection	The point that two or more lines meet	Inequality	An inequality compares two values showing if one is greater than, less than or equal to.
Substitute	Replace a variable with a numerical value	LCM	Lowest common multiple (the first time the multiples of two or more numbers match)
Eliminate	To remove a variable from a question	Coordinate	A set of values that show an exact position

Solutions on a number line



Both represent values less than 1

Includes the value 1



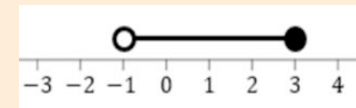
Both represent values more than 1

Includes the value 1

● Includes the value it sits above

○ Does NOT include the value it sits above

Values less than or equal to 3 but also more than -1



$$-1 < x \leq 3$$

This includes the integer values 0,1,2,3





Geometry

Cardinal directions	The directions of North, South, East and West	Angle	The amount of turn between two lines around their common point
Bearing	The angle in degrees measured clockwise from North	Perpendicular	Where two lines meet at 90 degrees
Parallel	Straight lines always the same distance apart and never touch. They have the same gradient.	Clockwise	Moving in the direction of the hands of a clock
Construct	To draw accurately using a compass, protractor and a ruler or straight edge.	Scale	The ratio of the length of a drawing to the length of the real thing
Protractor	An instrument used in measuring or drawing angles	Compass	An instrument used to draw curved lines and circles
Circumference	The length around the outside of the circle – the perimeter	Area	The size of the 2D surface
Diameter	The distance from one side of a circle to another through the centre	Radius	The distance from the centre to the circumference of the circle
Tangent	A straight line that touches the circumference of a circle	Chord	A line segment connecting two points on the curve
Frustrum	A pyramid or cone with the top cut off	Hemisphere	Half a sphere
Surface area	The total area of the surface of a 3D shape.	Direction	The line our course something is going
Magnitude	The magnitude of a vector is its length	Scalar	A single number used to represent the multiplier when working with vectors
Column Vector	A matrix of one column describing the movement from a point	Resultant	The vector that is the sum of two or more other vectors

$$\text{Sector area} = \frac{\theta}{360} \times \text{area of circle}$$

$$\text{Volume Cylinder} = \pi r^2 h$$

$$\text{Arc length} = \frac{\theta}{360} \times \text{circumference}$$

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

$$\text{Volume Cone} = \frac{1}{3} \pi r^2 h$$



Proportions and proportional change

Ratio	A statement of how two numbers compare	Equivalent	Of equal value
Proportion	A statement that links two ratios	Integer	Whole number, can be positive, negative or zero.
Fraction	Represents how many parts of a whole.	Denominator	The number below the line on a fraction. The number represent the total number of parts.
Numerator	The number above the line on a fraction. The top number. Represents how many parts are taken	Origin	(0,0) on a graph. The point the two axes cross
Gradient	The steepness of a line	Multiplier	The number you are multiplying by
Exponent	How many times we use a number in multiplication. It is written as a power	Compound interest	Calculating interest on both the amount plus previous interest
Depreciation	A decrease in the value of something over time.	Growth	Where a value increases in proportion to its current value such as doubling.
Decay	The process of reducing an amount by a consistent percentage rate over time.	Event	One or more outcomes from an experiment
Outcome	The result of an experiment.	Intersection	Elements (parts) that are common to both sets Union: the combination of elements in two sets.
Union	The combination of elements in two sets.	Expected value	The value/ outcome that a prediction would suggest you will get
Universal set	The set that has all the elements	Systematic	Ordering values or outcomes with a strategy and sequence

Collecting, representing and interpreting data

Population	The whole group that is being studied	Sample	A selection taken from the population that will let you find out information about the larger group
Representative	A sample group that accurately represents the population	Random Sample	A group completely chosen by chance. No predictability to who it will include.
Bias	A built-in error that makes all values wrong by a certain amount	Primary Data	Data collected from an original source for a purpose.
Secondary Data	Data taken from an external location. Not collected directly.	Outlier	A value that stands apart from the data set
Mean	A measure of average to find the central tendency... a typical value that represents the data (add all the values and then divide by the number of items)	Median	The value in the center (in the middle) of the data
Mode	This is the number OR the item that occurs the most (it does not have to be numerical)	Range	The gap between the highest and lowest values in the data set

Using a line of best fit

Interpolation is using the line of best fit to estimate values inside our data point.

e.g. 40 hours revising predicts a percentage of 45.

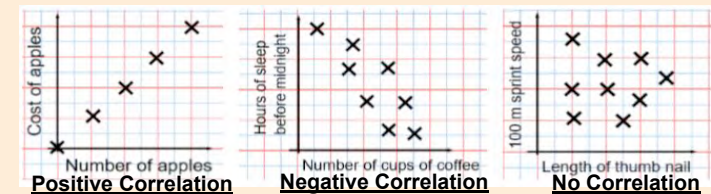


Extrapolation is where we use our line of best fit to predict information outside of our data.

This is not always useful – in this example you cannot score more than 100%. So revising for longer can not be estimated

This point is an “**outlier**” It is an outlier because it doesn’t fit this model and stands apart from the data

Linear Correlation



As one variable increases so does the other variable

As one variable increases the other variable decreases

There is no relationship between the two variables

Using number

Truncate	To shorten, to shorten a number (no rounding), to shorten a shape (remove a part of the shape)	Round	Making a number simpler, but keeping its place value close the what it originally was
Credit	Money that goes into a bank account	Debit	Money that leaves a bank account
Profit	The amount of money after income - costs	Tax	Money that the government collects based on income, sales and other activities.
Balance	The amount of money in a bank account	Overestimate	Rounding up – gives a solution higher than the actual value
Underestimate	Rounding down – gives a solution lower than the actual value	Factor	numbers we multiply together to make another number
Multiple	The result of multiplying a number by an integer.	HCF	Highest common factor. The biggest factor that numbers share.
LCM	Lowest common multiple. The first multiple numbers share.	Arithmetic	A sequence where the difference between the terms is constant
Geometric	A sequence where each term is found by multiplying the previous one by a fixed nonzero number	Sequence	Items or numbers put in a pre-decided order
Standard Form	(Index) Form: A system of writing very big or very small numbers	Commutative	an operation is commutative if changing the order does not change the result.
Base	The number that gets multiplied by a power	Power	The exponent – or the number that tells you how many times to use the number in multiplication
Exponent	The power – or the number that tells you how many times to use the number in multiplication	Indices	The power or the exponent.
Negative	A value below zero.	Coefficient	The number used to multiply a variable

$$a^m \times a^n = a^{m+n}$$

$$a^m \div a^n = a^{m-n}$$

$$(x^a)^b = x^{ab}$$

$$x^0 = 1$$

R093 Visual Identity

PURPOSES OF BRAND IDENTITY

RECOGNITION/FAMILIARITY

ESTABLISH A BRAND

DEVELOP AN IDENTITY

COMMUNICATE VISUALLY

BRAND POSITIONING

ECONOMY

MID RANGE

HIGH END

TYPOGRAPHY

SERIF

Formal.
Fancy.
Traditional.
Printed.

SANS SERIF

Informal.
Casual.
Modern.
Screen.

Script

Personal.
Handwritten.
Unique.

TARGET AUDIENCE

(must be specific)

- **Age Range** (e.g. 18-24)
- **Social Class** (see below).
- **Gender** (e.g. one, both).
- **Psychometrics** (e.g. Explorer).

KEY TERMS

MODE OF ADDRESS is the way in which the text or images engages the audience.

DIRECT is speaking directly to the audience or the image is looking directly at the audience.

INDIRECT is when text and images are passive and not personal.

STRAPLINE/TAGLINE is the text that gives additional meaning to the imagery - short, snappy, memorable.

NEGATIVE SPACE is empty space used to focus attention, to enhance design or to allow space for text.

ANALOGOUS are three colours that would be next to each other on the colour wheel.

COMPLIMENTARY are two colours opposite to each other on the colour wheel

HUE is another word for colour.

SATURATION is the intensity of the colour or hue.

VALUE is the amount of lightness or darkness within the colour.

BLUE authority, trust, science. **GREEN** nature, calm, environment.

RED power, passion, courage. **YELLOW** optimism, youth, fresh.

PINK feminine, pretty, beauty. **ORANGE** energy, creative, fun.

BLACK mystery, sophisticated. **WHITE** purity, clean, innocent.



COLOR WHEEL



DENOTATION

What you can literally see or hear e.g chicken (animal).

CONNOTATION

The implied meaning e.g. chicken (someone who is afraid).

SEMIOTICS

The study of signs and symbols.

DOCUMENT

CONTENT

MIND MAPS & SPIDER DIAGRAMS

Central node (main theme)
Sub-nodes (with branches)
Topics (keywords)
Images (icons)
Colour

MOOD BOARDS

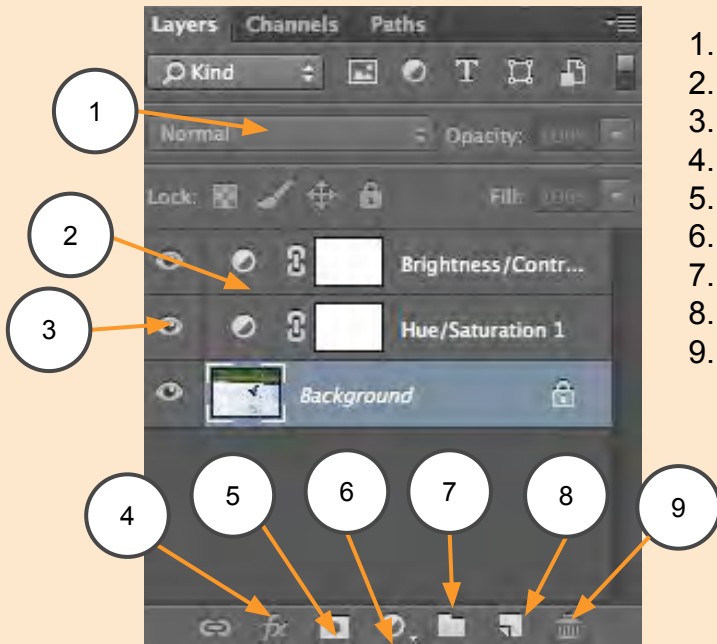
Images (photographs, graphics, logos)
Colours (and scheme) **Text** (fonts, styles, quotes) **Textures** / fabrics
Sound & video clips (only for digital)

Annotate to justify your choice

VISUALISATION DIAGRAMS

Images (graphics, logos) **Colours** (scheme)
Text (fonts, style, text examples, titles, size, position) **Annotations**, **Dimensions**

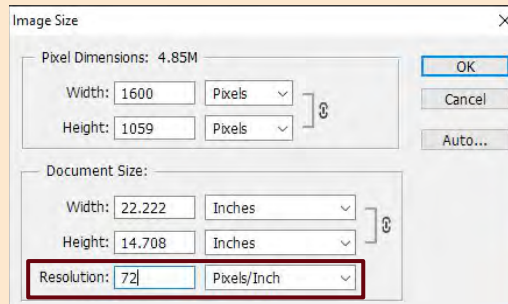
R093 Photoshop and Technical Properties



1. Blending Modes.
2. Layers
3. Toggle Hide Layer
4. Add effects to Text
5. Create a Mask
6. Add Adjustment Layer
7. Group layers into folders
8. Create New Layer
9. Delete Layer

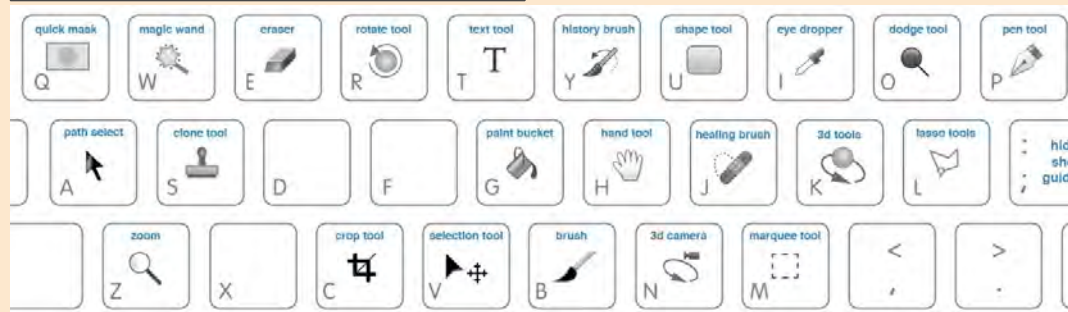
CHANGING RESOLUTION

Image > Image Size
72 PPI Screen 300 PPI Print



COMMON PHOTOSHOP SHORTCUTS

Screenshot CMD+SHIFT+4
CMD+T = Change Size
CMD+D = Deselect
CMD+0 = Fit to screen
CMD+ - = Zoom Out
CMD++ = Zoom In
[= Small Brush
] = Big Brush
Spacebar = Navigate



DPI/PPI (PIXELS PER INCH)

The measurement of **resolution**.
The number of pixel that fit into an square inch.

RESOLUTION

The density of pixels in a square inch.
300ppi PRINT **72ppi PRINT**

PIXEL

Tiny squares store image data. Many pixels bunched together create an image - like a mosaic.

PIXEL DIMENSION

The **number** of pixels (height x width).

COMPRESSION

Removing data to decrease the **file size**.

LOSSY COMPRESSION

Loses data in order to significantly reduce file size - most popular consumer file types.

LOSSLESS COMPRESSION

Keeps most data but **reduces file size**. Popular for high quality prosumer file types.

UNCOMPRESSED

No compression takes place; resulting in the maximum quality. Raw files used by producers.

VECTOR

Using math equations to create lines and shapes. Can be **scaled** with no loss in quality.

RASTER

An image built up of **pixels**.

ALPHA CHANNEL

Transparency within an image.

IMAGE NOISE

Defects within an image, creates an unattractive **grainy** effect.

