

Haggerston School



Year 10 Knowledge Organiser Term 2

2024

Aspiration Creativity Character

Knowledge **Organiser** - Guidance

- You must bring your Knowledge Planner to school every day in your school bag.
- You should place your Knowledge Planner on your desk at the start of every lesson so that you can refer to it when instructed by your teacher.
- If you lose your Knowledge Planner, you will need to purchase a replacement one from Student Services.
- **In the Study Centre**, you will use your Knowledge Planner to study the relevant subject's Knowledge Organiser and **learn** the information provided.
- Use your blue exercise book to make notes to help revise and learn the information provided in each Knowledge Organiser.

KS4 Knowledge Organiser - Contents

TERM 2	1
Art	2
Biology	3
BTEC Sport	7
Business	8
Chemistry	12
Computer Science	14
Drama	17
DT	20
Economics	34
English	35
Geography	38
History	40
Maths	47
Music	48
PE	55
Physics	57
RE	60
Sociology	63
Spanish	66
Literacy knowledge Organiser	71

Term 1

1

Aspiration Creativity Character

HENRI MATISSE

1869 - 1954



French Artist

Henri Matisse was known for his use of colour fluid expressions.

Studied Art at the Academie Julian and was a student of William- Adolphe Bouguereau. He was an admirer of Chardin's work and his impressionistic influences came from the Australian painter John Peter Russell.

In 1898 he went to London to study William Turner's work. Matisse immersed himself in works of other artists and displayed artwork of Rodin, Gauguin, Van Gogh and Cezanne in his home for which he went into debt.

He made use of Divisionism which combines colours optically instead of mixing the pigments physically.

Periods:

Fauvism, Modernism, Impressionism, Post-impressionism, Neo-impressionism

Influences:

Paul Cezanne, Paul Gauguin, Paul Signac, John Peter Russell

Famous works:

- La Perruche et la Sirène
- Blue Nude Series
- The Dance
- Icarus
- Women with a Hat
- Still life with a Magnolia
- The Red Room

Impressionism developed in France in the nineteenth century and is based on the practice of painting out of doors and spontaneously 'on the spot' rather than in a studio from sketches. Main impressionist subjects were landscapes and scenes of everyday life

Impressionists: Mary Cassatt, Paul Cézanne, Edgar Degas, Édouard Manet, Claude Monet, Camille Pissarro, Pierre-Auguste Renoir, Alfred Sisley

Fauvism is the name applied to the work which is characterised by strong colours and fierce brushwork.

Famous fauvists: Albert Marquet, Charles Camoin, Louis Valtat, Jean Puy, Maurice de Vlaminck, Henri Manguin, Raoul Dufy, Othon Friesz, Georges Rouault, Jean Metzinger, Kees van Dongen and Georges Braque

The fauvists were interested in the scientific colour theories developed in the nineteenth century – particularly those relating to complementary colours.

Complementary colours are pairs of colours appear opposite each other on scientific models such as the colour wheel, and when used side-by-side in a painting make each other look brighter.

COLOR AND LINE

Throughout his career, Matisse searched for a way to unite the formal elements of color and line. On the one hand, he was known as a master colorist: from the non-realistic palette that earned him the designation of a fauve or "wild beast" in the first decade of the twentieth century, to the light-infused interiors of his so-called "Nice period" of the 1920s, he followed a course of what he described as "construction by means of color." On the other hand, he was a master draftsman, celebrated for drawings and prints that describe a figure in fluid arabesque lines; "my line drawing is the purest and most direct translation of my emotion," he once said. Through the cut-outs, he was finally able to unite these two branches of his practice. He described the process of making them as both "cutting directly into color" and "drawing with scissors."

Practical application of art history:

1. Create a drawing of your hand in one of the styles you've learned about from this knowledge organiser.
2. Create sketches of your surroundings (room, objects such as chairs, tables, books, your pencil case, etc), people in the simplified cut out style.
3. Create a composition on your table (books, stationary, clothing) and sketch it in the style of one of the above mentioned art movements. Use colour (e.g. green or red pen, colouring pencils, felt tips, highlighter)
4. Every piece of work should be evaluated using art vocabulary. Compare your work to the artists' examples.

Self Quiz:

1. Can you describe Fauvism and Impressionism?
2. List their characteristics
3. List key artists associated with each movement
4. What is Divisionism?
5. What are the most famous works created by H. Matisse?

Biology Health and Disease Knowledge Grid					
	Question	Answer		Question	Answer
1	Health (as defined by the World Health Organisation)	a state of complete physical, mental and social well-being	24	How malaria is spread	animal vectors
2	Communicable diseases	Diseases that can be passed from one person to another	25	How chalarash dieback is spread	airborne
3	Non-communicable diseases	Diseases that are not transferred between people or other organisms	26	How Helicobacter is spread	oral transmission
4	The presence of one disease can lead to...	a higher susceptibility to another disease.	27	How ebola is spread	bodily fluids
5	Diseases can lead to other diseases because...	they can affect the immune system or trigger mental health problems.	28	How to reduce the spread of STIs	barrier contraception, such as condoms
6	Pathogen	a disease-causing organism	29	Viruses make people feel ill because...	they replicate inside cells causing cells to burst.
7	Types of pathogen	viruses, bacteria, fungi and protists	30	Bacteria make people feel ill because...	they release toxins.
8	Examples of bacterial pathogens	cholera, tuberculosis, chlamydia, helicobacter	31	Lytic cycle of a virus	1. Virus invades a host cell by getting through membrane 2. Virus's DNA and protein coats replicate 3. Self assemble into new virus particles 4. Causes the cell to burst (lyse) 5. These virus particles then invade nearby cells
9	Examples of viral pathogens	ebola, HIV	32	Lysogenic cycle of a virus	1. Virus invades a host cell by getting through membrane 2. Virus's DNA joins with host cell DNA and lies dormant 3. Host cells grow and divide 4. A trigger causes the host cell to expel the virus DNA 5. Virus DNA now active and replicates 6. Self assembles into new virus particles 7. Causes the cell to burst (lyse) 8. These virus particles then invade nearby cells
10	Example of fungal pathogens	chalarash dieback	33	Physical barriers of a plant against disease or pests	waxy cuticle on leaf, cellulose cell wall, bark, thorns, hairs
11	Example of protist pathogens	malaria	34	Chemical defences of a plant against disease	poisons, toxins and antibacterial chemicals.
12	Symptoms of cholera	diarrhoea	35	Uses of plant chemicals	Medicines to treat diseases of relieve symptoms
13	Symptoms of TB	lung damage	36	Ways to identify plant diseases	distribution analysis, observe symptoms, diagnostic testing
14	Symptoms of chlamydia	could have no symptoms, a burning pain when urinating, thick yellow or green discharges	37	Physical barriers of a human against disease	mucus, cilia and skin
15	Effects of HIV	destroys white blood cells, leading to the onset of AIDS	38	Chemical defences of a human against disease	lysozymes and hydrochloric acid
16	Effect of malaria	damage to blood and liver	39	Lysozymes	enzymes that break down proteins
17	Symptoms of chalarash dieback	leaf loss and bark lesions	40	Antigens	A molecule on or from a pathogen that triggers an immune response
18	Symptoms of Helicobacter	stomach ulcers	41	Types of white blood cells	Phagocytes and lymphocytes
19	Symptoms of ebola	haemorrhagic fever	42	Memory lymphocytes	A cell that when reexposed to a pathogen responds rapidly producing lots of the necessary antibody.
20	How cholera is spread	waterborne	43	Function of phagocytes	Engulfing pathogens (phagocytosis)
21	How TB is spread	airborne	44	Function of lymphocytes	- produce antibodies - produce antitoxins
22	How chlamydia is spread	sexually transmitted	45	Antibodies	Chemicals that combine with pathogens to destroy them
23	How HIV is spread	sexually transmitted	46	Antitoxins	Chemicals that counteract the effect of toxins

Biology Development of Medicines Knowledge Grid			
	Question	Answer	
1	Vaccines contain...	a dead, weak or inactive form of a pathogen.	
2	Advantage of immunisation	Stop people becoming ill	3
3	Disadvantages of immunisation	Side effects, cost	
4	Herd immunity	If enough people are immunised this stops pathogens infecting whole populations	
5	Antibiotics	Drugs/Medicines that kill bacteria	
6	Antibiotics can only kill bacteria because...	they inhibit processes in the bacteria, but not in the host cells and viruses are inside the host cells.	
7	Culturing	Growing	
8	Autoclave	A heating device used for sterilisation	
9	How to sterilise petri dishes	Use UV light or an autoclave	
10	How to sterilise inoculating loops	Put in Bunsen burner flame	
11	Vial	Bottle use for cultures of microorganisms	
12	It's important to keep petri dishes covered because...	it prevents contamination.	
13	Antiseptics	Chemicals that prevent the growth of microorganisms	
14	Agar jelly	Nutrient-rich gel for growing microorganisms	
15	Area of a circle	πr^2	
16	Stages of developing new medicines	1. Discovery 2. Development 3. Preclinical testing 4. Clinical testing	
17	Sources for medicines	Plant extracts or chemically synthesised drugs	
18	Drugs are tested for...	safety, effectiveness and dosage.	
19	Drug safety	Side effects and toxicity	
20	Drug effectiveness (efficacy)	Does the drug work.	
21	Drug dosage	How much of the drug should be used	
22	Preclinical testing	Drugs are tested using computer models and human cells to check for efficacy and toxicity.	
23	Clinical testing	Tested on healthy people to check safety then people with the illness to check safety and efficacy, then dosage.	
24	Discovery of antibiotics	Sir Alexander Fleming discovered the antibiotic penicillin from the penicillium mould	
25	Monoclonal antibodies	Antibodies made from a clone of a single cell that are specific to one binding site on an antigen.	3
26	How monoclonal antibodies are made:	1. Get lymphocytes to produce desired antibodies (from mouse) 2. Fuse lymphocytes with tumour cell to make hybridoma cell 3. Hybridoma cell divides and produces antibodies	
27	Uses of monoclonal antibodies	Pregnancy testing, diagnosing the location of blood clots and cancer cells, treating cancer	
28	Advantages of monoclonal antibodies	Can be made to bind to any protein in the body	
29	Disadvantages of monoclonal antibodies	Unwanted side effects, very expensive, ethical issues around giving mice diseases	
30	Radiotherapy	A way of treating cancer using X-rays and gamma rays	