BIT DEPTH

The number of **colours** available e.g. 8 bit has fewer total colours than 16 bit



R095 Comics and Characters

Types of characters	Character conventions
Cartoon	Appeal to young people. Bold colours, outlines
Doodles	Quickly drawn, simple but well thought out
Photorealistic	Tend to be 3D realistic. Human characters
Minimalistic	Simplified shapes, less expression and detail
Protagonist	Main character, often the hero
Antagonist	Main character, often the villain
Proportions	Scale of body parts, creates style e.g. oversized heads
Tropes	Similar to stereotypes used in comics e.g superhero cape
Anthropomorphism	Applying human characteristics to nonhuman objects/animals
Manga	Large eyes to convey emotions, small mouth and nose, distinctive hairstyles and childlike appearance

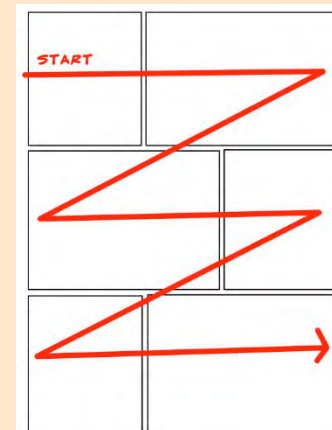
SCRIPT

Slugline (INT / EXT Location Time)
Direction (what happens in scene)
Character names (centred)
Dialogue between characters (centred)
Transition (fade in/out, fade to black, wipe etc)

STORYBOARD

Camera shots (close up, mid, long) **Camera movement** (pan, tilt, zoom) **Camera angles** (over the shoulder, low / high angle)
Timings / durations. Location. Sound. Scene numbers.
3 of the above in each box under the sketch.

Narrative Terms	Definitions
Story Flow	The path of the story from beginning, middle and end
Panel	A container used to hold one scene
Focal Point	The place in the panel to draw audience's attention
Onomatopoeia	A word that sounds like the thing it is describing
Narration Captions	Captions to share information with the audience
Speech Bubbles	Convey the character's dialogue
Todorov	Linear narrative theorist
Exposition	The beginning of the story. Setting the scene
Climax	Peak of the action the story has been leading to





Theme 1: self & family

Je m'entends avec	I get on well with
Je me dispute avec	I argue with
À l'avenir je ne veux pas ...me marier	In the future I don't want... to get married
Quand j'étais petit(e)	When I was small
Demain nous allons faire de l'équitation	Tomorrow we are going to do horse riding
Hier j'ai écouté de la musique sur mon ordinateur/portable	Yesterday I listened to music on my computer/mobile

Les Adjectifs de Personnalité

Il est / elle est - he is/she is
Ils sont / elles sont - they are
Qui est /sont - who is/are

agaçant(e) - annoying
 aimable - likeable
 bavard(e) - talkative
 égoïste - selfish
 fidèle - loyal
 fort(e) - strong
 compréhensif(-ve) - understanding

méchant(e) - nasty/mean
 paresseux(-euse) - lazy
 sage - well behaved/wise
 sensible - sensitive
 têtu(e) - stubborn
 travailleur(-euse) - hardworking

La Description Physique

j'ai les cheveux - I have... hair
 j'ai les yeux - I have... eyes
 courts, longs, mi-longs - short, long,
 medium length
 raides - straight

je porte des lunettes - I wear glasses

une moustache - a moustache
 une barbe - a beard

de taille moyenne - of average height
 mince/gros(se) - slim/fat
 beau/belle - beautiful
 joli(e) - pretty
 moche - ugly

Mes Temps De Loisirs/La Technologie

je **vais** faire de la natation - I am going to do (go) swimming
 J'ai fait de la natation
 je **vais** aller au cinéma - I am going to go to the cinema
 je **vais** voir un spectacle - I am going to see a show
 je **vais** venir chez-toi - I am going to come to your house

je télécharge - I download
 je regarde des clips vidéo - I watch videos
 je joue à des jeux - I play games
 je **fais** des recherches - I do research
 je **fais** des achats - I buy things
 j'écris des articles pour mon blog - I write articles for my blog
 je lis - I read
 les réseaux sociaux - social media
 je mets mes photos sur Instagram - I put my photos on Instagram

il **est** facile de... - it is easy...
 en ligne - online
 partager - to share
 il **est** dangereux de... - it is dangerous...
 partager ses détails personnels - to share your personal details
 passer trop de temps sur Internet - to spend too much time on the internet
 chatter en ligne avec des inconnus - to chat online with strangers
 Il **est** important de... - it is important...
 faire du sport - to do sport
 passer du temps avec sa famille - to spend some time with your family
 retrouver ses amis en vrai - meet up with your friends in real life

Theme 2: House & Home

Ma famille et moi habitons à la campagne/montagne	My family and I live in the countryside/mountains
Dans ma ville il y a une bibliothèque et on peut aller au stade	In my town there is a library and you can go to the stadium
Je dirais que c'est triste/déprimant/affreux/nul/désagréable	I would say that it's sad/depressing/awful/rubbish/unpleasant
L'année dernière nous sommes allés aux États-Unis	Last year we went to the USA
L'été prochain je vais aller en vacances avec mes amis	Next summer I am going to go on holiday with my friends
D'habitude nous restons dans une auberge de jeunesse	Usually we stay in a youth hostel

Small but important key words:

En - in/at/to for

Countries ending in e & most transport

Dans - in for

Compass points & inside something (like a house)

À - in/at/to for A city or part of a city /a venue

Au - at the (masc) À la - at the (fem)

Un/une - a le/la/les/l' - the

Verbs in 3 tenses + infinitive

Voyager /visiter to travel/ to visit

J'ai voyagé/visité - I travelled/ visited

Nous avons voyagé/visité - we travelled / visited

Je voyage/viste - I travel/ visit

Je vais voyager/visiter - I'm going to travel/visit

Je voyagerai /visiterai - I will travel/ visit

Rester - to stay

Je suis resté- I stayed

Nous sommes restés - we stayed

Je reste - I stay

Je vais rester - I'm going to stay

Je resterai - I will stay

Faire - to do/make (go for activities)

J'ai fait/nous avons fait - I did/ we did

Je fais / nous faisons - I do/ we do

Je ferai - I will do

C'était - it was

j'étais - I was

C'est - it's

je suis - I am

Ce sera - it'll be

je serai - I will be

Useful phrases to talk about your area

Il y a = there is/there are

Il n'y a pas assez de = there are not enough

Il n'y a plus de = there is no longer

Il n'y a rien pour les jeunes = there is nothing for young people

Pour les touristes il y a/nous avons - for the tourists there is/we have

Beaucoup de monde/voitures = a lot of people/cars

Il y a beaucoup de pollution - there is a lot of pollution

trop de circulation/de gens = too much traffic/too many people

Tellement de gens au chômage = so many people unemployed

Toujours des déchets par terre = always rubbish on the floor

Il y avait - there was/were **il y aura** - there will be

Adjectives to describe a town

Ce qui me plaît c'est qu'il y a
= What I like is that there is/are

En hiver/ en été on peut = In winter/ summer you can

C'est propre/ tranquille/ animé/pittoresque = it's clean/ calm/ lively/picturesque

Le paysage - the landscape

Les transports en commun sont bons/bruyants/cher/bon marché = the public transport is good/noisy / expensive/cheap





Theme 3: Education & future plans

Je suis fort(e)/faible/doué en + subject	I am strong/weak/talented in + subject
Ma matière préférée est l'anglais	My favourite subject is English
La prof est bon/ sympa/ marrant) /sévère/ gentli	The teacher is good/ nice/ funny/ strict/ kind
À l'école primaire j'avais beaucoup d'amis	At primary school I had a lot of friends
L'année prochaine je voudrais faire un voyage scolaire	Next year I would like to do a school trip
L'année dernière j'ai étudié... / j'ai fait	Last year I studied... / I did

Le règlement scolaire

I faut / il ne faut pas = you must / you must not

Être à l'heure = be on time

Faire les devoirs = do homework

Porter l'uniforme scolaire = wear school uniform

Il est interdit de/de' = it is forbidden to

Tricher pendant un contrôle = cheat in a test

Mâcher du chewing-gum = chew gum

Porter des bijoux/trop de maquillage = wear jewellery/too much makeup

Harceler d'autres élèves = bully other pupils

Sortir de l'école pendant l'heure du déjeuner = leave school during the lunch hour

Opinions of school rules

Selon moi les règles sont... = according to me, the rules are...

Raisnable/ logique = reasonable/ logical

Juste/ injuste = fair/ unfair

Ridicule/ frustrant = ridiculous/ frustrating

C'est/ce n'est pas dangereux = it is/is not dangerous

Il faut respecter les autres = you must respect others

La mode n'a pas de place à l'école = fashion has no place at school

C'est/ce n'est pas important = it is/is not important

L'école, c'est pour apprendre = school is for learning

Une heure de retenue/de colle = An hour of detention

Les bâtiments et plus - buildings and more

Au collège- verb phrases

Étudier - to study

Apprendre - to learn

Comprendre - to understand

J'étudie/j'apprends /je comprends= I study / I learn/ I understand

L'année dernière **j'ai fait/étudié** ... - last year I did/studied...

L'année prochaine **je vais étudier/apprendre** - next year I'm going to study/ to learn

L'année prochaine **j'étudierai/j'apprendrai** - next year I will study/ will learn

Nous avons un cours de - we have a lesson of...

Sequencing vocabulary

Après - after **puis** - then **suivi de** - followed by

Avant - before

On commence à = we start at

Huit heures et demie - 8.30

On a une heure pour le déjeuner = we have an hour or lunch

Adjectives

intéressant/ passionnant/

ennuyeux/ facile/ fascinant/ dur/

utile/ inutile/ = It is interesting/

exciting/ boring/ easy/ fascinating/

hard/ useful/useless

Les bâtiments - the buildings

Le gymnase = sports hall

Le *hall* = (assembly) hall

Le terrain de sport = sports ground

La bibliothèque = library

La cour de récréation = playground

La piscine = swimming pool

Les labos = science labs

Les salles de classe = classrooms

Les vestiaires = changing rooms



Theme 1: self & family

Me llevo bien con/me divierto con mi padre/mi madre	I get on well with/have fun with my dad/my mum
Cuido de mi hermana menor/mayor	I look after my younger/older sister
En el futuro no quiero casarme	In the future I don't want to get married
Mis padres se divorciaron cuando era pequeño/a	My parents got divorced when I was little
Mañana vamos a montar a caballo	Tomorrow we are going to do horse riding
Leo mucho en línea	I read a lot online
Ayer escuché música en mi ordenador	Yesterday I listened to music on my comp

Adjetivos de Personalidad

se ve/parece - he/she/it seems
un(a) buen(a) amigo(a) es - a good friend is

Ser / soy/ somos/son - To be/ I am / we are / they are

molesto(a) - annoying
amable - likeable
hablador(a) - talkative egoísta - selfish
leal - loyal fuerte - strong
celoso(a) - jealous
malo(a)/cruel - nasty/ mean
perezoso(a)/vago(a) - lazy
bien educado(a)/sabio(a) - well behaved/wise
sensible - sensitive terco(a) - stubborn
trabajador(a) - hardworking
comprensivo(a) - understanding
honesto(a)/sincero(a)/honrad(o) - honest
extrovertido(a)/introvertido(a) - extroverted/introverted

La Descripción Física

tengo el pelo...corto, largo, mediano/liso/ondulado/rizado/calvo I **have** short, long, medium length/-straight/wavy/curly/ bald hair

Tiene los ojos azules, verdes, marrones, negros, pelirrojo, castaño, gris, marrón -... He/she has blue, green, brown, black, red, chestnut, grey, brown eyes.
llevo gafas - I wear glasses
tengo granitos/pecas - I have spots/freckles
un bigote/una barba - a moustache /a beard
bajo(a)/alto(a) - short/tall
delgado(a)/gordo(a) - slim/fat
guapo(a)/hermoso(a) - beautiful
lindo(a)/bonito(a)/precioso(a) - pretty
feo(a) - ugly

Mi tiempo Libre/ La Tecnología

voy a hacer la natación - **I am going to do (go)** swimming
voy a ir al cine - **I am going to go** to the cinema
voy a ver un espectáculo - **I am going to see** a show

una película de horror, una pelí policial, una pelí romántica, un dibujo animado - a horror film, a detective film, a romantic film, a cartoon
una canción/la letra - a song/lyrics
en Internet - on the internet
descargo/bajo la música y creo listas de reproducción - I download music and I create playlists
veo video clips - I watch videos
juego juegos - I play games

Activities online

compré/compro/ voy a comprar cosas en línea - I bought. I buy/ I'm going to buy things online
escribo artículos para mi blog - I write articles for my blog
leo los correos electrónicos - I read my emails
voy a las redes sociales - I go on social media

es fácil/difícil de... - it is easy/difficult to...
mantenerse en contacto con amigos - to stay in contact with friends
compartir fotos - to share photos
es peligroso... - it is dangerous...
compartir datos personales - to share your personal details

Disadvantages of technology

es importante hacer deporte... - it is important to do sport
pasar tiempo con la familia - to spend some time with your family
encontrar a tus amigos en la vida real/cara a cara - meet up with your friends in real life/face to face

Theme 2: House & Home

Mi familia y yo vivimos en el campo/en las montañas	My family and I live in the countryside/mountains
En mi ciudad hay una biblioteca y se puede ir al estadio de fútbol	In my town there is a library and you can go to the stadium
He vivido allí durante (por) cinco años	I have lived there for five years
El año pasado fui a los Estados Unidos (EE.UU.)	Last year we went to the USA
El verano que viene (proximo / siguiente) voy a ir de vacaciones con mis amigos/amigas	Next summer I am going to go on holiday with my friends
Normalmente/generalmente/por lo general nos quedamos en un albergue juvenil	Usually/ in general we stay in a youth hostel

Ciudad de pesadilla (disadvantages of town)

El problema es... = the problem is...

No hay suficientes (espacios verdes) = **there aren't** enough (green spaces)

Ya no hay/ no hay más (cine) = there is no longer a cinema

No hay ni (parque) ni (patio de recreo) = there is neither (a park) nor (a playground)

Solo hay (una tienda) = there is only (one shop)

No hay nada para los jovenes = there is nothing for the young

No hay mucho que hacer = **there's not a lot to do**

Hay... = **there is/there are...**

Mucha gente/muchos coches = a lot of people/cars

Demasiado tráfico/gente = too much traffic/too many people

Tanto ruido/tanta gente en paro/tantos desempleados = so much noise/so many people out of work

Siempre basura en el suelo = always rubbish on the floor

No estoy contento/a con mi barrio/ciudad = I'm not happy with my district/town

Ciudad de los sueños (advantages of town):

Lo que me gusta es que hay
= What I like is that there is/are

En invierno/verano **se puede** =
In winter/summer **you can**

Está limpio tranquilo ocupado=
it's clean/ calm/ lively

El transporte publico es bueno
= the public transport is good

Hace buen tiempo = the
weather is good

De vacaciones- holiday routines and travel

Voy **a** Francia/ **a** Gales/ **a los** Estados Unidos = I go to France/Wales/the USA

Voy a viajar en = I'm going to travel by

Viajo en = I travel by

Viajé en = I travelled by

Me quedo en = I stay in

Me voy con mi familia/solo = I go with my family/ alone

Fui con = I went with

Me levanto temprano = I get up early

Nos acostamos tarde = we go to bed late

Descanso/me preparo = I rest/ I get ready

Me visto = I get dressed

Me baño/nado en el mar= I bathe/ swim in the sea

Voy a dar un paseo = I go for a walk

Salgo a un restaurante = I go out to a restaurant

Se puede visitar Madrid/ hacer la escalada/ visitar los museos= **you can** visit Madrid/ go climbing/ visit museums

Es/era/fue/va a ser/será/sería = It is/ It was/it's going to be It will be/it would be

Useful adjectives

increible/lujoso = tremendous/luxurious

maravilloso/emocionante = wonderful / exciting

pintoresco/relajante= picturesque/restful

Tranquil = quiet/calm



Theme 3: Education & future plans

Soy fuerte/debil/bueno en matemáticas dado que lo encuentro pan comido/ muy exigente	I am strong/weak/talented in maths because I find it easy/ very challenging
Mi asignatura favorita es el inglés ya que mi profe enseña bien	My favourite subject is English because my teacher teaches well
El/la profe es bueno(a)/ simpatico(a)/ gracioso(a)/ severo(a)/ agradable/ impaciente	The teacher is good/ nice/ funny/ strict/ kind/ impatient
En la escuela primaria tenía mucho más tiempo libre/muchos amigos/menos deberes	At primary school I had a lot more free time/ a lot of friends/ less homework
El año que viene me gustaría participar en un viaje escolar	Next year I would like to part in a school trip
El año pasado gané un premio por mis esfuerzos en clase/un torneo de fútbol	Last year I won a prize for my efforts in class/a football tournament

En la escuela primaria/ el colegio / En el instituto

Estudié = I studied
 Estudiaba= I used to study (imperfect)
 Estudio = I study
 Voy a estudiar = I'm going to study
 Estudiaré = I will study
 Estudiaría = I would study (conditional)

Las empresariales/el comercio = business studies
 El dibujo/las artes plásticas = art/fine art
 El francés= French
 Las lenguas/los idiomas = languages
 La química = chemistry
 El alemán = German
 El inglés = English
 El arte dramático/el teatro = drama
 La economía/las ciencias económicas = economics
 La educación física y deportiva = PE

Opinions and school buildings

Lo encuentro = I find it
 interesante/emocionante =
 interesting/exciting

aburrido/fácil = boring / easy

fascinante/difícil = fascinating/difficult

fútil/inútil =useful/useless

Areas of school

La biblioteca = library
 El comedor/ La cantina = canteen
 El patio de recreo = playground
 La piscina = swimming pool
 Las aulas = classrooms
 Los vestuarios = changing rooms

Las normas escolares- school rules

Hay que/no hay que = you must/you mustn't

Llegar a tiempo = be on time

Hacer los deberes = do your homework

Llevar un uniforme escolar = wear a school uniform

Hacer el bachillerato = to do A Levels

Está prohibido de = it is forbidden to

Saltarse clases = miss lessons

Comer chicle = chew gum

Usar el móvil en clase = use your mobile in class

Llevar joyas/piercings/demasiado maquillaje = wear jewellery/ piercings/ too much makeup

Acosar a otros estudiantes = bully other pupils

El uniforme...mejora la disciplina/limita la
 individualidad = improves discipline/limits individuality

Lo encuentro = I find that

Razonable/sensato/lógico = reasonable/ sensible/ logical

justo/injusto = fair/ unfair

Ridículo/frustrante = ridiculous/ frustrating

porque/visto que/puesto que = because

Es/ no es peligroso = it is/is not dangerous

No somos bebés = we're not babies

La moda no tiene cabida en el insti = fashion has no place at school

Es/no es importante = it is/is not important

El instituto es para aprender = school is for learning



Component 1 - Musical Genres

Psychedelic

Introduced to the mainstream by the Beatles on their album Sgt. Pepper's Lonely Hearts Club Band.

Mixed styles and instruments from Western and Eastern music as well as new recording techniques to make a new, hypnotic sound, 'Within You Without You' is a key example.

Hip - Hop

Hip-Hop as we know it today was born in the mid 80's in the Bronx of New York.

Artists such as A Tribe Called Quest and Public Enemy rapped over tracks mixed on a turntable.

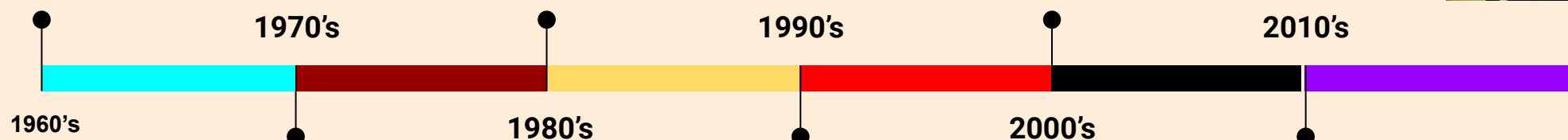
'Fight the Power' and 'Can I Kick It' are classic hip-hop defining songs.

Pop Punk

Mixing pop lyricism and melodies to the punk rhythms and textures of punk created this new alternative style.

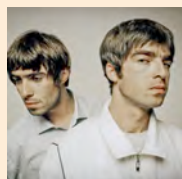
Bands such as: Fall Out Boy, and Green Day invented a style of punk music more suitable for radio.

'Sugar We're Going Down' by Fall Out Boy is a pop-punk anthem



Motown

Motown Sound started in Detroit as a record label that signed numerous R&B musicians such as Marvin Gaye and Smokey Robinson.



It featured strong rhythms, layered instrumental sound, and memorable hooks.

'Heard it Through the Grapevine' is a key Motown Piece



Britpop

In the 90's bands like Oasis and Blur changed the UK rock scene to include catchier and more listenable rock music. They called it Britpop.

Competed directly with the heavier and pessimistic grunge music coming out of the US

Oasis' album "What's the Story Morning Glory" is a genre defining album.

EDM

Electronic dance music is generally composed and produced in a recording studio with specialised equipment such as samplers, synthesizers and MIDI controllers.

In the 21st century EDM changed to featured Pop vocals that fit better with mainstream radio.

Avicci, David Guetta and Skrillex are key artists. Avicci's "Levels" showcases key EDM techniques



Component 2 - Music skills development

Learning Aim A

A1: Personal and professional skills in the music industry

- Time management
- Self-discipline
- Working with others
- Correct and safe use of equipment
- Identifying resources required
- Auditing existing skills and maintaining a development plan

Learning Aim B

B1 Development of technical music skills and techniques

- Completion of an initial skills audit for both chosen disciplines
- Creation of a development plan that:
 - Identifies individual development routines
 - Identifies technical exercises for development
 - Includes set goals, monitor and track progress

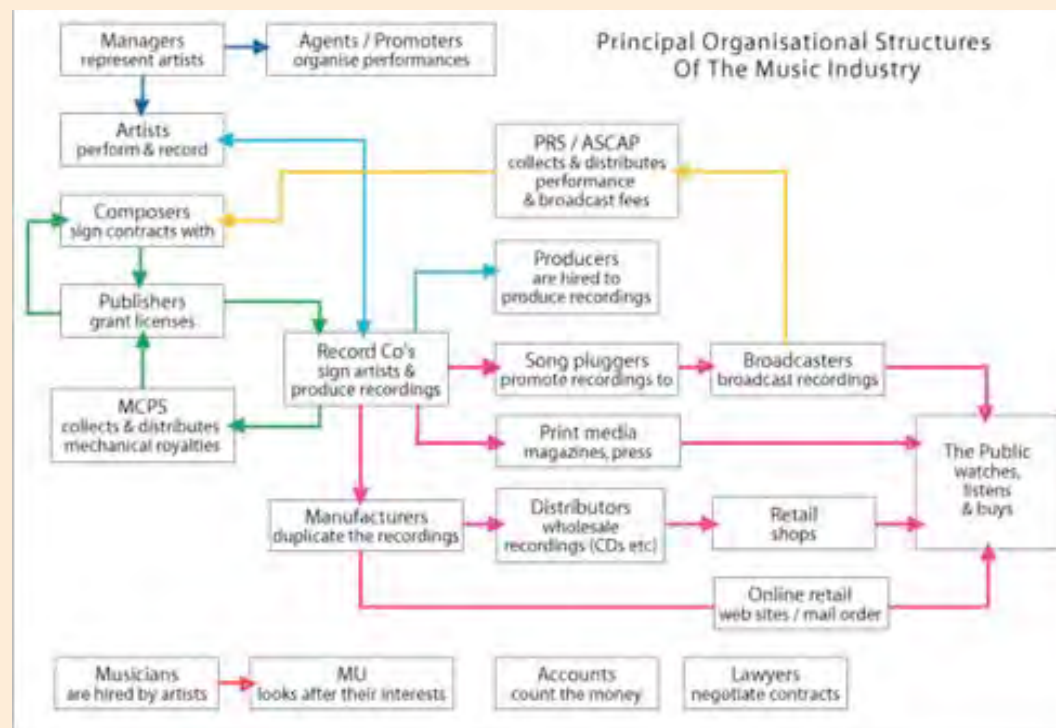
B2 Development of music skills and techniques

- Developing musical skills appropriate to style and context, such as:
 - Timing, phrasing and musical expression
 - Using rhythm and pitch in the creation or recreation of music
 - Using equipment, instrumentation or software appropriately
 - Combining instruments/sounds
 - Health and safety in the use of equipment and/or instruments.
- Music performance
 - Tuning (if appropriate) and stage presence
 - Learning repertoire and following accompaniment
 - Physical preparation and exercises
 - Instrumental or vocal technique, practise routines such as scales etc.
- Creating original music
 - Exploring and extending ideas
 - Using structure effectively
 - Using rhythmic and melodic patterns and development of harmony
- Music production
 - Using software instruments, audio and software tools and structure
 - Inputting and editing audio, manipulation techniques and using effects

Learning Aim A

A2: Communicating musical skills development

- Methods of capturing musical development:
 - Digital or traditional portfolios, including studio track sheets, production notes, rehearsal diaries, screenshots, milestone performances and reviews
 - Recorded auditions
 - Compositional sketches
 - Rough cuts and initial mixes
- Having a clear and organised approach to communicating:
 - Key points in the process are referenced and in a logical order
 - Images, videos and recordings are clear
 - Written commentary supports the quality of work.
- Sharing and commenting on work:
 - Social media, e.g. Soundcloud™, Facebook™, YouTube™
 - Jam or improvisation sessions, mixtapes, demos, sharing samples, remixing



Music - GarageBand and Notation Help

GarageBand Help

Shortcuts

The shortcut button on garageband is Command (cmd ⌘) on mac keyboards, and the windows key (⊞) on PC keyboards

Hold Command = Pencil tool (Create tool)

Hold Command + Z = Backspace (Undo last action)

Hold Command + T = Cut note clip at playhead

Hold Alt and drag = copy



Drag from bottom of note clip = Extend or make shorter

Drag from top of note clip = loop (copies)

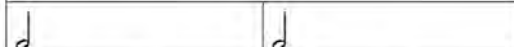
Note Values/Types

American

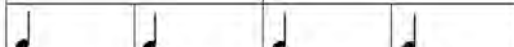
Whole Note



Half Note



Quarter Note



Eighth Note



British

Semibreve

Minim

Crotchet

Quaver

Piano Roll boxes
(4/4)

Each note =

16 boxes

8 boxes

4 boxes

2 boxes

Tips

Tip: Before you begin a new project, it is often a good idea to arrange your track.

- Go to Track > Show arrangement track
- Press the plus button to add a section
- Click on your new section and rename it what you want to it be called

Tip: Use the quantise function to put things in time for you!

Just highlight the notes, and click the Q button on the right hand side of the piano roll

Tip: Colour code your tracks to be able to navigate your project easier. Right click the instrument track and select "Assign track colour"

Tip: Use the loop function to loop a certain section. Drag the yellow bar above the instrument tracks across the section you want to loop

Tip: when inputting chords remember this formula for major and minor:

Major – Root 4 – 3

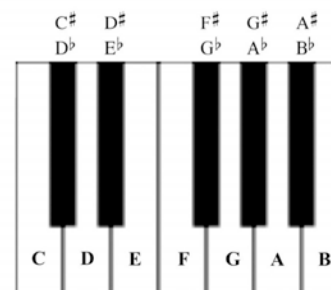
Minor – Root 3 – 4

Notation Help

Treble Clef notes



Bass Clef notes








♯ - Sharps - black notes to the right (sharp things point up!)

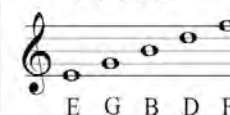
♭ - Flats - black notes to the left (flat tyres go down!)