Biology Non-Communicable Diseases Knowledge Grid		
	Question	Answer
1	Non-communicable diseases	Diseases that are not transferred between people or other organisms
2	Cardiovascular diseases	diseases of the heart
3	Risk factors of cardiovascular diseases	high cholesterol levels, poor diet, little exercise
4	Risk factors of cancer	Carcinogens, ionising radiation, some viruses, some genes
5	Carcinogens	A substance that causes cancer
6	Risk factor of lung disease/cancer	smoking
7	Risk factor of liver diseases	alcoholism
8	Risk factor of type 2 diabetes	obesity
9	Deficiency disease	a disease caused by the lack of an element in the diet, usually a particular vitamin or mineral
10	Examples of deficiency diseases	scurvy, kwashiorkor, rickets
11	Obesity and malnutrition are influenced by...	diet and exercise.
12	BMI equation	$BMI = \text{mass} \div \text{height}^2$
13	Social impacts of alcoholism	increased violence, antisocial behaviour and accidents
14	Economic impacts of alcoholism	increased absence from work, huge cost of treatments for the NHS
15	Treatments for cardiovascular disease	Stents, statins, lifestyle changes, transplant
16	Coronary heart disease	when waxy plaque builds up inside the coronary arteries so oxygen cannot get to the heart muscle
17	Stents	A device, consisting of a wire mesh tube, used to keep a blocked coronary artery open.
18	Statins	drugs that help to lower cholesterol in the blood
19	Advantage of stents	Longer term solution, no risk of rejection, no surgery
20	Disadvantage of stents	risk of bleeding, heart attack or stroke when inserted
21	Advantage of statins	Prevent heart attacked, other positive health effects
22	Disadvantage of statins	Have to be taken for a long time, side effects
23	Advantage of transplant	treats complete heart failure
24	Disadvantage of transplant	risks due to surgery, risk of rejection, must take immunosuppressive drugs, waiting list

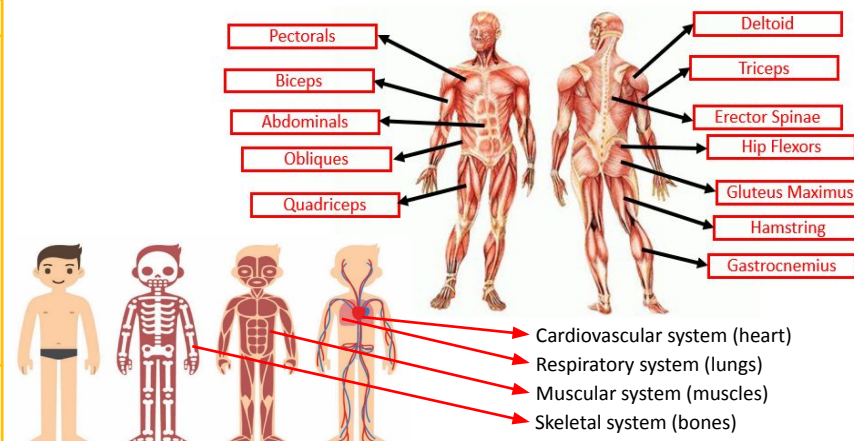
Biology Exchange and Transport in Animals Knowledge Grid			
	Question	Answer	
1	Substances transported in and out of organisms	oxygen, carbon dioxide, water, dissolved food molecules, mineral ions and urea	23
2	Multicellular organisms need transport systems because...	they have a low surface area to volume ratio so substances cannot diffuse quickly into the middle.	24
3	Single celled organisms don't need transport systems because...	they have a high surface area to volume ratio for diffusion.	25
4	Surface area : volume ratio	surface area volume : 1	26
5	Surface area of a cuboid	= sum of the area of the 6 sides	27
6	Volume of a cube	= l x w x h	28
7	Diffusion	The net movement of particles from an area of high concentration to an area of low concentration.	29
8	Job of the alveoli	gas exchange	30
9	Gas exchange	the diffusion of oxygen into the blood and carbon dioxide into the lungs	31
10	Concentration gradient	The difference in concentration between two areas.	32
11	As the temperature increases, the rate of diffusion...	increases.	33
12	As the concentration gradient increases, the rate of diffusion...	increases.	34
13	As the surface area increases, the rate of diffusion...	increases.	35
14	Fick's law	$\text{rate of diffusion} \propto \frac{\text{surface area} \times \text{concentration difference}}{\text{thickness of membrane}}$	36
15	Four components of blood	red blood cells, white blood cells, plasma, platelets	37
16	Job of red blood cells (erythrocytes)	contain haemoglobin that combines with oxygen to transport it around the body	38
17	Job of plasma	moves nutrients, urea and carbon dioxide around the body	39
18	Job of platelets	helps the blood clot	40
19	Three types of blood vessels	Arteries, veins and capillaries	41
20	Function of arteries	Takes oxygenated blood away from the heart	42
21	Function of veins	Takes deoxygenated blood back to the heart	43
22	Function of capillaries	Exchange of blood and substances to and from tissues	
	Question	Answer	
	Adaptation of arteries	thick walls, large lumen	
	Adaptation of veins	thin walls, small lumen, valves to prevent backflow	
	Adaptation of capillaries	one cell thick walls for diffusion	
	Double circulatory system	two circuits of blood flow - one to the body, one to the lungs	
	Route of blood through the heart, lungs and body	body → vena cava → right atrium → right ventricle → pulmonary artery → lungs → pulmonary vein → left atrium → left ventricle → aorta	
	Cardiac output equation	cardiac output = stroke volume × heart rate	
	Cellular respiration	an exothermic reaction which occurs continuously in living cells to release energy for metabolic processes	
	Aerobic respiration	Respiration using oxygen as a reactant	
	Anaerobic respiration	Respiration without oxygen as a reactant	
	Word equation for aerobic respiration	glucose + oxygen → carbon dioxide + water (+ energy)	
	Symbol equation for aerobic respiration	$\text{C}_6\text{H}_{12}\text{O}_6 + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$	
	Word equation for anaerobic respiration	glucose → lactic acid (+ energy)	
	Symbol equation for anaerobic respiration	$\text{C}_6\text{H}_{12}\text{O}_6 \rightarrow \text{C}_3\text{H}_6\text{O}_3$	
	Oxygen debt	the amount of extra oxygen the body needs after exercise to react with lactic acid and remove it from the cells	
	How lactic acid is removed from the body	lactic acid goes in the blood to the liver where reacts with oxygen to make glucose	
	When anaerobic respiration occurs	during vigorous exercise	
	When aerobic respiration occurs	all the time	
	Fermentation	anaerobic respiration in yeast cells	
	Word equation for fermentation	glucose → carbon dioxide + ethanol (+ energy)	
	Symbol equation for fermentation	$\text{C}_6\text{H}_{12}\text{O}_6 \rightarrow \text{CO}_2 + \text{C}_2\text{H}_5\text{OH}$	
	Anaerobic respiration produces _____energy than aerobic respiration.	less	

KO - BTEC Tech award - Year 10 cycle 2

Component 1 - Preparing to take part in sport and physical activity

LAC - be able to **prepare participants** to take part in sport and physical activity

Pulse Raiser	Mobiliser	Preparation stretches
Activities to raise the pulse (increase HR) <ul style="list-style-type: none"> Jogging forwards Jogging backwards Side steps Skipping High knees Heel flicks 	Activities that take your joints through their full range of movement starting with small movements moving to bigger movements <ul style="list-style-type: none"> Hip circles Arm circles Open the gate Close the gate 	Static Stretches <ul style="list-style-type: none"> Triceps Calf Hamstring Dynamic Stretches <ul style="list-style-type: none"> Lunges Squats Leg swings
Justification of activities/responses to cardiorespiratory and musculoskeletal system	Justification of activities/responses to cardiorespiratory and musculoskeletal system	Justification of activities/responses to cardiorespiratory and musculoskeletal system
Responses to the Cardiorespiratory system: <ul style="list-style-type: none"> - Increased HR - Increased breathing rate - Increased depth of breathing - Increased supply of oxygen to working muscles - Increased removal of lactic acid Responses to the Musculoskeletal system: <ul style="list-style-type: none"> - Increased temperature of muscles - Increased pliability of muscles - Reduced risk of muscle strain 	Responses to the Cardiorespiratory system: <ul style="list-style-type: none"> - Slight drop in HR as intensity lowers - Slight drop in breathing rate as intensity lowers Responses to the Musculoskeletal system: <ul style="list-style-type: none"> - Increased production of synovial fluid in the joints to increase lubrication of joint and range of movement 	Responses to the Cardiorespiratory system: <ul style="list-style-type: none"> - Slight drop in HR and breathing rate for static stretches - Maintained elevated heart and breathing rate for dynamic stretches Responses to the Musculoskeletal system: <ul style="list-style-type: none"> - Extending muscles so they are full stretched reduces injuries (eg. Strains)



Adapting warm ups for different participants/activities	
Participants <ul style="list-style-type: none"> - Varying intensities - Low and high impact - Varying time for the warm up (longer for beginners/those with low fitness levels/50years+) - Types of stretches used (simple for beginners, compound stretch for moderate/advanced participants) 	Activities <ul style="list-style-type: none"> - Introduction of equipment specific to physical activity - Using movements and activities from the physical activity - Stretching the main muscles required for the activity
Delivering a Warm Up	
Organisation and Demonstration <ul style="list-style-type: none"> - Space (area used) - Equipment - Organisation of participants - Timing - Demonstrations 	Supporting Participants <ul style="list-style-type: none"> - Observing - Providing instructions, teaching points and feedback to participants