Note Rest Value

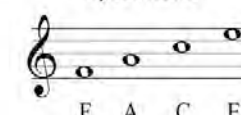
Quaver	 or  (in pairs)		1/2 each
Crotchet			1
Minim			2
Dotted Minim			2 + (1/2 x 2) = 3
Semibreve			4

Term	Symbol	Value
semibreve rest		4 beats of silence
minim rest		2 beats of silence
crotchet rest		1 beat of silence
quaver rest		1/2 beat of silence
semiquaver rest		1/4 beat of silence

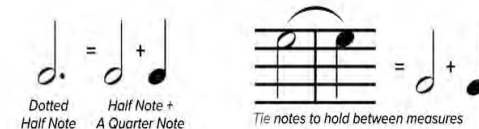
Line Notes



Space Notes

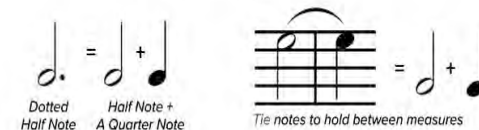


DOTS AND TIES



Tie notes to hold between measures

DOTS AND TIES



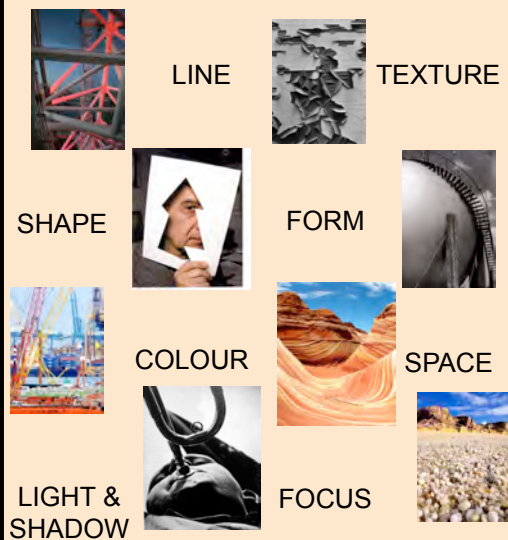
Tie notes to hold between measures

THE BASICS part 1 - GCSE Photography

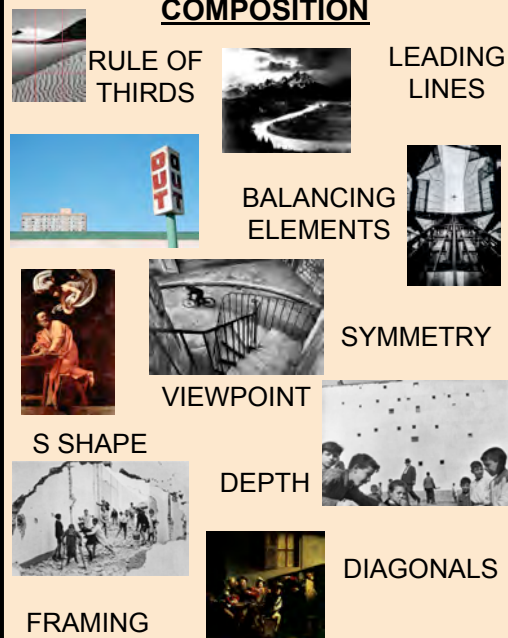
EXAMPLE PROJECT CHECKLIST

1. Front cover
2. Mind-Map
3. Statement of Intent
4. Photographer research (Timeline, Bio, Kit Bag, Key Project, Titles & Dates)
5. Written / Visual Analysis
6. Recreation Contact Sheets
7. Own Shoot C.Sheets
8. Photoshop Edits / Adjustments (Screenshots & Variations)
9. Reshoots
10. Photography Display Ideas
11. Final Ideas
12. Layout Ideas
13. Final Layout
14. Project Evaluation

VISUAL ELEMENTS



COMPOSITION



USEFUL KEYBOARD SHORTCUTS For Google Drive & Photoshop CS6



Cmd > Shift > 4
= Screenshot

Cmd > X
= Cut

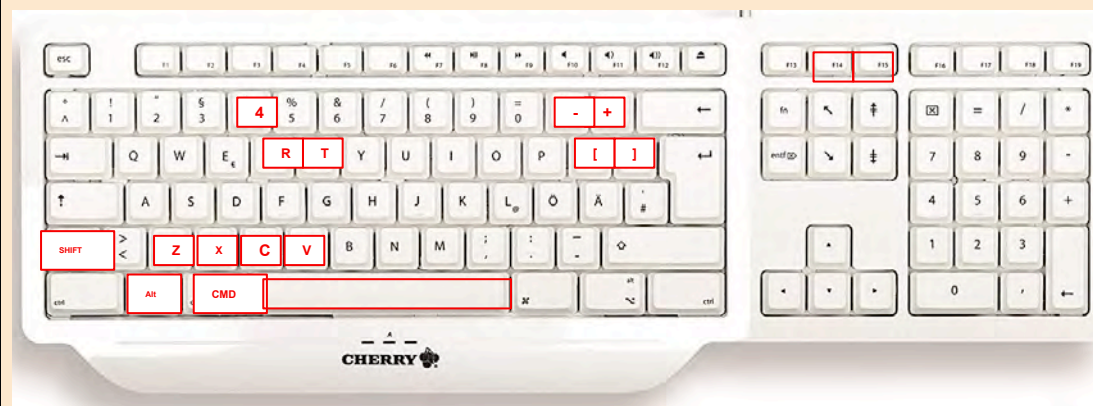
Cmd > C
= Copy

F14 & F15
= Brightness

Alt > 3 =
symbol

Hold Shift =
When resizing
an image

Cmd > V
= Paste



Cmd >
Alt > Z =
Multiple
Undo

Cmd > +
= Zoom
In

Cmd > T =
Transform

[] Brackets
= Tool size
up & down

Cmd > R
= Ruler

Cmd > -
= Zoom
Out

Hold Spacebar =
Manoeuvre with
mouse

Cmd > Z
= Undo

THE BASICS part 2 - GCSE Photography

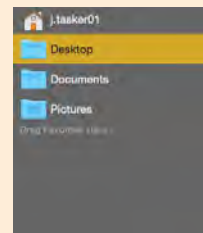
USING A CAMERA

- 1) Shutter Release button
- 2) Mode Dial (for Auto/Manual)
- 3) Settings Dial
- 4) On/Off switch
- 5) Flash Button



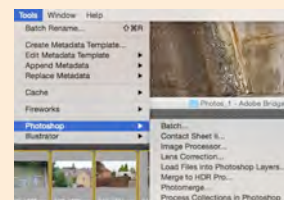
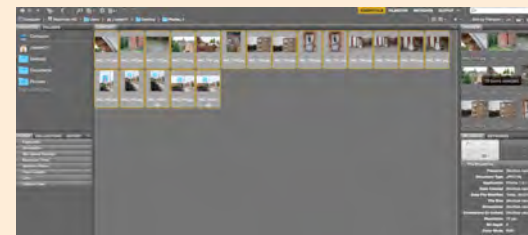
- 6) Display button (look at settings)
- 7) LED screen view (for TRIPOD)
- 8) Viewfinder
- 9) Playback button
- 10) Menu button

CREATING CONTACT SHEETS - ADOBE BRIDGE



- 1) Having successfully downloaded your pictures from your Camera. Load up **Adobe Bridge** and select your **Desktop** (on the left hand side)

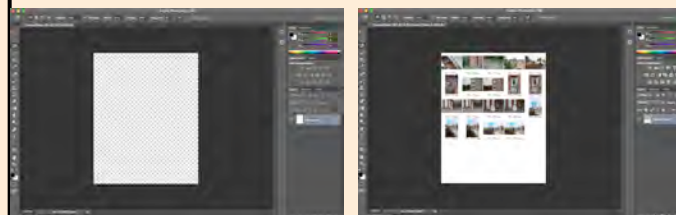
- 2) Once you have selected your **Desktop**, find the **folder** containing your images from your shoot. Hold down **cmd** and **click** on the images you want in your contact sheet



- 3) On the top bar go up to '**Tools**' > '**Photoshop**' > '**Contact Sheet II**' and click (this will load up Photoshop)

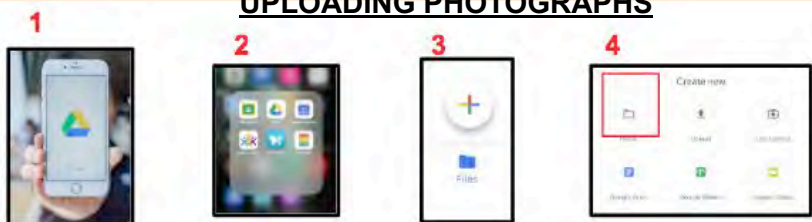
- 4) On Photoshop, this message will come onto your screen. Halfway down just make sure you change the **Resolution** to '**pixels/inch**'

Units > cm / Width: 20.32 / Height: 25.4 / Resolution: 300 pixels/inch



- 2) Be patient; this screen will start to load up. **Do not click anything** until you can see your image thumbnails. **This is what your contact sheet should eventually look like**
Save to **Desktop** and the **Format** should be **JPEG**.

UPLOADING PHOTOGRAPHS



- 1) Download App
- 2) Open App / Login
- 3) Files then Plus icon
- 4) Create folder
- 5) Click upload - Photos
- 6) Allow access to photos
- 7) Change to JPEG

Muscular system**ANTAGONIST MUSCLE ACTION**

- Muscles work in pairs

AGONIST

- Prime mover (active muscle)

ANTAGONIST

- Relaxes as movement occurs
- example : curling a bar
 - agonist = biceps
 - antagonist = triceps

FIXATOR

- Holds joint in position
- example : deltoid fixes shoulder joint during bar curl

ANTAGONISTIC PAIRS

Muscles work together in pairs to move joints. While one **CONTRACTS** the other **RELAXES** to create movement.

- Contracting muscles = **AGONIST** (prime mover)
- Relaxed muscle = **ANTAGONIST**

e.g. Biceps (agonist) contract to flex the elbow as the Triceps (antagonist) relaxes

Skeletal System - Functions of the skeleton

Support/Protection/Movement/Posture/ Mineral Storage/Blood cell production

- A synovial joint** – where two or more bones meet.
- Hinge Joints** – flexion and extension. Knee and Elbow
- Ball and Socket Joints** – flexion, extension, abduction, adduction, rotation and circumduction. Shoulder and hip.

Axis of rotation**Frontal axis**

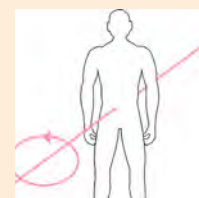
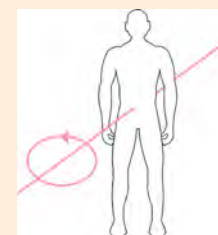
Horizontal from the back to front.

Cartwheel**Transverse axis**

Horizontal from the left to right.

Somersault**Longitudinal axis**

Vertical from the top to bottom.

Spinning – pirouette

The **transverse plane** is a horizontal plane that divides the body into upper and lower halves.

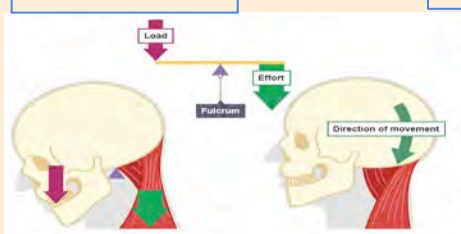
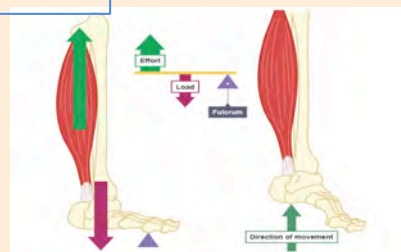
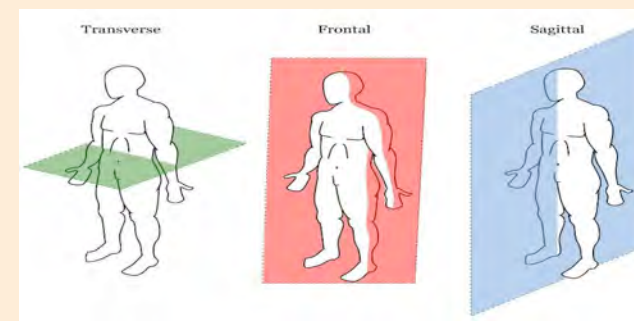
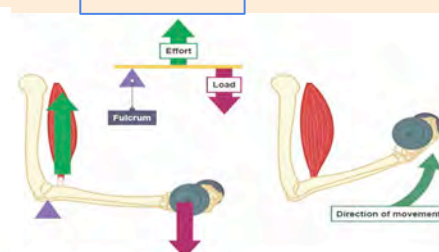
Rotation = Bowling in cricket.

The **sagittal plane** is a vertical plane that divides the body into right and left sides.

Flexion/Extension = Running

The **frontal plane** is also a vertical plane but this divides the body into front and back.

Abduction and adduction = outward phase of a star jump, breaststroke leg kick.

1st Class**2nd Class****3rd Class**

Aerobic respiration requires oxygen.

Glucose + oxygen → energy + water + carbon dioxide

Lower intensity, longer duration exercise

marathon running, 5,000 metres, distance swimming.

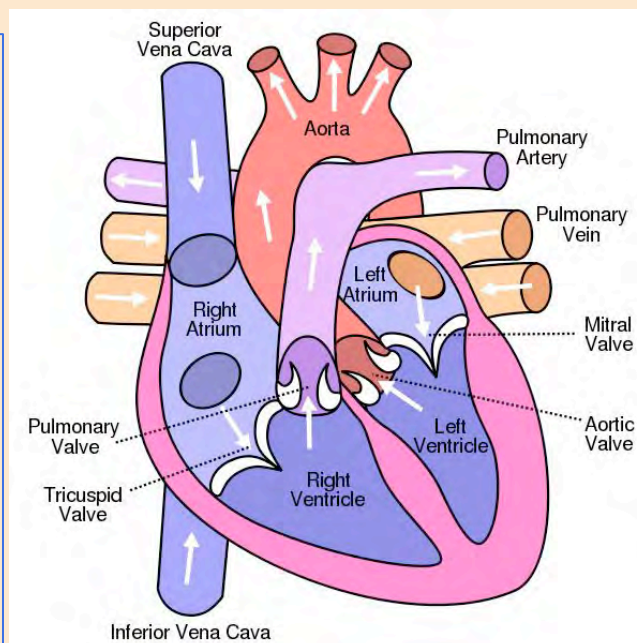
Anaerobic respiration - without oxygen

Glucose → energy + lactic acid

High-intensity, short duration exercise.

Sprinting, long jump, making a tackle in football, shooting at goal in netball.

Oxygen debt



Heart rate = Number of times the heart beats per minute (bpm)

Stroke volume = Amount of blood pumped per beat

Cardiac Output = Volume of blood pumped per minute

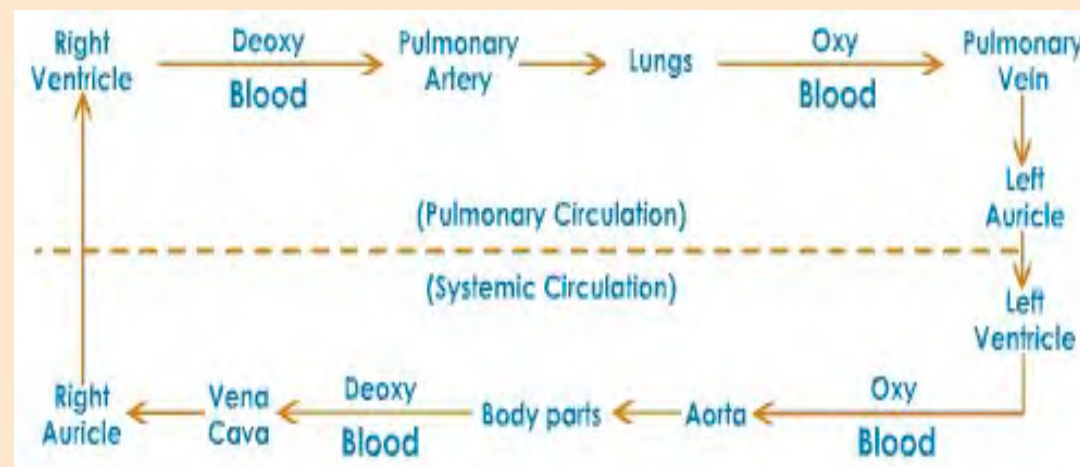
Cardiac output = $SV \times HR$

Redirection of blood flow to the areas where it is most needed is known as a **vascular shunt**.

During exercise, blood flow to muscles increases to meet the increase in oxygen demand.

Vasoconstriction (narrowing) and Vasodilation (expanding)

- **Minute ventilation:** is the amount of air a person breaths in a minute. This is calculated through the following equation
- **Breathing Rate:** The number of breaths per minute.
- **Tidal Volume:** The volume of air inspired or expired per breath, this increases during exercise.
- **Red blood cells:** carry oxygen from the lungs to the muscles + Removes CO₂ from muscles to lungs. Contain a red-coloured compound called **haemoglobin** which bonds with oxygen to form **oxyhaemoglobin**.
- **Pathway of Air:** Nose/mouth – Trachea – Bronchi – Bronchioles – Alveoli.
- **Gaseous Exchange:** Within the alveoli the exchange of gases takes place.





PAPER 1 part 3

Short term effects of exercise

Cardiovascular - Increase in stroke volume (SV); increase in heart rate (HR); increase in cardiac output (Q); increase in blood pressure (BP); redistribution of blood flow, Increase in oxygen uptake

Respiratory - Increase in breathing rate (f); increase in tidal volume (TV); increase in minute ventilation (VE)

Muscular - Increase in temperature of muscles; increased pliability (elasticity); muscle fatigue due to lactic acid.

Principles of training

- **Specificity** – Specific to the sport
- **Progression** - gradually increasing the amount of exercise you do - makes our body adapt
- **Overload** - Athletes need to monitor performance/training levels and adjust the amount of work done to make the training more difficult.
- **Reversibility** is process of an athlete's body losing fitness levels - if training has stopped due to illness or injury.

Optimising training

Frequency - How often we train

Intensity - How hard we train

Time - How long we train

Type - What type of training used

Warm up: Pulse raiser – Jog , Mobility – shoulder rotations and leg swings , Stretches – static – hamstring / dynamic – high knees, Dynamic Movements – Shuttle runs , Skill rehearsal – Passing etc

Cool Down: Lower intensity Exercise - walking
Stretching - static - quadriceps

Long term effects of exercise

Cardiovascular Cardiac hypertrophy; increased stroke volume (SV) at rest and during exercise; decrease in resting heart rate (HR); increase in cardiac output (Q); capillarisation at the lungs and muscles; increase in number of red blood cells, capillarisation.

Respiratory Increased tidal volume (TV), minute ventilation (TE) and vital capacity; increased number of functioning alveoli; increased strength of the respiratory muscles (intercostals and diaphragm)

Muscular Muscle hypertrophy; increased strength of tendons and ligaments; increased muscular strength; increased muscular endurance; increased speed of contraction; increased resistance to fatigue

Types of training

- **Continuous training** - steady but regular pace at a moderate intensity which should last for at least 30 minutes.
- **Fartlek training** - different intensities. 'SPEED PLAY' & over different terrains
- **Interval training** - periods of work followed by periods of rest.
- **Circuit training** - series of exercises completed one after another. Each exercise is called a station.
- **Weight training** - uses progressive resistance against a muscle group.

Muscular strength: High weight x low repetitions

Muscular endurance: Low weight x high repetitions

- **Plyometrics** - is one method of strength training that can be used to improve power or muscular strength. Bounding – Hopping – Jumping
- **High Intensity Interval Training** - repeated bouts of high intensity effort followed by varied recovery times. These short, intense workouts will improve cardiovascular endurance.

Cardiovascular Fitness -

Test - Multi Stage Fitness Test & 12 minute Cooper Run

Muscular Endurance - Sit up Bleep Test & Press Up Test

Speed – 30 metre sprint test

Strength - One rep max & Hand Grip Dynamometer

Power. Vertical Jump Test & Standing Jump

Flexibility - - Sit and Reach Test

Agility - Illinois Agility Test

Balance - - Stork Balance Test

Co-ordination - Wall throw test

Reaction Time - Ruler Drop Test



UNIT R183: Nutrition & Sports Performance

Topic 1 - Nutrients needed for a healthy, balanced nutrition plan

Characteristics of a balanced nutrition plan & the role of nutrients

- Meeting requirements of an individual
- Includes food from all food groups
 - **Carbohydrates:** give a quick supply of energy - rice, potatoes (complex) oranges, biscuits (simple)
 - **Fats:** give a slow supply of energy & transports some vitamins - vegetable oil, lard (bad fats) nuts, salmon (good fats)
 - **Proteins:** repair muscle damage - meats, pulses, beans
 - **Fibre:** helps digestion & prevents constipation - cereals, wholemeal bread
 - **Vitamins and minerals:** strengthen bones & maintain healthy immune system - fruit and vegetables
 - **Water:** keeps the body hydrated, regulates temperature & helps remove waste products - water based drinks
- **Contains a variety of foods**
- **Suits the needs/tastes of the individual**

Topic 3 - Developing a balanced nutrition plan for a selected sporting activity

Design & Develop a balanced nutrition plan

- Gather details - age range / allergies / cultural beliefs / food budget / cooking skill / activity / current nutritional info
- Adapt nutrition plan to suit a sporting activity
 - Add or remove relevant nutrients / Change timings / Portion sizes / Amount of meals

Key factors when considering success / impact of a nutrition plan

- Identify the nutritional changes that can be made
 - E.g. added protein for muscle repair / reduced fat for weight loss
- Suitability and organisation of nutrition plan
 - Portion sizes / timings of meals / amount of meals / liquid intake
- Review the potential success
 - Performance/training - energy levels, components of fitness improvement, weight loss/gain

Topic 2 - Applying different dietary requirements to varying types of sporting activity

Endurance/Aerobic activities (long distance running, rowing)

- **Before:** Hydration / Carbo-loading
- **During:** Maintain hydration & carbohydrate levels
- **After:** Rehydrating / Replenish nutrients

Short, intense/Anaerobic Activities (100m, HIIT training)

- **Before:** Use of carbs (not carbo loading) / use of proteins
- **During:** half time or timeout - energy for short, sharp bursts
- **After:** Rehydrate immediately / Replenish nutrients

Strength Based Activities (weightlifting, rugby)

- **Before:** High in protein / Limit excess body fat
- **During:** half time or timeout - refuel nutrients
- **After:** Rehydrate immediately / Replenish nutrients

Topic 4 - How nutritional behaviours can be managed to improve sports performance

Overeating

- Effect on component of fitness - speed, agility, flexibility and stamina
- Increased nutrients - starchy carbohydrates, vitamins & minerals
- Performance benefits - increase muscle mass, weight gain (e.g. for weightlifting & rugby)

Undereating

- Reduced energy levels / Reduced concentration / Weight management

Dehydration

- Overheating / Reduced performance level / Reduced bloated feeling / Reduced water retention - weight categories can be achieved e.g. boxing

Unit R181: Applying the Principles of Training



Topic 1 - Components of fitness applied in sport

Components of fitness

- Cardiovascular endurance - the ability to exercise for long periods without tiring (Long distance running & football)
- Muscular endurance - the ability of muscles to sustain repeated contractions without getting tired (Tennis & swimming)
- Speed - the ability to move all or part of the body quickly (Sprinting & ice hockey)
- Strength - the extent to which muscles can contract against resistance (Weightlifting & wrestling)
- Power - exerting muscular strength rapidly, a combination of speed and strength (Rugby & Javelin)
- Agility - the ability to move quickly and change direction under control (Football & basketball)
- Balance - the ability to maintain a given position when moving or stationary (Cycling & surfing)
- Flexibility - the ability to move joints through an ample range of motion (Gymnastics & diving)
- Coordination - the ability to select the right muscle at the right time with intensity to achieve proper action (Golf & Squash)
- Reaction time - the time taken to initiate an action or movement (Fencing & baseball)

Fitness tests used to measure components of fitness

- Cooper run / Press up test / 35m sprint test / Burpee test / Standing long jump / Illinois agility test / Standing stork test / Sit & reach test / Hand-eye coordination test / Ruler drop test
- Collecting & interpreting results of fitness tests
 - Normative data / Validity / Reliability
 - Results from tests / Advantages & disadvantages of tests
- Strengths & areas of improvement for each component
- Devising skill based fitness tests e.g dribbling at speed

Topic 2 - Principles of training in sport

Principles of training and goal setting

- SPOR principle
 - Specificity
 - Progression
 - Overload
 - Reversibility
- FITT principle
 - Frequency
 - Intensity
 - Time
 - Type
- SMART goals

Methods of training and their benefits

- Training methods
 - Continuous training / Fartlek training / Interval training / Circuit training / Plyometrics / Weight or resistance training / HIIT (High Intensity Interval Training)
- Advantages & disadvantages
- Appropriateness of each method
- Characteristics of aerobic exercise
 - Lower intensity / Longer duration / Higher oxygen consumption / Methods of training aerobically
- Characteristics of anaerobic exercise
 - Higher intensity / Shorter duration / Lower oxygen consumption / Methods of training anaerobically

Key Terms

-**Validity:** Whether or not the test measures what it claims to measure.

-**Reliability:** Test conditions must always be identical to get accurate results.

-**Normative data:** How results of a fitness test compare to average results.

-**Aerobic:** Body utilises oxygen, exercises should be steady and not too fast.

-**Anaerobic:** Fuels body without oxygen, exercises in short, fast bursts.



Unit R181: Applying the Principles of Training

Topic 3 - Organising and planning a fitness training programme

Considerations to inform planning

- Facilities & equipment
- Safety & risk assessments
- Aims, goals & objectives
- Current fitness levels & injuries
- Organisation
- Environment
- Skills to be improved

Applying Principles of training

- SPOR
- FITT

Elements of training programmes

- Suitable warm up & cool down
- Activities/main content of programme
- Duration of plan
- Duration of sessions
- Equipment and facilities
- Coaching points
- Adaptation of programme based on each session & mid term testing

Monitoring progress & adapting programme

- Using pre & mid term tests to adapt/improve a programme

Recording results from fitness training programme

- Post programme tests
 - Skill based tests
 - Fitness tests
- Achievement recognised
 - Meeting SMART goals
 - Results from tests

Topic 4 - Evaluate own performance in planning and delivery of a fitness training programme

Reflections on the fitness training programme

- Goals set
- Training methods used
- Fitness component links correctly to skill tests

Strengths and areas for improvement of the the fitness training programme

- Reasons for success and failure
- Strengths e.g. progression of training to make more difficult
- Improvements e.g. length of training programme or variety of training

Further development suggestions for improvements to the fitness training programme

- How the success rate of the programme could be improved if it were repeated e.g. level of fitness would be improved, performance would be improved

Key Terms

-Specific: Targets must be to the point e.g. to take 0.5 seconds off my 800m run time.

-Measurable: Must be measured and compared e.g. time runs every training session for the next five weeks of training

-Achievable: The target must be challenging but reachable e.g. coach & participant devised the training around improving leg strength, power and reaction time.

-Realistic: Must be matched to the performers skill level e.g. agreed that 0.5 seconds off my personal best is realistic.

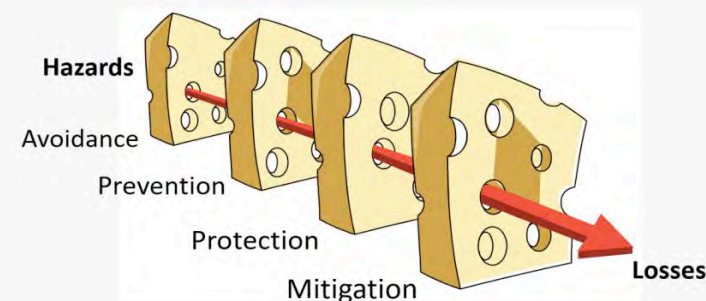
-Time-bound: Set for a particular time to be completed e.g. completing the training programme four times a week for the next five weeks to achieve the targets set.