Subject Content	What students need to learn?	
1.4.1 The options for start-up and small businesses	<p>The concept of limited liability:</p> <ul style="list-style-type: none"> • limited and unlimited liability • the implications for the business owner(s) of limited and unlimited liability. <p>The types of business ownership for start-ups:</p> <ul style="list-style-type: none"> • sole trader, partnership, private limited company • the advantages and disadvantages of each type of business ownership. <p>The option of starting up and running a franchise operation:</p> <ul style="list-style-type: none"> • the advantages and disadvantages of franchising. 	<p><u>Unlimited liability:</u></p> <p>If the business gets into debt, the owner of the business is liable. They will need to find the money to pay off these debts. This could mean they have to sell off their car or house to cover the debt.</p> <p><u>Limited Liability:</u></p> <p>If the business gets into debt, the shareholders are not required to pay these off. The shareholders only lose the money they originally invested in the business, no more.</p>

	Description	Advantages	Disadvantages
Sole Trader	Owned and controlled by one person, who usually also manages the business.	<ul style="list-style-type: none"> • Easy to set up • Own boss • Keep all profits 	<ul style="list-style-type: none"> • Finance difficult to raise • No established reputation • Unlimited liability
Partnership	Controlled and owned by 2-20 people. Each have a share in the business. All or some of the partners manage the business	<ul style="list-style-type: none"> • Shared workload • Share ideas and expertise 	<ul style="list-style-type: none"> • Disagreements • Share profits with partners
Private limited company	Owned and controlled by a group of private individuals. Shares can be sold to family and friends NOT TO THE PUBLIC.	<ul style="list-style-type: none"> • Control over who sell shares to • Seen as reputable due to private limited company status • Limited liability 	<ul style="list-style-type: none"> • Shares can only be sold to family and friends – not as easy to raise finance as a public limited company • Dividends (share of the profits) must be paid to shareholders
Franchising (buying into a franchise like McDonalds)	Paying a franchise owner for the right to an established business name, branding and business methods.	<ul style="list-style-type: none"> • Benefit from brand image • Loyal customers • Greater chance of success then setting up new business 	<ul style="list-style-type: none"> • Royalty payments to franchisor (% of profits goes back to McDonalds) • No freedom to bring in new ideas

Subject Content	What students need to learn?	
1.4.2 Business location	<p>Factors influencing business location:</p> <ul style="list-style-type: none"> ● proximity to: market, labour, materials and competitors ● nature of the business activity ● the impact of the internet on location decisions: e-commerce and/or fixed premises. 	<p>Location</p> <p>This is where the business is based e.g. high street, shopping centre, online.</p> <p>Fixed premises</p> <p>Buildings that have to be where they are (for example, the high street, e-commerce buildings can be located anywhere).</p> <p>Proximity</p> <p>How near a business is to key factors that might influence their success. For example, suppliers and competitors.</p>

Factors influencing business location, proximity to:

Market

How near are they to their customers? E.g. for a physical service like a shop, restaurant or hotel, customer convenience will be critical to revenue.

Labour

Are there staff nearby who are willing and able to work for you?

Competitors

Lots of a businesses want a location far away from competitors e.g. local corner shop. However, some businesses e.g. restaurant chains find it better to be on the busy high street where other competitors are.

Nature of activity

Depending on what the business is will influence what is the most important factor to consider. For example, a manufacturer would need to be near materials, whereas a shop will want to be near the market (consumers).

Impact of the internet

If the business is online, location is not as important as customers can access their products no matter where the head office is based. E.g. ASOS head office is in North London, while their distribution depot is in Barnsley.



Subject Content	What students need to learn?
1.4.3 The marketing mix	<p>What the marketing mix is and the importance of each element:</p> <ul style="list-style-type: none"> • price, product, promotion, place. <p>How the elements of the marketing mix work together:</p> <ul style="list-style-type: none"> • balancing the marketing mix based on the competitive environment • the impact of changing consumer needs on the marketing mix • the impact of technology on the marketing mix: e-commerce, digital communication.

**Product**

Targeting customers with a product that has the right blend of functional and aesthetic benefits without being too expensive to produce.

Price

Setting the price that retailers must pay, which in turn affects the consumer price.

Place

How and where the supplier is going to get the product or service to the consumer, it includes selling products to retailers and getting the products displayed in prominent positions.

Promotion

All the methods the business uses to persuade customers to buy for example branding, packaging, advertising to boost the long term image of the product and

A firm must make sure that its marketing mix is **co-ordinated and coherent**. E.g. a stylish product aimed at a stylish market should have a high price, be promoted in stylish magazines and stocked in stylish shops.

A firm will base their marketing mix on the **competitive environment** in which it operates. E.g. Rolls Royce is not in a very competitive environment as it is one of a kind. EasyJet, however will have to compete with Ryanair on their prices.

Changes to **consumer needs** affect the marketing mix. Firms will have to adapt them based on consumer needs. E.g. cooked breakfast gave way to cereals, cereals have given way to breakfast bars and other on the go foods.

Due to advances in **technology** firms are now changing certain parts of their marketing mix. E.g. Apps, promotions.

Subject Content	What students need to learn?
1.4.4 Business plans	<p>The role and importance of a business plan:</p> <ul style="list-style-type: none"> to identify: the business idea; business aims and objectives; target market (market research); forecast revenue, cost and profit; cash-flow forecast; sources of finance; location; marketing mix. <p>The purpose of planning business activity:</p> <ul style="list-style-type: none"> the role and importance of a business plan in minimising risk and obtaining finance.

A business plan allows a business to:

- Think carefully about each step of the process – maximise success
- May help them realise they are lacking in skills – hire specialist help
- Attract investors if plan is good
- Plan is written down if entrepreneur gets ill

Business plan sections	What is it?
Business idea	What have you decided to do? Product? Service?
Aims and Objectives	What are the aims/objectives for the business?
Target market	Who is your product aimed at and why?
Marketing plan	What promotional activities are you going to do? TV? Billboards? Online? Social media?
Forecasts of revenue, costs and profits	What are your predictions for sales revenue, costs and profits? When do you expect to reach them?
Cash flow forecast	Plan of the money coming in and going out of the business
Sources of finance	How will you raise finance, which methods are you going to use and why?
Location	Where will you be based? Physical store? Online? Both?
Marketing Mix	Product? Price? Promotion? Place?

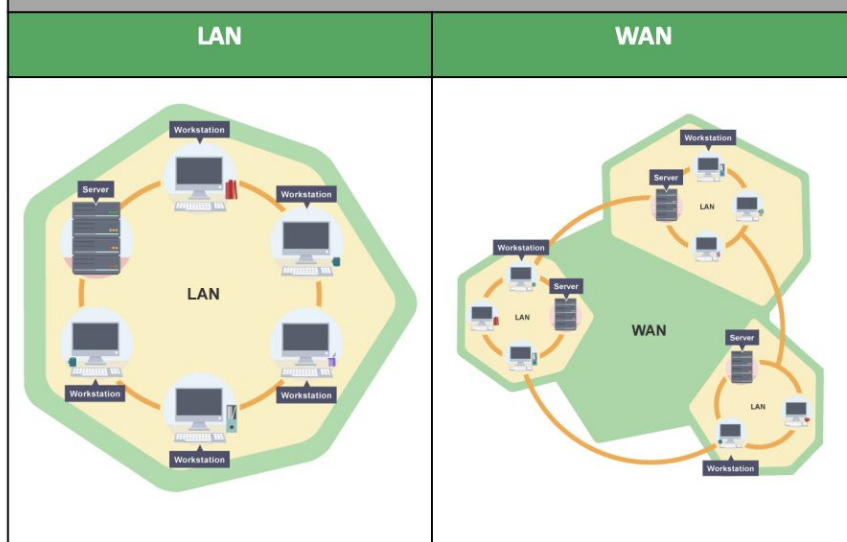
It is a **CRUCIAL** part of getting finance from external sources e.g. a bank loan and helps **COORDINATE** all of the different tasks and strategies, so the business is more likely to be successful



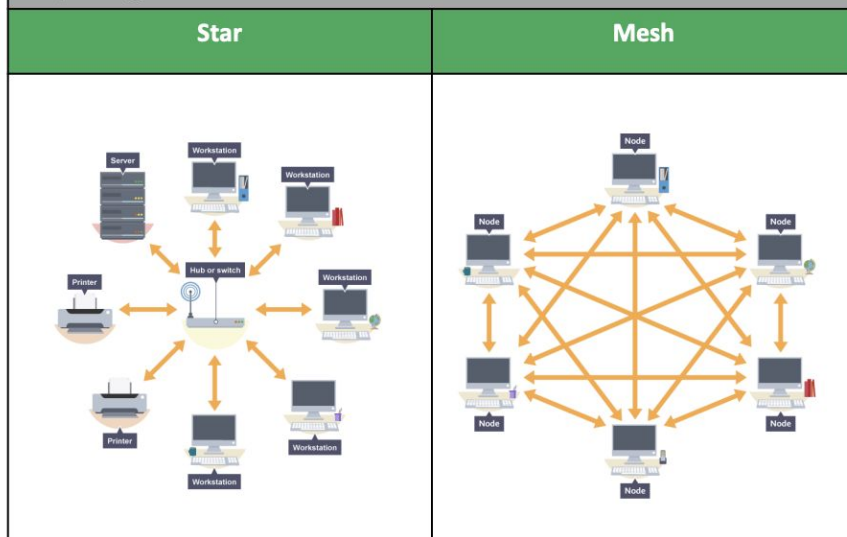
Chemistry Electrolysis/Using and Obtaining Metals Knowledge Grid					
	Question	Answer			
1	Electrolytes	Ionic compounds that are either molten or dissolved in water.	17	Metal reactivity	The tendency of a metal atom to form cations
2	Electrolysis	A process in which electrical energy, from a direct current supply, decomposes electrolytes.	18	The more reactive a metal is...	the more it oxidises.
3	Anode	Positive electrode	19	Ores	A rock made from a compound containing enough metal to make it worthwhile extracting the metal.
4	Cathode	Negative electrode	20	Unreactive metals are found...	as uncombined elements (native) in the ground because they don't react with water or air.
5	At the cathode...	positive cations are attracted and gain electrons (reduction).	21	Extracting metals	Reducing ores by removing the oxygen to get the metal element.
6	At the anode...	negative anions are attracted and lose electrons (oxidation).	22	To extract a metal that is more reactive than carbon	Do electrolysis
7	Rules about the electrolysis of solutions	At the anode, the metal is produced if it is less reactive than hydrogen, or hydrogen is produced. At the cathode, any element from group 7 is produced, or oxygen is produced.	23	To extract a metal this is less reactive than carbon	Heat with carbon
8	How electrons are shown in ionic equations	e ⁻	24	Electrolysis is expensive because	there are lots of steps in the process and it takes a lot of energy.
9	Oxidation	losing electrons	25	Cryolite	The chemical added to aluminium oxide ore to lower the melting point to save energy.
10	Reduction	gaining electrons	26	Word equation for iron ore reduction	iron oxide + carbon → iron + carbon dioxide
11	To purify copper	Use copper electrodes with copper sulfate solution and the pure copper will form on the cathode.	27	Word equation for aluminium ore reduction	aluminium oxide → aluminium + oxygen
12	Reactivity Series	List of metals in order from most react to least reactive	28	Phytoextraction	The extraction of copper from low grade ores by using plants that absorb the ore, then burning the plants.
13	Order of the reactivity series	potassium, sodium, calcium, magnesium, aluminium, (carbon), zinc, iron, (hydrogen), copper, silver, gold	29	Bioleaching	The extraction of copper from low grade ores by using bacteria that absorb copper to form leachate solutions.
14	Order of the reactivity series in symbols	K, Na, Ca, Mg, Al, C, Zn, Fe, H, Cu, Ag, Au			
15	Redox reactions	Reactions that involved oxidation (loss of electrons) and reduction (gain of electrons)			
16	Displacement reactions	Redox reactions when a more reactive chemical displaces a less reactive chemical from a compound.			

Chemistry Calculations Knowledge Grid			
	Question	Answer	
1	Relative formula mass	The sum of the atomic masses	
2	Symbol for relative formula mass	M_r	
3	Percentage composition equation	% composition = $\frac{M_r \text{ of element}}{M_r \text{ of compound}} \times 100\%$	
4	Moles equation	moles = mass \div M_r	
5	Reacting masses calculation method	1. Calculate moles from moles = mass \div M_r 2. Look at the moles ratio from the symbol equation 3. Calculate the mass using mass = moles \times M_r	
6	Empirical formula	The simplest whole number ratio of atoms in a compound	
7	Empirical formula calculation method	- calculate moles uses moles = mass \div M_r - divide all answers by the smallest answer - multiply to make whole numbers (if you need to) - write the formula	
8	Molecular formula calculation method	- Factor = M_r for substance \div M_r for empirical formula - Multiply each number in the formula by the factor	
9	Empirical formula experimental method	Use a crucible, measure the mass before and after, use the empirical formula calculation	
10	Law of conservation of mass	The total mass of reactants is the same as the total mass of the products in a reaction.	
11	Closed system	A reaction in which no chemicals can escape.	
12	Non-closed system	A reaction in an open flask that takes in or gives out a gas.	
13	Precipitate	A substance deposited in solid form from a solution.	
14	Concentration equation	concentration = moles \div volume	
15	Units for concentration	g dm^{-3}	
16	Number of particles in one mole	6.02×10^{23} (Avogadro constant)	
17	One mole of a substance has the mass of...	the relative formula mass in grams.	
18	Limiting reactant	The reactant that is completely used up in an reaction	
19	In excess	The reactant that is not completely used up in a reaction	
20	Stoichiometry	the moles ratio of the amounts of each substance in a balanced equation	
21	To balance equations from masses	- do moles = mass \div M_r for each chemical - simplify the ratio - complete the balanced equation	

Types of network



Topologies



Key vocabulary

Network	A group of interconnected computers/devices.
LAN	Local area network. A network of computers that covers a small area, eg a school or college.
WAN	Wide area network. A network that spans across a building, buildings or even countries, eg the internet.
Client-server	A relationship in which data or web application is hosted on a server and accessed by client computers.
Peer to peer	A relationship where all computers on the network share responsibility and there is no one central server.
WAP	A device that connects computers to a network using Wi-Fi.
Switch	A device for connecting computers and other network capable devices together to form a network.
NIC	Network Interface Controller -A circuit board that is installed in a computer so it can be connected to a network.
Transmission media	How data is carried from point A to point B physically, either by cable or wirelessly.
Ethernet	A set of protocols used in a wired local area network that describes how data is transmitted within it.
Wi-Fi	A method of connecting to the internet wirelessly using radio waves.
Bluetooth	Wireless technology used for transmitting data over short distances.
DNS	Domain name server - an internet service that translates IP addresses into website domain names. All websites have equivalent IP addresses.
Host	A server that stores files for other computers to access.
Cloud	A term often used to describe a location on the internet from which software applications are run and where data is stored.

Key vocabulary

Encryption	Files that are encrypted have been altered using a secret code and are unreadable to unauthorised parties.
IP address	A unique address for each computer device on a network.
MAC address	Media access control - each unique piece of hardware on a network has a MAC address.
Standard	An agreed way of doing things.
Protocol	A set of rules for how messages are turned into data packets and sent across networks.

Layers

Layering means to break up the sending of messages into separate components and activities. Each component handles a different part of the communication. This can be referred to as the Transmission Control Protocol/Internet Protocol (TCP/IP) model.

Layering allows **standards** to be developed, but also to be adapted to new hardware and software over time. For example, different software packages (applications) may use the same transport, network and link layers but have their own application layer. The way the program encodes the message changes - the rest of communication method remains the same.

Common protocols

TCP/IP	Transmission Control Protocol/Internet Protocol - enables communication over the internet.
HTTP	Hypertext Transfer Protocol - governs communication between a webserver and a client.
HTTPS	HTTPS (secure) includes secure encryption to allow transactions to be made over the internet.
FTP	File Transfer Protocol - governs the transmission of files across a network and the internet.
POP	Post Office Protocol - governs the transmission of emails to devices. Once downloaded to the device is deleted from the server.
IMAP	Internet Message Access Protocol - governs the transmission of emails. Stored on server and accessed by devices.
SMTP	Simple Mail Transfer Protocol - governs the sending of email over a network to a mail server.
Layering	In networking, the concept of breaking up communication into separate components or activities.

Encryption

A simple method of encryption requires the use of a technique known as the Caesar cipher. The cipher works by giving a number value to a key. Each plaintext letter is replaced by a new letter, the one found at the original letter's position in the alphabet plus the value of the key. The example uses a key value of 3.

Plaintext	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
Ciphertext	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	a	b	c

Protecting networks	
Form of attack	Prevention
Malware	Anti-Malware software.
Phishing	Training of user to detect scams as well as the filtering of emails.
Brute-force attacks	Use of different strong passwords. A limit on the number of incorrect attempts.
Denial of service attacks	Block IP addresses which send too many requests. Increase capacity.
Data interception and theft	Encryption of data.
SQL injection	Ensuring that all data input is sanitized. (Forcing data to be in the format you want it such as a date, text or integer.)

Key vocabulary	
Malware	Software that is designed to cause harm or damage to a computer. This includes viruses that might damage files, adware that causes pop-ups, and spyware that collects and shares login details.
Social Engineering	Tricking people into giving sensitive data such as PINs or passwords.
Phishing	An attempt to gain personal information about someone by way of deception, eg sending an email pretending to be from their bank asking them for their bank details.
Brute-force attack	Attempting every combination of a password or encryption key until it is correct.
Denial of service attack	An attack designed to render online services inaccessible. One type of this attack involves many computers simultaneously flooding a target with network traffic.
Data interception	Where data is intercepted during transmission. This is done using software called a packet sniffer, which examines data packets as they are sent around a network.
SQL Injection	Where SQL code is entered as a data input. Many databases use SQL code to interrogate the data and maintain the structure. SQL code can be inputted as data, which can cause errors or unintended operations.
Penetration testing	Systems are tested for vulnerabilities to reveal any weaknesses in the system which can be fixed.
Anti-malware	A type of computer program which detects, prevents and removes malware on a system.
Firewall	An application that prevents unauthorised connections to and from the Internet.
User-access level	These are the permissions given to a user to access facilities on a computer.
Encryption	Files that are encrypted have been altered using a secret code and are unreadable to unauthorised parties.

Vocabulary of Voice

Monotone – One tone

Clarity – All words are audible and enunciated (said fully and clearly)

Volume – Loud or quiet

Accent – Changes in way you say words depending on where you live and/ or social class

Pace (speed), pause (stopping for a moment) and pitch (high or low)

Emphasis – making certain words stand out

Intonation – The rise and fall of the voice

Tone – the feeling in your voice

Component 1 Questions

What was your initial response to the stimuli and what were the intentions of the piece?

What work did your group do in order to explore the stimuli and start to create ideas for performance?

What were some of the significant moments during the development process and when rehearsing and refining the work?

How did you consider genre, structure, character, form, style and language throughout the process?

How effective was your contribution to the final performance?

Were you successful in what you set out to achieve?

Genre - a category or 'type' given to plays based upon the conventions used e.g. tragedy, comedy, farce and melodrama.

Structure –The arrangement of, and relationship between, the parts of a play e.g. scenes, acts and cyclical.