Term 1: Health and wellbeing	
Legal Drugs	Legal drugs are drugs you can buy over the counter at a shop or pharmacy
Illegal Drugs	These are drugs that are illegal to carry, take or sell
Prescription	These are drugs that HAVE to be prescribed by your doctor. You cannot buy them over the counter
Drug misuse	There's also another common term called "drug misuse" that is often mentioned when talking about substance use or abuse. Drug misuse refers to the use of a substance for a purpose that is not consistent with legal or medical guidelines, most often with prescription medications
Addiction	Addiction is a biopsychosocial disorder characterized by repeated use of drugs, or repetitive engagement in a behaviour such as gambling, despite harm to self and others
Narcotics	A drug or other substance that affects mood or behaviour and is consumed for non-medical purposes, especially one sold illegally
Anabolic steroids	Anabolic steroids are manufactured drugs that mimic the effects of the male hormone testosterone. Anabolic steroids are prescription-only medicines that are sometimes taken without medical advice to increase muscle mass and improve athletic performance
Benzodiazepines	Benzodiazepines act as a sedative – slowing down the body's functions – and are used for both sleeping problems and anxiety. They work by increasing the effect of a brain chemical called GABA
Consent	Consent occurs when one person voluntarily agrees to the proposal or desires of another. It is a term of common speech, with specific definitions as used in such fields as the law, medicine, research, and sexual relationships

Addiction:

Many people don't understand why or how other people become addicted to drugs. They may mistakenly think that those who use drugs lack moral principles or willpower and that they could stop their drug use simply by choosing to. In reality, drug addiction is a complex disease, and quitting usually takes more than good intentions or a strong will.

**Impacts of drug abuse**

- Harmful to an unborn foetus
- Can lead to violence
- Can lead to sexual assault
- Impacts on finances to fund an addiction
- Loss of friends and family

Places that offer support:

- NHS: <https://www.nhs.uk/live-well/healthy-body/drug-addiction-getting-help/>
- Mind: <https://www.mind.org.uk/information-support/guide-s-to-support-and-services/addiction-and-dependency/addiction-and-dependency-resources/>

Term 3: Relationships

Online sexual harassment	Online sexual harassment encompasses a wide range of behaviours that use digital content on a variety of different platforms (private or public). It can make a person feel threatened, exploited, coerced, humiliated, upset, sexualised or discriminated against
LGBTQ+	LGBT is an initialism that stands for lesbian, gay, bisexual, and transgender. It has been in use since the 1990s.
'Coming out'	Coming out of the closet, often shortened to coming out, is a metaphor for LGBT people's self-disclosure of their sexual orientation or of their gender identity
Gender	The state of being male or female socially or culturally
Sex	The state of being male or female biologically.
Transgender	Used to describe someone who feels that they are not the same gender as the physical body they were born with, or who does not fit easily into being either a male or a female
Gender Neutral	Identities not easily categorized as masculine or feminine. Often a blend of the two
Identity	Identity is the qualities, beliefs, personality, looks and/or expressions that make a person or group
Intimate Relationship	An intimate relationship is an interpersonal relationship that involves physical or emotional intimacy
Love	A feeling of strong or constant affection for a person
Intimacy	Intimacy is closeness between people in personal relationships. It's what builds over time as you connect with someone

Why study this in school?

Including LGBT issues into sex education programs can reduce homophobic bullying, improve the health of LGBT people, and decrease instances of problems common in LGBT students such as depression and low self-esteem. School will always support all students.

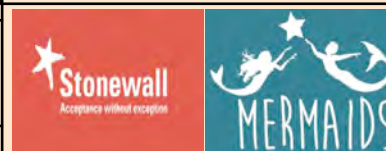


Types of online sexual harassment:

- Sexual Images received or distributed
- Videos
- Persistent messages,
- Sharing of explicit web pages

Places that offer support:

- Trusted adults
- School safeguarding team
- <https://www.stonewall.org.uk/>
- <https://www.allsortsyouth.org.uk/resources>
- <https://mermaidsuk.org.uk/>



Careers

Term 5: The Wider World

CV	Curriculum Vitae – This essential document is a potential employers first impression of you on paper, summing up your education, skills and work experience to date
Personal Skills	<p>Personal skills, also called soft skills, people skills, or interpersonal skills, are a person’s attributes or traits that relate to social interaction in a variety of ways. They are also highly transferable, since your attitude, personality, and work style automatically follow you to any and every company you work for.</p> <p>Personal skills are harder to develop, making them very valuable to hiring managers</p>
References	References are people who can talk about your work experience, work habits, character and skill
Resilience	The capacity to recover quickly from difficulties
Aspirations	A hope or ambition of achieving something
Options	The choices you make when finishing your GCSEs and A-Levels.
STEM	Science, technology, engineering and maths
Gendered Careers	The outdated idea that somehow certain subjects/professions are better suited to a particular gender
Engineering	The branch of science and technology concerned with the design, building, and use of engines, machines and structures

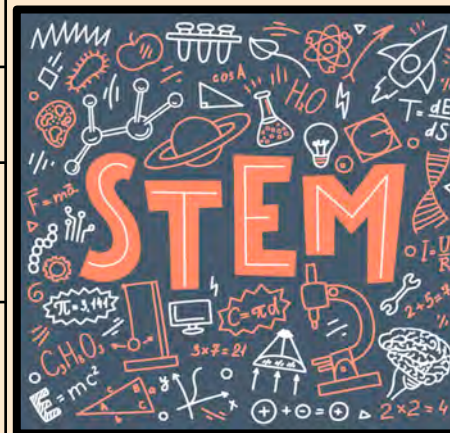


What makes a good CV?

- Get the personal information right
- Presentation is key
- No more than 2 pages of A4
- Clearly read and understand the job description
- Tailor the CV to the role
- Think about the most applicable skills
- What makes you interesting?
- Have you got relevant experience
- Have you got transferable skills?
- Have you included references?
- Keep it up to date

Why choose STEM?

As well as being useful and interesting, STEM jobs pay well.. The rates of employment are also better for STEM graduates, and STEM graduates earn an average of £270,000 more over the course of their careers than non- STEM graduates.



Places that offer advice:

- Trusted Parent
- School team
- <https://nationalcareers.service.gov.uk/>
- <https://www.prospects.ac.uk/careers-advice>
- <https://www.startprofile.com/>

St. Mark's Gospel

The Life of Jesus: Key Terms

Christ	Means 'the anointed one'/Messiah. The belief that Jesus was the promised saviour
Crucifixion	The death of Jesus; a form of the death penalty used by the Romans.
Historicity	Whether something (eg a gospel text) is considered to be historically authentic.
Miracle	An event that contradicts the laws of nature, and is usually thought to be impossible, (eg being raised from the dead).
Passion	The suffering of Jesus in his final days (which he foretold several times).
Resurrection	Being raised from the dead; the event three days after the crucifixion when it is believed that God raised Jesus from the dead.
Secular	Non-religious beliefs, practices and sources of authority.
Son of David	A title for Jesus used in Mark's Gospel, showing his descent from a Jewish king.
Son of God	A title for Jesus used in Mark's Gospel, emphasising his divinity.
Son of Man	A title that Jesus used for himself, which refers to both his suffering as a human and to the authority given to him by God
Transfiguration	When Jesus' appearance was changed into a more spiritual form; Peter, James and John saw his transfigured form talking to Moses and Elijah.
Trial	A criminal proceeding that takes place before a judge, involving questioning and evidence relating to the crime committed; Jesus faced trials before Pilate and the Jewish authorities during his Passion.

St Mark's Gospel as a source of spiritual truth: Key Terms

Anointing	Religious ritual action which involves being touched or marked with oil/other sacred substance; the event in Mark 14 when a woman poured expensive perfume on Jesus' head.
Ascension	Going or being taken up; the event in Mark 16 forty days after the resurrection when Jesus returned to glory in heaven.
Commandment	A law or rule that must be followed.
Commission	Being given a job or duty; the event in Mark 16 when the risen Jesus told his disciples to preach the good news throughout the world.
Denial	To state or claim that something is not true; the event in Mark 16 when Peter stated three times that he did not know Jesus.
Discipleship	Following Jesus.
Disregarded	To be ignored or excluded.
Faith	Having complete belief, trust and confidence in something; having belief in God and Jesus.
Haemorrhage	The escape of a large amount of blood, often the result of an injury or illness.
Kingdom of God	The reign of God over the earth.
Leprosy	Infectious skin disease; in biblical times people with leprosy were made to live outside the towns and cities.
Parable	A story about everyday life that Jesus told to teach a religious truth
Secular	Non-religious beliefs, practices and sources of authority.
Widow	Woman whose spouse has died

Christian Beliefs & Practice

Christian Beliefs: Key Words

Ascension	Jesus returning to be with God in heaven after the crucifixion
Atonement	Making things better after sinning, asking for forgiveness from God
Benevolent	God's nature as all-loving
Crucifixion	Jesus' execution by the Romans on the cross
Incarnation	God becoming flesh in the form of Jesus Christ
Just	God's nature as fair
Omnipotent	God's nature as all-powerful
Original Sin	The built-in tendency to do wrong which comes from Eve's disobedience
Resurrection	Jesus returning from the dead after he was crucified
Salvation	Being saved from sin and given eternal life in heaven by God
Sin	Any thought or action which goes against God's will
Trinity	God's nature as three-parts-in-one, the Father, Son and Holy Spirit

Christian Practice: Key Words

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

Islamic Belief & Practice

Islamic Beliefs: Key Words

Adalat/justice	Part of the nature of God in Shi'a Islam; the belief that God is fair.
Akhirah (life after death)	Belief in a new stage of life after death.
Day of Judgement	The day when Allah will decide about individual deeds and on reward or punishment.
The Gospel	Holy book /source of authority ; literally 'good news' and it is the good news about Isa (Jesus), who was a prophet of Islam.
Greater jihad	The personal struggle of every Muslim to live by the teachings of their faith.
The imamate	One of the Five Roots of Usul-ad-Din, 'Leadership.' Shia belief in the twelve imams who succeeded Muhammad as the leaders of Islam.
Immanence	The belief that God is close to humanity and involved in the world.
Jihad	'To struggle'. The personal or collective struggle against evil.
The Night of Power	The night on which Muhammad received the first revelations of the Qur'an.
Predestination	One of the Six Articles of Faith in Sunni Islam; the belief that everything that happens has been decided already by Allah.
Resurrection	One of the Six Articles of Faith and Five Roots of Usul ad-Din; belief that after death, all people will be raised from the dead to face judgement.
Risalah (Prophethood)	One of the Six Articles of Faith and Five Roots of Usul ad-Din; belief in the prophets as messengers sent by God to communicate to people.
Tawhid (the Oneness of God)	One of the Six Articles of Faith and Five Roots of Usul ad-Din; the oneness and unity of Allah.

Islamic Practice: Key Words

Ablution (wudu)	Ritual washing before prayer.
Ashura	Important festival in Shi'a Islam, to commemorate the martyrdom of Hussein (Muhammad's grandson).
The Five Pillars	Important duties for Sunni Muslims which support the main principles of Islam. Shahadah, salah, zakah, sawm and hajj.
Friday prayer/Jummah	Friday prayers in the mosque, where a sermon (khutbah) is heard.
Giving alms	Giving alms means giving to those in need, eg money, food, time. A key practice in Islam; one of the Five Pillars/Ten Obligatory Acts (Zakah).
Hajj	One of the Five Pillars/Ten Obligatory Acts; pilgrimage to Makkah.
Id-ul-Adha	Festival; celebration of the Prophet Ibrahim's willingness to sacrifice his son for Allah.
Id-ul-Fitr	Festival; celebration that comes at the end of Ramadan and marks the end of fasting.
Khums	One of the Ten Obligatory Acts in Shi'a Islam; practice of alms giving.
Pilgrimage	A religious journey to a holy site/sacred place, it is an act of worship and devotion.
Ramadan	Month during which Muslims fast (sawm) from dawn to sunset.
Salah	Prayer; one of the Five Pillars/Ten Obligatory Acts.
Sawm	Fasting from dawn to dusk during Ramadan; one of the Five Pillars/Ten Obligatory Acts.
Zakah	One of the Five Pillars and Ten Obligatory Acts; giving alms.



Assisted suicide	Helping someone to end their life. Currently illegal in the UK.
Active Euthanasia	Something is done to a person to make them die more quickly e.g. given drugs to bring about death
Euthanasia	The painless killing of a terminally ill patient
Passive Euthanasia	Any form of treatment that might extend someone's life is withdrawn e.g. switching off a life support machine. Currently legal in the UK.
Quality of Life	How easy or difficult someone's life is – e.g. cancer causes a low quality of life
Sanctity of Life	The belief that all life is sacred as man is made in God's image

Religious Attitudes to Euthanasia			
Christianity	Islam	Judaism	Hinduism
'You shall not murder'	'No one can die except by God's leave, at a term appointed'	'There is no God but me. I put to death, and I bring to life'	'The one who tries to escape from the trials of life by committing suicide will suffer even more in the next life'
Life is a sacred gift from God and should not be interfered with. However, some Christians believe that the Bible teaches compassion and respect. Therefore, someone should not be forced to suffer unnecessarily. The Catholic Church is strongly opposed to euthanasia and believes that it is a crime against life.	All human life is given by Allah, and Allah decides how long each person will live. Life is a test, and those who are suffering should turn to Allah. However, in circumstances, where death inevitable, the patient should be allowed to die without unnecessary procedures.	Only God has the right to give life and take away, even when it has become a burden rather than a blessing. Although Judaism is opposed to voluntary euthanasia and suicide, some Jews believe that passive euthanasia is permissible if further treatment is going to cause suffering.	Euthanasia causes the soul and body to be separated at an unnatural time, disturbing the timing of the cycle of death and rebirth. Suffering is a part of karma from previous lives and should be experienced fully and not interfered with.



Case study

Tony Nicklinson, a man with a condition called **locked-in syndrome**, who fought for the right to legally end his life, died on 22 August 2012.

The 58 year old was paralysed from the neck down after suffering a stroke in 2005 and described his life as a 'living nightmare'. In the week before his death, Mr Nicklinson lost his High Court case to allow doctors to end his life. From that point he refused food.