Character - a person portrayed in a drama, novel, or other artistic piece.

Form and style – Drama techniques

Language - Words

GCSE DRAMA – COMPONENT 1**Vocabulary of Physicality**

Every – Eye contact: Looking at the audience or another performer

Friday – Facial expressions: using your face to express feelings

My –Movement: moving your body/ body parts from one place to another

Naughty – Non-verbal communication: communicating meaning without using words

Brother – Body language: using your body to communicate meaning

Puts – Pace (speed) and pause (stopping for a moment)

Grandma's – Gesture – the way you move your hands

Massive – Mannerisms: something someone does with face or body repeatedly

Slippers – Stillness: no movement

Sentence Stem

As a performer,

As a director,

As a designer,

Describe – to use drama words to create a picture of what you did/ saw.

When we/ I/ they (link to "extract" and describe the drama).

Analyse – in depth understanding drawing out layers of meaning.

Evaluate – a well justified judgement.

This effectively communicates (explain/ analyse the drama with link to purpose/ intentions) to the audience.

Challenge: Vary evaluative word by identifying what it made the audience think and feel e.g. shocking.

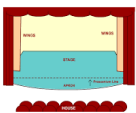



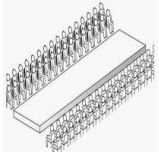

Self Quiz – LOOK, COVER, WRITE, CHECK & CORRECT

Use the acronym and mnemonic to help you remember key vocabulary and definitions.

Use the definitions to ensure you understand the questions you will answer in your portfolio.

Think about recent practical work, use the sentence stems to describe , analyse and evaluate the process and performance.

GCSE Drama – Theatre

Stage Type	What does it look like?	Advantages and disadvantages
Proscenium arch		Advantages: Excellent sight lines, excellent staging and set possibilities, traditional form of theatre. Disadvantages: Audience feel removed because of fourth wall, set can be limited to existing structure.
End on		Advantages: Excellent sight lines, more inclusive experience than PA for the audience. Disadvantages: Quite minimal so limits set
Thrust		Advantages: Audience have an immersive and inclusive experience, visually interesting. Disadvantages: sight lines and limited set and staging.
Theatre in the round		Advantages: Audience have an immersive and inclusive experience, visually interesting. Disadvantages: sight lines and limited set and staging.
Traverse		Advantages: Audience have an immersive and inclusive experience, visually interesting, audience can see each other Disadvantages: sight lines mean audience might see two different shows, limited set and staging.
Promenade		Advantages: Audience have an immersive and inclusive experience, locations can complement the work, an alternative theatre experience. Disadvantages: non-linear, fragmented plot, break intension.

Self Quiz: **LOOK, COVER, WRITE, CHECK & CORRECT**

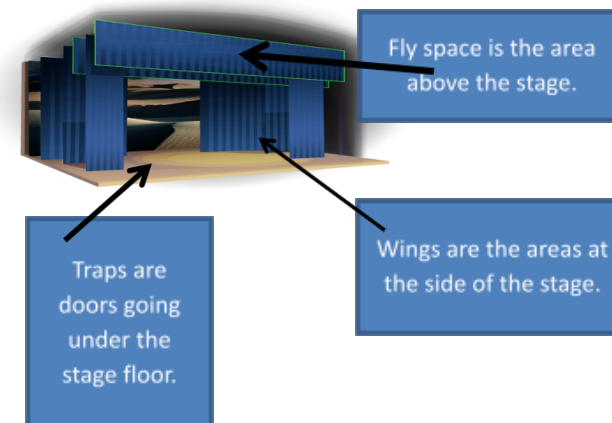
List the stage types and describe the audience position.

Identify advantages and disadvantages for both.

Draw and label a stage



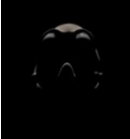


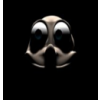









Wooden flats create set walls.



D R A M A

Theatre Lighting

1. Lanterns and lighting states		2. Lighting and lighting angles	3. Colour and effects
Fresnel – A common lantern with soft edges. A series of fresnels can evenly cover the stage with light to create a 'wash'. Coloured gels can be used. Barn doors can be used to focus the light.		Front light Back light  	 Warm Neutral Cool
Profile – This lantern is long and thin and can be used to create spotlights. A shutter and gate mechanism allow control over the beam of light to sharp or soft edge. Gobos can be used with profile lanterns.		Down light Up light  	Coloured lighting gels 
Flood – This lantern produces a clear wide-angled light, but there's little control over the spread of the light. Coloured filters can be used with this lamp.		Side light 	Gobos create patterns 
Par can produces a strong beam of light that is suitable for creating bold colours on stage. Par cans can be identified by their rounded shape. Coloured filters can be used with this lantern.		Hand held lighting and pendant bulbs hanging in fly space. 	Strobes rapidly pulse to create a special effect (for example to make the actors appear like they are moving in slow motion).
Keywords: lantern, lighting states, colour, intensity, soft focus, sharp focus, shadows, series, beam.			
Self Quiz – LOOK, COVER, WRITE, CHECK, & CORRECT lanterns and lighting states table 1. List the reasons lighting is used in theatre. 2. Reflect on a theatre production you've seen. Can you identify the lighting used? What was the reason for this decision? What was the effect on the audience?			

ACCESS FM Analysing a Product

Aesthetics

Does the product look good?
Does it make good use of colour and texture?
What has inspired its appearance?
(E.g. is it organic? Is it industrial?)

Cost

What is the estimated cost of the product?
What is the retail price?
What is the relationship between the two?
Is the product affordable?
Does it offer value for money?
What is the product's cost in relation to the income of potential buyers/users?

Safety

How has the designer considered safety issues in the products design?
Think about the ways it is being used and how different parts have been joined together.
Are there any risk assessment issues in relation to the use of the product?

Size

Are the product's proportions appropriate for its use?
If you increased or decreased the products size, would it look or function better?

Customer

Who is the product designed for?
How and where would they use it?
What effect will it have on their lives and relationships?
Will it add value?
How is the product promoted to attract customers?
Has the designer considered how people will interact with the product?
Does the product target a particular age group or sector of people?
What assumptions have been made about the potential buyers/users?

Environment

What is the product's impact on the environment?
What happens to the product after use?
How long will it last?
What factors limit/lengthen its life span?
Can it be repaired? Can parts be replaced?
How easily can it be recycled?
Who would pay for the cost of recycling?

Function

Does the product do the job it was intended to do?
How does it work?
How easy is it to use?
What effects will using it have, including those beyond intended use and user?

Material

What materials are used to make the product and why?
Would another type of material work better?
What impact could the designers choice of material have on the environment?
Where do the materials and other resources needed for production come from?
Are they likely to run out?

What do you like / dislike about the appearance?	How do you think this design appeals to your target user?	How is this design environmentally friendly / sustainable?	Have you labelled the design with measurements?	Are there any safety issues you need to point out?
What could you do to make this design look better?	<h2>Annotating Design Ideas</h2>			What are the functions/features of this design idea?
What materials are you going to use to create this design?				Why have you chosen these materials?
What joints/fixings will be used to create this design?				How could you make this design safer?
What tools/machines/processes could be used to create this?				Are there any functions / features you could add?
What could you do to make this design more sustainable?	What finishes would you apply to this design to achieve its appearance?	What could you improve about the design?	Why are you using the materials you have suggested?	How are you going to make sure it is accurate?

Evaluating and testing - Testing and evaluation should be continually carried out and used to modify a designer's ideas throughout the whole **iterative design** process

Client feedback - Have a clear idea of what the target users are looking for, initial ideas may have been misinterpreted

Target market feedback - Honest and critical feedback at the prototype stage can offer developments

Expert opinion - Professionals in industry can provide insightful and appropriate feedback

Analysing testing results - To record their findings, designers will take pictures and written notes from observations of users operating or wearing their product, as well as gathering users' opinions on this experience.

Qualitative data - is information that cannot be measured and is often based on opinion, for example favourite colour

Quantitative Data - is information that can be measured and written down with numbers, for example length

Face to face - **conversational interviews** give designers the chance to ask questions and help users form an opinion by offering options for new iterations

Against specification - This is where a specific list of **criteria** is written that a designer can follow as a set of rules. During the iterative design process, this specification should be referenced to and designs evaluated against it to ensure the final solution is the best fit.

What are you describing?

Line
Colour
Shape
Form
Pattern
Decoration
Surface
Texture
Space
Functional elements
Prototype
Features
Motion

harmony
balance
emphasis
neutral
integrated

Descriptive words

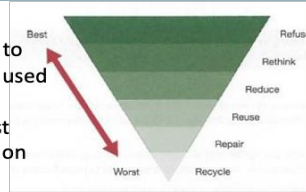
feminine - masculine
futuristic - nostalgic
elegant - not elegant
mature - immature
dynamic - static
simple - complex
streamlined - rugged
steady - unsteady
contemporary - traditional
avant-garde - conservative
formal - casual
delicate - rough
dazzling - ordinary
rational - emotional
reliable - unreliable
innovative - imitative
heavy - light
varied - monotonous
truthful - exaggerated
consistent - inconsistent

aggressive - submissive
old - young
cold - warm
comfortable - uncomfortable
excited - calm
strong - weak
soft - hard
organic - mechanical
smooth - sharp
flat - curved
straight - fluid
functional - ornamental
detailed - plain
volume/ bulbous/ bulging
unified
stylized
peculiar
rare
innovative/novel/radical
unity

Sustainability and the 6 R's

The 6 R's

The 6 Rs are an important checklist. They are used by designers to reduce the environmental impact of products. They can also be used to evaluate the environmental impact of other products. The hierarchy of sustainability places the strategies that are best for the planet about those that have a greater negative impact on the environment.



1. Refuse

The first stage in the process is to ask whether the proposed product, part, purchase or even journey is required at all. Asking the question 'Is it really necessary?' can play a major role in reducing the demand on materials. Simply not using something saves 100% of what you have chosen not to use. Example include:

- Using your own carrier bag rather than purchasing a new one.
- Walking or cycling to school instead of being driven.
- Not using products such as some pesticides that are known to be harmful to the environment.
- Not eating (or using) products that are over-farmed, over-fished or on the endangered list.

2. Rethink

Consumers have a growing number of choices to make about where and on what they spend their income. Greener and more sustainable options are not always the cheapest or the best, but making informed decision and rethinking ones spending power can play a huge part in conserving resources.

Deciding on the design of a product, e.g. the materials being used in its production, will directly affect its sustainability. The types of questions designers need to ask are:

- Are the materials locally sourced?
- Are they sustainably produced?
- Is it essential to use this material, of which there is a finite supply?

By rethinking how the product is likely to be made, the product can often be redesigned in a more responsible way.

3. Reduce

Reduction is often the result of having re-thought a design or action. Materials and energy are saved due to efficient manufacturing practices and the use of clever design, incorporating sustainable materials.

- Modern materials that are lighter and stronger than traditional ones have contributed to the miniaturisation of products, saving material and energy in manufacture and use.
- Reducing the complexity or number of parts a product uses and reducing the number of different materials in a product makes recycling easier.
- In factories, schools and hotels, fitting motion sensitive lighting and smart heating systems can significantly reduce energy usage.
- Many large companies employ staff to conduct 'energy walks' to turn off unused appliances and lights and to ensure windows and doors are shut to conserve heat.

4. Reuse

Reusing products multiple times for the same purpose is also known as **primary recycling**. Reusing a product in a different way from the one it was designed for is known as **secondary recycling**. The classic glass milk bottle is reused many times before it reaches the end of its useful life, as which point it is recycled. A plastic milk bottle, however, is intended to be used only one, although it can have many different subsequent uses.

Donating to and buying from charity shops extends the life of products and in recent years there has been a resurgence of in products having second lives, thanks to websites such as eBay, Freecycle or Gumtree.



It is also becoming popular for furniture and other household items to be **upcycled** with a coat of paint and some minor repairs or adaptations, extending their useful life by many years.

5. Repair

Being able to repair a product when it is broken or worn is a way of extending its life and delaying the purchase of a new one. Repairing is a positive option over replacement as it means that only some parts of the product are replaced. This creates jobs for skilled people who conduct repairs and stimulates a spare parts market.

Unfortunately, repairing products has become harder over years. Growing number of products are not design to be repaired. There are a number of reasons why items may be designed this way, but it is usually because they are cheaper to replace than repair. Some products, especially modern electronic products, are designed to last only a few years as technology dates quickly and older products will be superseded by newer, faster, more efficient models. This is called **planned obsolescence**.

6. Recycle

Tertiary recycling, although a very important stage, is lower down the hierarchy of preferred options because most materials that are recycled this way tend to be of lower quality than the original material. It takes a lot of energy to recycle materials.

This form of recycling requires the reprocessing of the material and in many cases involves chemicals and/or heat to recover the recycled materials. In an ideal world, tertiary recycling would remove all recyclable materials from our household waste so that only biodegradable materials would be left. Only very few parts of the world are set up to cope with this level of processing.

7. Sustainability

Our planet has to provide all of our basic human needs, such as food, shelter and warmth.

Designers now have a much better understanding of which materials are sustainable and which are not. The general principle is that resources fall into two categories:

Finite resources – are ones which are in limited supply or cannot be reproduced.

Non-finite resources – are ones which are in abundant supply and are unlikely to be exhausted.

8. Recyclable materials

Once all useful and recyclable materials are removed, the majority of the remaining waste is organic matter and can be processed in one of two ways; '**Recover**' or '**Rot**'. Food waste and garden waste can be processed at a high temperature and turned into compost. The waste can also be buried in **landfill** sites where the resulting methane gas from the rotting matter is collected and burned and used to generate heat or electricity in the same way.

Materials

1. Woods

Man-Made Woods

Medium density fibreboard (MDF)

Description
• Has a smooth, even surface
• Easily machined and painted
• Available in water and fire-resistant form
• Often veneered or painted to improve its appearance

Uses
• Furniture and interior paneling

Chipboard

Description
• Made from chips of wood glued together with urea formaldehyde (glue)
• Usually veneered with an attractive hardwood or covered in plastic laminate

Uses
• Kitchen and bedroom furniture
• Shelving and general DIY work

Plywood

Description
• A very strong board, constructed of layers of veneer or plies, which are glued together with the grains at 90° to each other
• Interior and exterior grades available.

Uses
• Furniture making
• Boat building and exterior work

Hardboard

Description
• A very cheap particle board
• Can have a laminated plastic surface

Uses
• Kitchen unit and furniture back panels

Hard Woods

Oak

Description
• A very strong, light-brown wood
• Open grained
• Very hard, but quite easy to work with

Uses
• High quality furniture
• Beams used in building
• Veneers

Mahogany

Description
• Reddish-brown in colour
• Easy to work with

Uses
• Indoor furniture
• Shop fittings
• Bars
• Veneers

Beech

Description
• A straight-grained hardwood with a fine texture
• Light in colour
• Very hard but easy to work with
• Can be steam bent

Uses
• Furniture
• Toys
• Tool handles

Ash

Description
• Open grained
• Easy to work with
• Pale cream colour, often stained black
• Can be laminated (i.e. sliced into veneers which are glued together)

Uses
• Tool handles
• Sports equipment
• Furniture
• Ladders
• Veneers

Soft Wood

Pine

Description
• Pale yellow coloured with dark lines and a fine, even texture.
• Medium in weight
• Stiff and stable
• Inexpensive

Uses
• Readily available for DIY work
• Mainly used for constructional work and simple joinery
• Furniture

2. Plastics

Acrylic



Properties:
• Hard wearing
• Will not shatter
• Can be coloured
• Bathtubs, School Projects, Display signs

Polypropylene



Properties:
• High impact strength
• Softens at 150°C
• Can be flexed many times without breaking
• School chairs, Crates

High Impact Polystyrene (HIPS)



Properties:
• Light but strong
• Widely available in sheets
• Used for casings of electronic products

Polythene (LDPE)



Properties:
• Weaker and softer than HDPE.
• Lightweight
• Carrier Bags + Squeezable Bottles

Polythene (HDPE)



Properties:
• Stiff strong plastic
• Used for pipes and bowls
• Buckets

Urea formaldehyde



Properties:
• Colourless plastic
• Can be coloured
• Door and cupboard handles, Electrical fittings

3. Material Properties

Strength

The ability of a material to stand up to forces being applied without it bending, breaking, shattering or deforming in any way.

Elasticity

The ability of a material to absorb force and flex in different directions, returning to its original position.

Ductility

The ability of a material to change shape (deform) usually by stretching along its length.

Malleability

The ability of a material to be reshaped in all directions without cracking.

Hardness

The ability of a material to resist scratching, wear and tear and indentation.

Toughness

A characteristic of a material that does not break or shatter when receiving a blow or under a sudden shock.

3. Metals

Aluminium



Properties:
• Light Weight
• Light grey in colour
• Can be polished to a mirror like appearance
• Rust resistant

Mild Steel



Properties:
• Heavy
• Dark grey in colour
• Rusts very quickly if exposed

Stainless Steel



Properties:
• Heavy
• Shiny appearance
• Very resistant to wear / rust.

Cast Iron



Properties:
• Be melted pig iron with some quantities of other metals
• Strong in compression.
• Brittle

Copper



Properties:
• Reddish brown metal.
• Soft
• Excellent conductor of heat and electricity

Brass



Properties:
• Yellow metal
• Hard
• Alloy

4. Composites

Carbon Fibre

Expensive in comparison to other materials.

Very good strength to weight ratio.

Used in the manufacture of high end sports cars and sports equipment.



GRP Fibreglass

GRP is composed of strands of glass which are woven to form a flexible fabric. The fabric is normally placed in a mould and polyester resin is added.

Glass reinforced plastic is lightweight and has good thermal insulation properties. It has a high strength to weight ratio



Papers and Boards

1. Paper

Type	Description and uses
Layout paper	<ul style="list-style-type: none"> lightweight, thin white paper used for initial ideas takes colour media well low cost
Tracing paper	<ul style="list-style-type: none"> thin, translucent paper making copies of drawings high cost
Cartridge paper	<ul style="list-style-type: none"> good quality white paper available in different weights general purpose work can be used to make simple models medium cost
Bleedproof paper	<ul style="list-style-type: none"> smooth, hard paper used with water-based and spirit-based felt-tip pens medium cost
Grid paper	<ul style="list-style-type: none"> printed square and isometric grids in different sizes a guide for quick sketches and working drawings low cost

2. Selection of materials or components

When selecting materials and components considering the factors listed below:

- Functionality: application of use, ease of working
- Aesthetics: surface finish, texture and colour.
- Environmental factors: recyclable or reused materials, product mileage.
- Availability: ease of sourcing and purchase.
- Cost: bulk buying.
- Social factors: social responsibility.
- Cultural factors: sensitive to cultural influences.
- Ethical factors: purchased from ethical sources such as FSC.