Abortion

Abortion	The removal of a foetus from the womb to end a pregnancy before the child is born.
Embryo	An unborn human from conception to the 9th week after fertilisation
Foetus	An unborn human from the 9th week after fertilisation to birth.
IVF	In-vitro fertilisation is one of several techniques available to help people with fertility problems have a baby.
Quality of Life	How easy or difficult someone's life is – e.g. cancer causes a low quality of life
Sanctity of Life	The belief that all life is sacred as man is made in God's image

Arguments for and against abortion

Arguments for abortion	Arguments against abortion
<ul style="list-style-type: none"> A woman has the right to choose whether or not she wants to have the baby. It is her body. The woman might be too young, or have work or family commitments which make bringing up a child difficult or impossible for her. The pregnant woman's health and welfare are more important than that of the embryo or fetus. The pregnant woman's life is more important than that of the embryo or fetus. The embryo or fetus does not have the same rights as the mother. The quality of life of the unborn child or the woman's existing children could be adversely affected by the birth. Stopping legal abortions would mean a return to 'back street' abortions, causing a great deal of suffering to the health and wellbeing of the woman. Abortion could therefore be the lesser of two evils. 	<ul style="list-style-type: none"> Roman Catholics believe that life begins at conception. Some Protestants believe that life begins after the first 14 days. The embryo is a living human being from this point, and so an abortion would be murder. Every human being, including an embryo or fetus, has the right to live and to reach their potential. There are alternatives to abortion, eg adoption. The unborn child is denied choice. Abortion destroys human life and makes life appear cheap and disposable. This affects the quality and value of life. People born with disabilities can live full and happy lives.



Key Person: Baroness Mary Warnock

Baroness Mary Warnock was a philosopher who chaired a number of inquiries to inform government policy. They included a report which led to the creation of the Human Fertilisation and Embryology Authority (HFEA) in 1991. She created a government report into human fertilisation and embryology, which balanced the rights of the embryo with the rights of infertile couples.

It was commissioned after public concerns following the birth of the world's 'first test tube baby', Louise Brown.

The Death Penalty



Capital Punishment	The death penalty. A punishment in which the state executes someone for their crimes
Corporal Punishment	Punishment of an offender by causing them physical pain - now illegal in the UK
Death penalty	Capital punishment; a form of punishment in which a prisoner is put to death for their crimes
Lex Talionis	A teaching from the Bible: 'An eye for an eye' meaning punishments should be proportional to the crime
Quality of Life	How easy or difficult someone's life is – e.g. cancer causes a low quality of life
Sanctity of Life	The belief that all life is sacred as man is made in God's image



Arguments for and against the death penalty

Arguments for the death penalty	Arguments against the death penalty
<p>Some Christians argue that capital punishment helps to maintain order and protection in society. They would say this because:</p> <ul style="list-style-type: none"> The Bible sets down the death penalty for some crimes, so it must be acceptable to God. This is often seen as retribution. The Church of England has not repealed the statement in Article 37 of its Thirty Nine Articles which says: The Laws of the Realm may punish Christian men with death for heinous and grievous offences. St Thomas Aquinas argued that peace in society was more important than reforming the sinner. He reflects the Roman Catholic Church's teaching that the protection of the whole of society is more important than the individual. 	<p>Some Christians would argue that capital punishment can never be justified. They would say this because:</p> <ul style="list-style-type: none"> They believe Jesus Christ came to Earth to reform sinners, as he did with the woman caught in adultery in John 8:1-11. Jesus amended the Old Testament teaching on retribution in Matthew 5:38-39 when he said: You have heard that it was said, 'Eye for eye, and tooth for tooth.' But I tell you, do not resist an evil person. If anyone slaps you on the right cheek, turn to them the other cheek also. Christians believe in the sanctity of life, that life is holy and belongs to God and therefore only God has the power to take life. In Romans 12:17-19 it states: Do not repay anyone evil for evil. Be careful to do what is right in the eyes of everybody ... Do not take revenge, my friends, but leave room for God's wrath, for it is written: 'It is mine to revenge; I will repay, says the Lord'

Key Person: Lindy Lou Isonhood

Lindy Lou Isonhood grew up in a town where the death penalty was a fact of life, part of the unspoken culture. But after she served as a juror in a capital murder trial -- and voted "yes" to sentencing a guilty man to death -- something inside her changed. Isonhood reflected on the question she'd been asking herself in the 25 years since the trial: Am I a murderer?

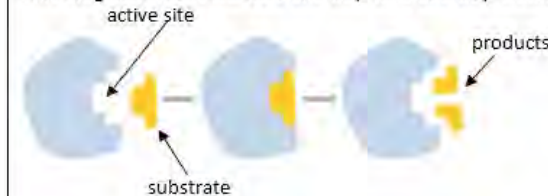
Principles of Organisation

Key Definitions	
Organisation	A hierarchy of biological systems. Cells form tissues, tissues form organs, organs form organ systems
Enzyme	A protein which acts as a biological catalyst. Proteins are made up of amino acids folded into specific shapes
Carbohydrase	Break down carbohydrates into sugars. Amylase breaks down starch (carbohydrate) into glucose (sugar)
Protease	Break down proteins into amino acids
Lipase	Break down lipids (fats) into glycerol and fatty acids
Bile	An alkaline solution which neutralises stomach acid in the small intestine and emulsifies fats (give them a larger surface area)
Heart	Made up of muscle tissue. It is a double pump designed to deliver blood to the lungs and the rest of the body.
Lungs	Are adapted for efficient gas exchange
Artery	Blood vessel that carries blood away from the heart
Vein	Blood vessel that carries blood towards the heart
Capillaries	Blood vessels that connect arteries and veins to tissue to allow gas and substance exchange
Blood	A tissue consisting of red blood cells, white blood cells, plasma and platelets.

How Enzymes Work

The active site is a specific shape, allowing only one substrate to fit into it. Different enzymes are needed to catalyse different reactions.

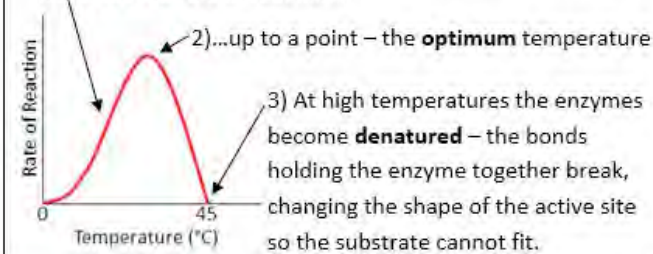
This diagram shows the lock and key 'lock and key' model. It is over simplified – actually the active site can change shape slightly to allow a tighter fit with the substrate. This is called the 'induced fit' model.



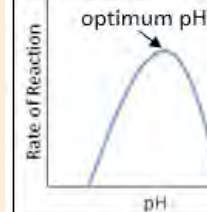
Effect of Temperature

1) Increasing temperature

increases the rate of reaction...

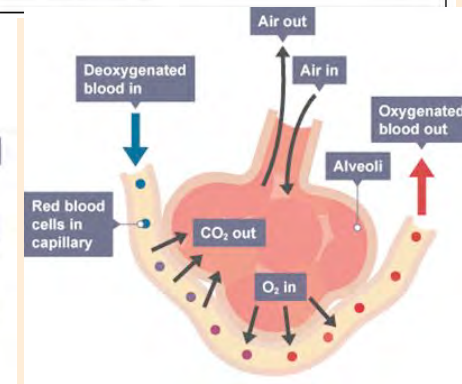
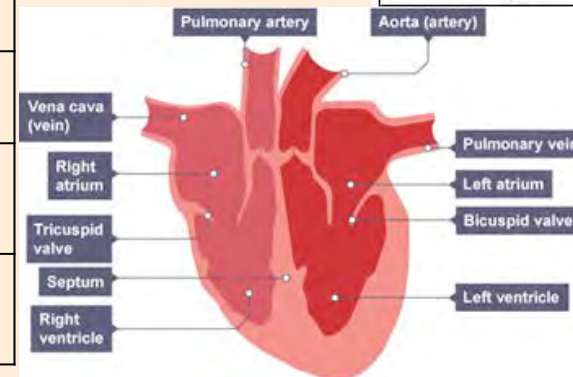


Effect of pH



If the pH is too high or too low it can weaken the bonds that maintain the shape of the enzyme.

This causes the active site to change shape (denature) so the substrate cannot fit.





Key Definitions	
Potential difference (p.d.)	A measure of the electrical work done by a cell (or other power supply) as charge flows round the circuit. Potential difference is measured in volts (V).
Electric current	A flow of electrical charge. The size of the electric current is the rate at which electrical charge flows round the circuit.
Resistor	A component that acts to limit the current in a circuit. When a resistor has a high resistance, the current is low.
Directly proportional	When two quantities are directly proportional, doubling one quantity will cause the other quantity will cause the other quantity to double. When a graph is plotted, the graph line will be straight and pass through the origin.
Inversely proportional	When two quantities are inversely proportional, doubling one quantity will cause the other quantity to halve
Ohmic	The current flowing through an ohmic conductor is proportional to the potential difference across it. If the p.d. doubles, the current doubles. The resistance stays the same.
Non-ohmic	The current flowing through a non-ohmic resistor is not proportional to the potential difference across it. The resistance changes as the current flowing through it changes.

$$P = V \times I$$

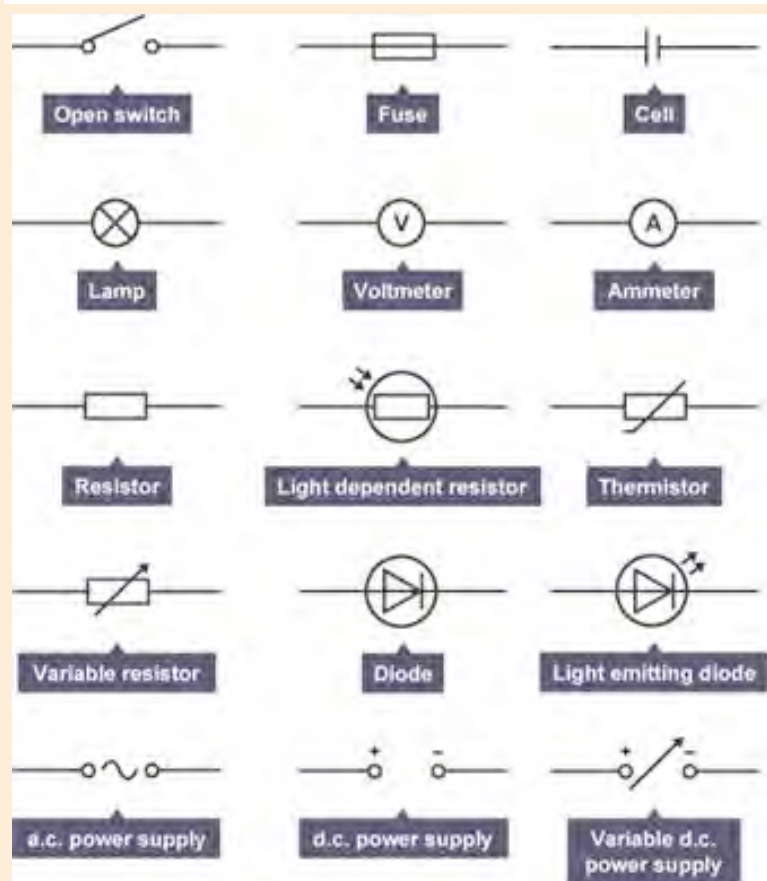
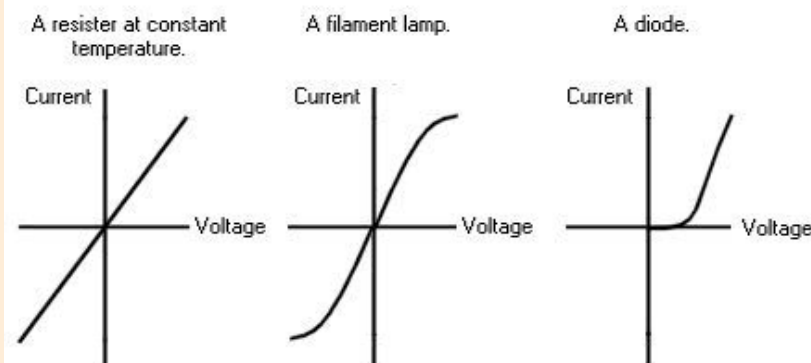
$$V = I \times R$$

$$Q = I \times t$$

$$E = V \times Q$$




$$E = V \times I \times t$$

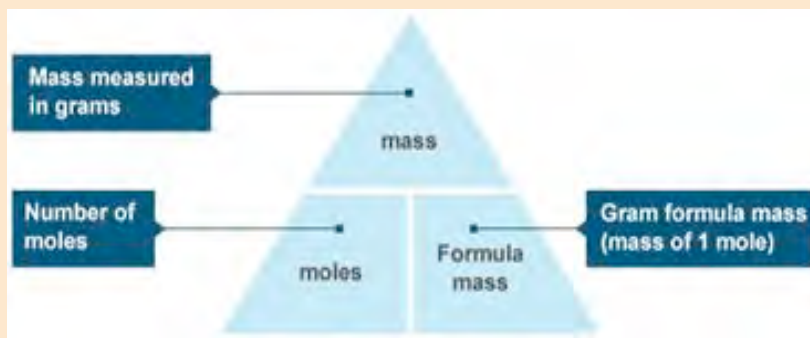
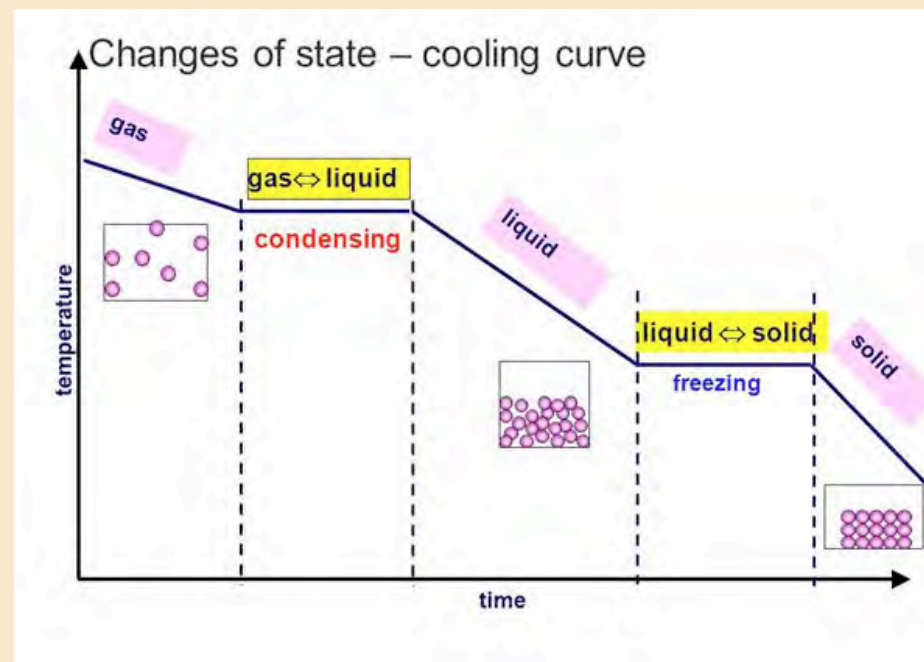
power = voltage x current.
 voltage = current x resistance.
 charge = current x time.
 energy = voltage x charge.
 energy = voltage x current x time.