What is the FSC? <http://www.fsc-uk.org/en-uk/about-fsc/what-is-fsc/fsc-principles>

3. Boards

Type	Description and uses
Corrugated card	<ul style="list-style-type: none"> strong and lightweight used for packaging protection and point of sale stands available in different thicknesses
Duplex board	<ul style="list-style-type: none"> large foam-based board different finishes available including metallic and hologrammatic used for food packaging, e.g. take-away pizza boxes
Foil lined board	<ul style="list-style-type: none"> quality cardboard with a aluminium foil lining ideal for ready made meals or take away meal cartons The foil retains the heat and helps keep the food warm
Foam core board	<ul style="list-style-type: none"> very light, very stiff and very flat. It has a white, rigid polystyrene foam centre, with smooth white paper laminated onto both faces. It is easy to cut with a knife, a mount cutter or on a wall cutter great for modelling
Ink jet card	<ul style="list-style-type: none"> Has been treated so that it will give a high quality finish with inkjet ink available in matt and gloss
Solid white board	<ul style="list-style-type: none"> top quality cardboard made from quality bleached wood pulp. used for hard backed books and more expensive items excellent print finish

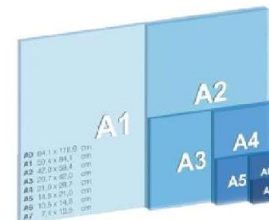
4. Paper and Boards- Stock sizes and weights

Paper and board is available in sizes from A0 (biggest) to A7 (smallest). The most common size is A4.

Each size is half the one before, eg A4 is half the size of A3.

They are also sold by weight: GSM – grams per square metre.

Card thickness or calliper is traditionally measured in **Microns**. 1000 **Microns** = 1mm, so the higher the value, the thicker the card or paper.



5. Properties of paper and boards.

Type	Weight or thickness	Uses	Relative cost (10= high)
Newsprint	50gsm	Newspapers	1
Layout Paper	60gsm	Sketches and tracing	3
Tracing Paper	70 gsm	Tracing	4
Sugar Paper	90gsm	Cheap mounting work	2
Inkjet/Photo paper	150-230gsm	Photos/Pres entations	9
Board (Card)	230-750 microns	Model-making	5
Mount Board	230-1000 microns	Model-making, High picture quality mounting	9
Corrugated Card	3000-5000 microns	Packaging protection	5

7: KEY WORD FOCUS

You should be able to explain the meaning of each of these words by the end of this rotation.

GSM	Grams per Square Metre
Microns	Thickness of paper or card. 1000microns =1mm thickness

Textiles

1. Fabrics

Natural Fabrics

Cotton	Soft, good absorbency, prints well, machine washable, strong breathable	Origins from the Cotton Plant.	Uses: Jeans, towels, Shirts, dresses, underwear
Wool	High UV protection, flameproof, breathable, durable insulating	Origins from Sheep.	Uses: Jumpers, Coat, blankets
Silk	Smooth, Soft, Strong	Origins from the silk worm.	Uses: Wedding dresses, lingerie.
Linen	Strong, cool in hot weather	Origins from the flax plant	Uses: Trousers, tops.
Leather/Suede	Strong, hardwearing, durable.	Origins from the skin of animals, mainly cows.	Uses: Jackets, Trousers, Shoes.

Synthetic fabrics

Polyester	Durable, wrinkle resistant, stain resistant	Uses: Shirts, jackets. Also used in safety belts, conveyor belts and tyre reinforcement.
Polyamide (Nylon)	Durable, high abrasion resistance	Uses: Sportswear, carpets.
Elastane (Lycra)	Stretchy, durable, high stain resistance	Uses: Sportswear, Swimwear, tights.
Viscose	Soft, comfortable, absorbent, easily dyed.	Uses: Dresses, linings, shorts, shirts, coats, jackets and outerwear.
Acrylic	Absorbent, retains shape after washing, easily dyed, resistance to sunlight.	Uses: Jumpers, tracksuits, linings in boots.

1. Fabrics

Blended and mixed Fabrics

These fabrics take on the positive characteristics of their combinations


Cotton/Polyester	Easy care and crease resistant	Uses: School shirts.
------------------	--------------------------------	----------------------

2. Fabric Construction



Woven

Plain Weave	Extremely strong and hard wearing	
Twill Weave	Extremely high strength and abrasion resistant.	

Knitted

Knitted fabrics	Stretchy, soft and comfortable.	
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Non-Woven

Bonded Fabrics	These are webs of fibres held together by glue or stitches.	
Felted Fabrics	Felt is made by combining pressure, moisture and heat to interlock a mat of wool fibres.	

3. Care Labels



Washing Label- will usually have a max. temp number included



Hand Wash only



Do not wring out



Tumble Dry



Iron on low heat. The more dots the higher the heat setting



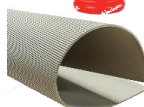
Do not bleach

Smart and Modern Materials

1. Modern Materials

1.Corn Starch Polymers – plastics that are **biodegradable** and not toxic to the environment. They are easy to recycle.

Name	Uses	Characteristics
Polylactic acid (PLA)	<ul style="list-style-type: none"> Disposable food and drink containers 3D Printed Items 	<ul style="list-style-type: none"> Smooth or textured finish. Easy to Colour Easy to mould Fully biodegradable
Polyhydroxybutyrate (PHB) Biopol™	<ul style="list-style-type: none"> Bottles Pots Disposable food containers 	<ul style="list-style-type: none"> Smooth or textured finish. Easy to Colour Easy to mould Fully (but slowly) biodegradable.



2.Flexible MDF – Is made from wood pulp fibres in the same way as standard MDF, with the addition of grooves cut along the length of the board leaving about 2mm of the MDF intact which allows the MDF to become flexible.

3.Titanium – Pure titanium does not react with the human body and is used by the medical profession for artificial joints and dental implants. It has a high strength to weight ratio and has excellent corrosion resistance.





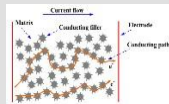


4.Graphene – thinnest material ever discovered, a million times thinner than a human hair, 200 times stronger than steel. It is transparent, impermeable and highly conductive.

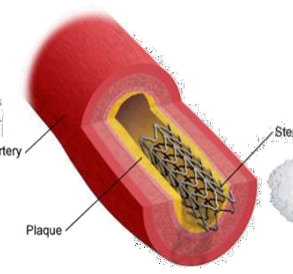
5.Nanomaterials - Their use in electronics has helped miniaturisation whilst improving conductivity. IN the textiles industry, they have been used as protective coatings to improve water resistance and give UV protection.

6.Metal Foams - Porous metal structures, often made from Titanium and Aluminium use as little as 25% of the mass. This makes them extremely lightweight but retaining most of the properties of the base material.

2. Smart Materials

A material that reacts to an external stimulus or input to alter its functional or aesthetic properties.. They can react to heat, light, pressure, moisture and electricity.

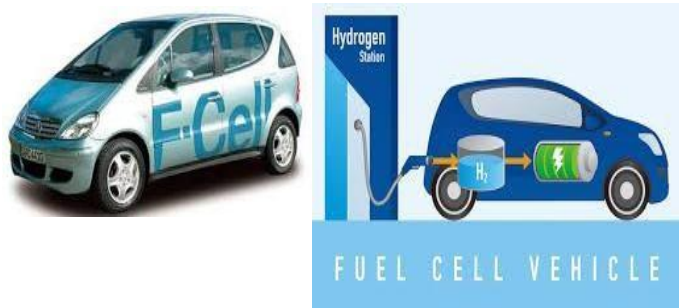
Name	Stimulus	What is does?	Uses
2.1 Thermochromic pigments	Heat	Changes colour when heat is applied.	<ul style="list-style-type: none"> Flexible thermometers Temperature indicators Novelty goods 
2.2 Photochromic pigments & particles	UV Light (Natural Light)	Changes colour in sunlight/UV Light	<ul style="list-style-type: none"> Transition Lens Sunglasses Nail varnish Clothing Novelty goods 
2.3 Shape memory alloy Nitinol	Heat or Electricity	Returns to original/pre set shape when heated to 70°C or electricity is applied.	<ul style="list-style-type: none"> Glasses Frames Fire Sprinklers Dental Braces Surgical Stents 
2.4 Polymorph	Heat	Becomes mouldable by hand when heated to 62°C	<ul style="list-style-type: none"> Personalisation of products Repairs Prototyping & Modelling 
2.5 Quantum Tunnelling Composite	Pressure	Varies the amount of electrical current depending on pressure applied.	<ul style="list-style-type: none"> Touch sensitive pads Wearable technology Variable speed controls 
2.6 Piezoelectric Material	Movement, stress or electricity	Stress or movement produces electrical signal or <i>vice versa</i> .	<ul style="list-style-type: none"> Mobile phone speakers and microphones Gas Lighters ignition spark 
2.7 Litmus Paper	Levels of PH in substances.	Changes colour depending on chemical balance.	<ul style="list-style-type: none"> Scientific experiments Soil testing for gardener/farmers Testing swimming pools and fish tanks 



New and Emerging Technologies

New technologies are those that are currently being developed or will be developed in the next 5 to 10 years, and which will alter the business and social environment.

Examples: **Fuel-cell vehicles** Zero-emission cars that run on hydrogen.



Additive manufacturing

The future of making things, from printable organs to intelligent clothes



Automation and the use of robotics

As industry has grown new and emerging technologies have changed the way designers, architects and engineers work.

Intelligent machines and robotics have replace machine operators and engineers.

The development of work now almost always involves the use of **Computer Aided Design (CAD)**.

This software can carry out complex tasks such as virtual stress testing this is called **Computer Aided Testing (CAT)**.

Designs can be produced to look 3D so customers can give opinions before **prototyping** begins.

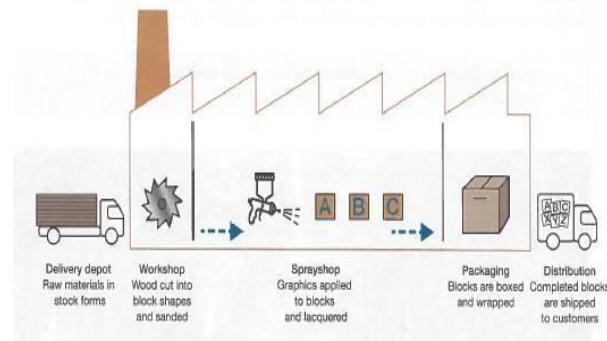
Buildings and the place of work

The development of the internet has changed how data is transferred. This has lead to people being able to work together remotely (from different buildings or countries).