Quantitative Chemistry and Particle Model

Key Definitions	
Relative atomic mass	The average mass of atoms of an element, taking into account the mass and the amount of each isotope it contains.
Relative formula mass	The sum of the relative atomic masses of all the atoms in the formula.
Mole	Measurement of the amount of a substance.
Avogadro constant	The number of atoms, molecules or ions in one mole of a given substance (6.02×10^{23}).
Thermal decomposition	Reaction where high temperature causes a substance to break down into simpler substances.
Excess	When the amount of a reactant is greater than the amount that can react.
Limiting reactant	The reactant in a reaction that determines the amount of products formed. Any other reagents are all in excess and will not react.

	Solid	Liquid	Gas
Arrangement of particles	Close together Regular pattern	Close together Random arrangement	Far apart Random arrangement
Movement of particles	Vibrate on the spot	Move around each other	Move quickly in all directions
Diagram			



Equations

$$\rho = m/v \quad \text{Density} = \text{Mass} \div \text{volume}$$

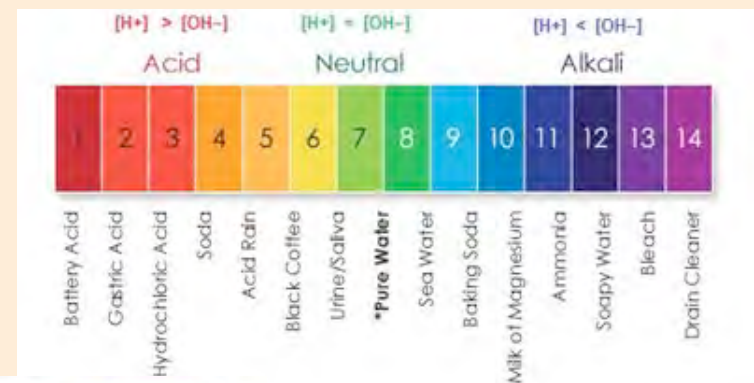
$$\Delta E = mc \Delta \theta$$

$$\text{Change in thermal energy} = \text{mass} \times \text{specific heat capacity} \times \text{temperature change}$$

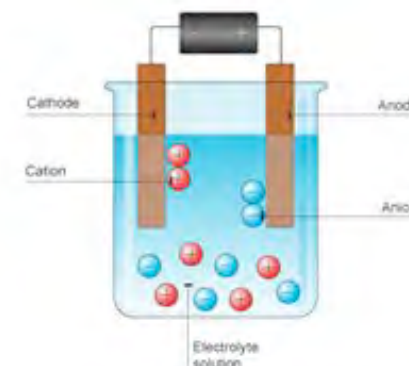
$$E = mL \quad \text{Energy required to change state} = \text{mass} \times \text{specific latent heat}$$

Chemical and Energy Changes

Key Definitions	
Displacement reaction	Reaction where a more reactive element takes the place of a less reactive element in a compound
Oxidation	A reaction in which a substance loses electrons (gains oxygen)
Reduction	Reaction in which a substance gains electrons (loses oxygen)
Ore	A rock from which a metal can be extracted for profit
Acid	Solution with a pH less than 7; produces H^+ ions in water
Alkali	Solution with a pH more than 7; produces OH^- ions in water
Aqueous	Dissolved in water
Strong acid	Acid in which all the molecules break into ions in water
Weak acid	Acid in which only a small fraction of the molecules break into ions in water
Neutralisation	A reaction that uses up some or all of the H^+ ions from an acid
Electrolysis	Decomposition of ionic compounds using electricity
Exothermic reaction	Reaction where thermal energy is transferred from the chemicals to the surroundings and so the temperature increases
Endothermic reaction	Reaction where thermal energy is transferred from the surroundings to the chemicals and so the temperature decreases
Activation energy	The minimum energy particles must have to react



potassium	most reactive	K
sodium		Na
calcium		Ca
magnesium		Mg
aluminium		Al
carbon		C
zinc		Zn
iron		Fe
tin		Sn
lead		Pb
hydrogen		H
copper		Cu
silver		Ag
gold		Au
platinum	least reactive	Pt

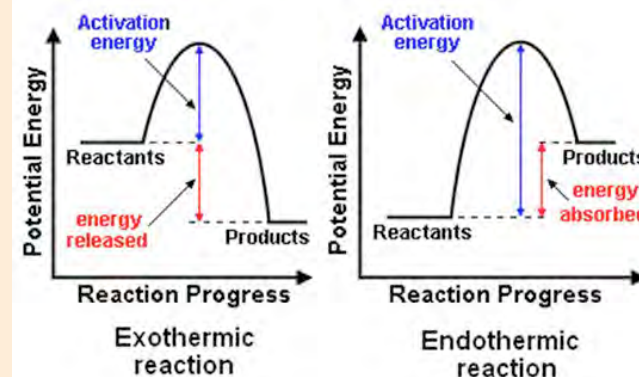


Acid + Alkali \rightarrow salt + water

Metal + acid \rightarrow salt + hydrogen

Metal oxide + acid \rightarrow salt + water

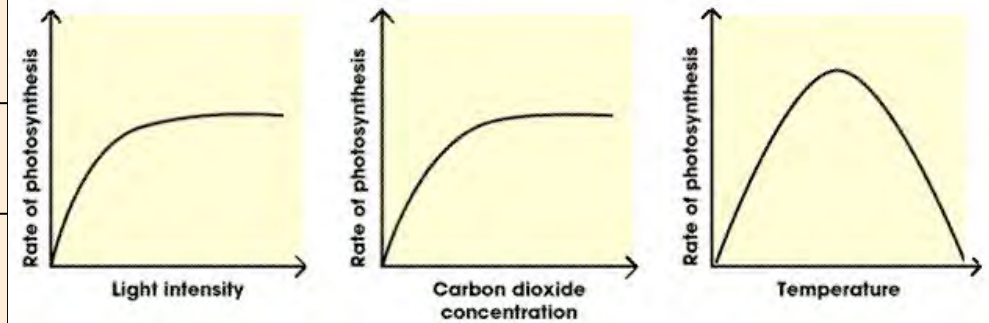
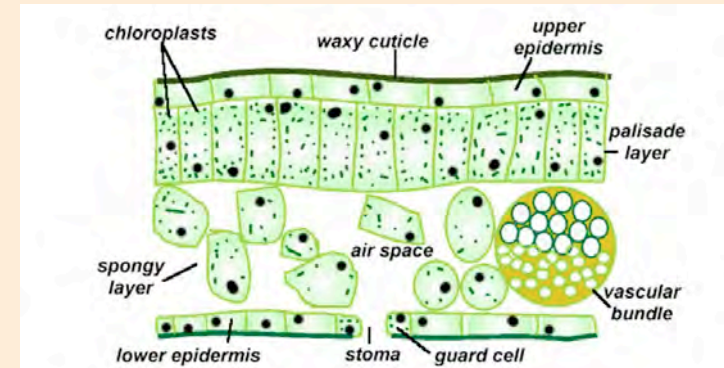
Metal carbonate + acid \rightarrow salt + water + carbon dioxide



Exothermic reaction

Endothermic reaction

Key Definitions	
Photosynthesis	The process by which plants use sunlight to produce glucose. Happens in chloroplasts
Limiting factor	These are conditions which affect the rate of photosynthesis e.g temperature, carbon dioxide concentration, light intensity.
Palisade Mesophyll	Contains the palisade cells and is where the majority of photosynthesis takes place
Epidermis	The outer layer of the leaf, the bottom layer contains the stomata, which are controlled by the guard cells
Chloroplasts	Contain chlorophyll, to absorb light energy, for photosynthesis.
Transpiration	The flow of water through the xylem of a plant
Respiration	The process by which living things release energy from glucose. Happens in mitochondria
Aerobic	In the presence of oxygen
Oxidation	A reaction that uses oxygen
Anaerobic	In the absence of oxygen
Oxygen debt	The amount of extra oxygen the body needs after exercise to break down lactic acid
Metabolism	The sum of all the chemical reactions that happen in an organism

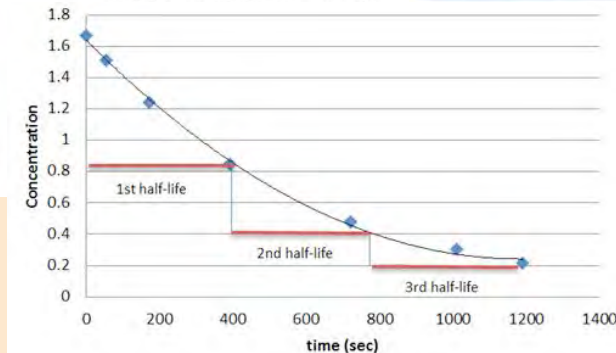
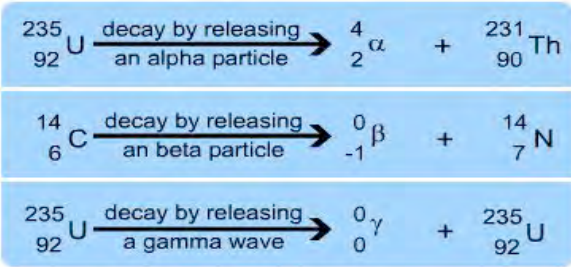
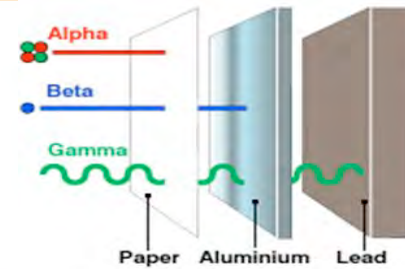
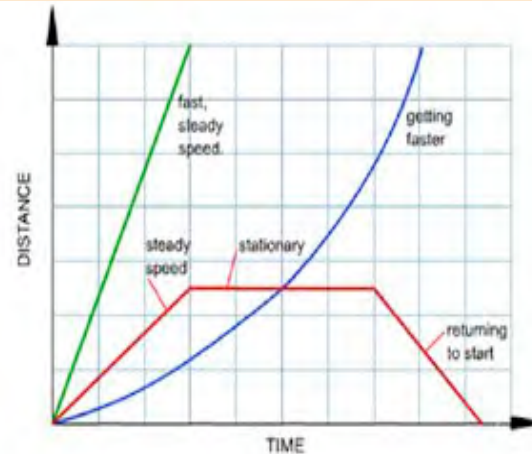
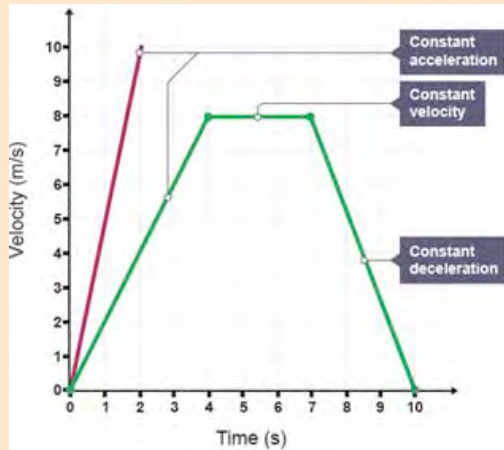


	Aerobic	Anaerobic
Oxygen	Needed	Not needed
Glucose breakdown	Complete	Incomplete
End product(s)	Carbon dioxide and water	Animal cells: lactic acid. Plant cells and yeast: carbon dioxide and ethanol
Energy released	Relatively large amount	Relatively small amount

Forces and Motion and Atomic Structure

Key Definitions	
Terminal velocity	When the weight of a falling object is balanced by resistive forces.
Inertia	Inactivity. Objects remain in their existing state of motion – at rest or moving with a constant speed in a straight line – unless acted on by an unbalanced force.
Thinking distance	The distance a car travels while the driver reacts.
Braking distance	The distance a car travels while the car is stopped by the brakes.
Stopping distance	The sum of the thinking distance and braking distance
Closed system	A system with no external forces on it.

Isotope	Atoms with the same number of protons but a different number of neutrons.
Alpha particle	A particle formed from two protons and two neutrons.
Beta particle	A fast moving electron.
Gamma ray	An electromagnetic wave.
Geiger-Müller (GM) tube	A device which detects ionizing radiation. An electronic counter can record the number of particles entering the tube.
Half-life	The time taken for the number of nuclei in a radioactive isotope to halve. In one half-life the activity or count rate of a radioactive sample also halves.
1 Becquerel (1Bq)	An emission of 1 particle per second



$$s = d \div t \quad \text{speed} = \text{distance} \div \text{time}.$$

$$a = (v-u) \div t \quad \text{acceleration} = \text{change in velocity} \div \text{time}.$$

$$F = m \times a \quad \text{Force} = \text{mass} \times \text{acceleration}.$$

$$p = m \times v \quad \text{momentum} = \text{mass} \times \text{velocity}.$$