Projects can be sent to machines using **computer aided manufacturing (CAD)** techniques including **computer numerical control (CNC)** machines such as laser cutters and rapid prototyping (RPT) machines such as 3D printers.

Physical layout of buildings for production should be logical to increase efficiency. This will reduce unproductive time, movement and waste materials.

Here is an example of a simplified production line that might produce wooden blocks.



Enterprise

An idea that is developed into a business proposal for a product that has commercial viability.

Products developed in this way require a patent to protect the idea so that other companies cannot use it without permission this is called a registered trademark.



Co-operatives

A farm, business, or other organization which is owned and run jointly by its members, who share the profits or benefits.

Crowdfunding

Funding a project or venture by raising money from a large number of people who each contribute a relatively small amount, typically via the Internet.

Virtual marketing and retail

Virtual marketing the use of search engines positioning and ranking, banner advertising, e-mail marketing and social media in order to reach a wider audience to promote a product.



Fairtrade

Trade between companies in developed countries and producers in developing countries in which fair prices are paid to the producers.

People, Culture and Society

People

Consumer Choice

Growth of global manufacturing has lead to a wider variety of products being available, prices of products are kept low because of the wider competition.

Technology Push

Advances in technology and science lead to the development of new products. Research and Development (R&D) Departments are used within large companies to ensure they can create new and exciting products.

1993 APPLE NEWTON PDA



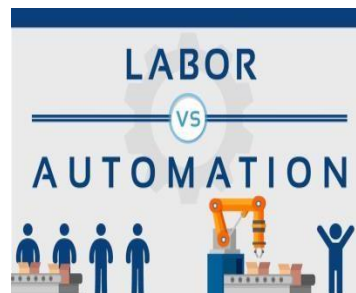
1996 PALM SERIES



2012 SAMSUNG GALAXY



Advances in touchscreen technology



Society

Companies putting the environment and people before profit. Examples:

- Carbon Neutral Products
- Use of renewable materials
- Reduction of carbon emissions/greenhouse gasses
- Use of recycled materials
- Products designed to be 100% recyclable
- Promotion of Fairtrade
- Reduction of transportation
- Non profit organisations that reinvest money to support good causes
- Consideration to designing products for the elderly or disabled
- Consideration to different religious groups

4 main ways to consider the population when designing

Type of Production	Example
One size fits all	Door Frames Baths
A range of sizes to cover all	Shoes Clothes
Adjustability to allow use by all	Car Seats Shower head height
Adaptability to support location or user	Children's booster seats Car roof bars

Culture

A combination of ideas, beliefs, customs and social behaviours of a society or group of people.

Fashion and Trends


Designers developing products that are influenced by 'the latest thing'.

Faiths and Beliefs

Designers being responsible for the impact their design choices may have on a community.

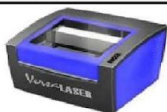
Production techniques

1. CAD – Computer Aided Design

Advantages of CAD	Disadvantages of CAD
Designs can be created, saved and edited easily, saving time	CAD software is complex to learn
Designs or parts of designs can be easily copied or repeated	Software can be very expensive
Designs can be worked on by remote teams simultaneously	Compatibility issues with software
Designs can be rendered to look photo-realistic to gather public opinion in a range of finishes	Security issues - Risk of data being corrupted or hacked
CAD is very accurate	 CAD Software
CAD software can process complex stress testing	

2. CAM – Computer Aided Manufacturing

Advantages of CAM	Disadvantages of CAM
Quick – Speed of production can be increased.	Training is required to operate CAM.
Consistency – All parts manufactures are all the same.	High initial outlay for machines.
Accuracy – Accuracy can be greatly improved using CAM.	Production stoppage – If the machines break down, the production would stop.
Less Mistakes – There is no human error unless pre programmed.	Social issues . Areas can decline as human jobs are taken.
Cost Savings – Workforce can be reduced.	



Laser Cutter



Robots



Barcode Scanner



AGV – Automated Guided Vehicle

3: Production Techniques

3.1 Flexible Manufacturing Systems (FMS) : involves an assembly of automated machines commonly used on short-run batch production lines where the products frequently change.

3.2 Lean Manufacturing: It aims to manufacture products just before they are required to eliminate areas of waste including:

- Overproduction
- Waiting
- Transportation
- Inappropriate processing
- Excessive inventory
- Unnecessary motion
- Defects

3.3 Just In Time (JIT) : Items are created as they are demanded. No surplus stock of raw material, component or finished parts are kept.

Advantages of JIT	Disadvantages of JIT
No warehousing costs	Reliant on a high quality supply chain
Ordered secured before outlay on parts is required	Stock is not available immediately off-the-shelf
Stock does not become obsolete, damaged or deteriorated	Fewer benefits from bulk purchasing

4. Scales of Production

One off: when you make a unique item

Batch: when you make a few/set amount

Mass: when you make thousands

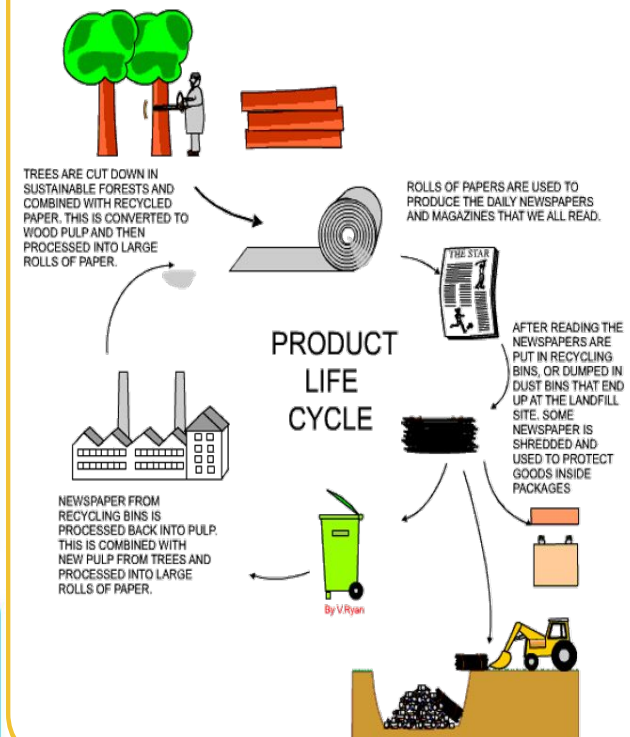
Continuous: open ended production

1.Planned obsolescence - Planned obsolescence is when a product is deliberately designed to have a specific life span. This is usually a shortened life span.

2.Design for maintenance - Products are often designed to be thrown away when they fail... This can be achieved by designing products that can be repaired and maintained.

3.Disposability – Some products are designed to be disposable.

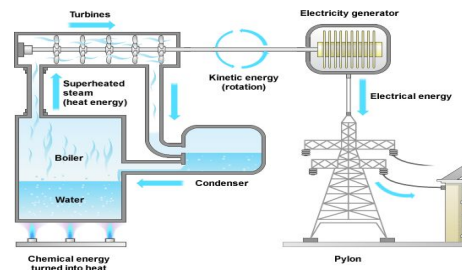
4. Product Lifecycle -



Energy systems

Energy Types

1. Fossil Fuels – Non-renewable energy



In a thermal power station fuel such as coal, oil or gas is burned in a furnace to produce heat - chemical to heat energy.

- this heat is used to change water into steam in the boiler.
- the steam drives the turbine - heat to kinetic energy
- this drives the generator to produce electricity - kinetic to electrical energy.

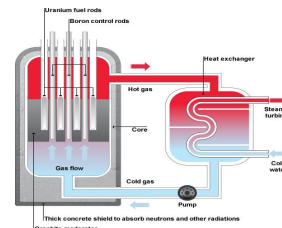
Some experts believe that fossil fuels will run out in our lifetime.

Energy Types 2. Biomass Energy –Renewable



Biomass is an industry term for getting energy by burning wood, and other organic matter. Burning biomass releases carbon emissions, but has been classed as a renewable energy source in the EU and UN legal frameworks, because plant stocks can be replaced with new growth.

3. Nuclear Energy – Renewable energy Energy Types



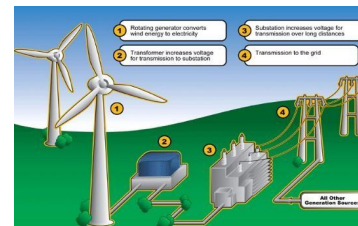
The main nuclear fuels are **uranium** and **plutonium**. In a nuclear power station nuclear fuel undergoes a controlled chain reaction in the reactor to produce heat - nuclear to heat energy.

- heat is used to change water into steam in the boiler.
- the steam drives the turbine (heat to kinetic energy)
- this drives the generator to produce electricity - kinetic to electrical energy.

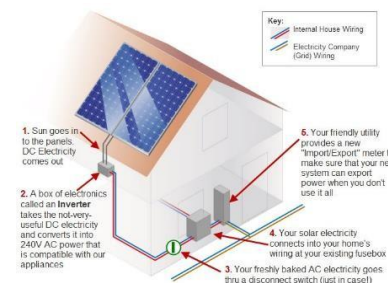
Energy Types 8. Batteries

Alkaline batteries are the most common type of domestic batteries, they are disposable but contain chemicals that are bad for the environment. Fortunately more and more battery recycling banks are appearing now where most of the battery can be reused. **Rechargeable batteries** are better for the environment and more economical in the long run (High initial purchase price). Their lifespan decreases with every charge.

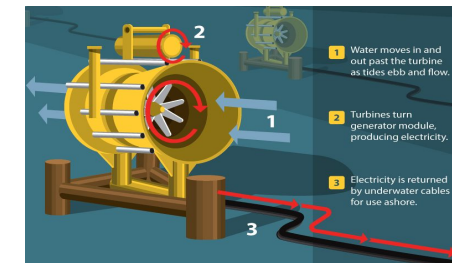
Energy Types 4. Wind energy



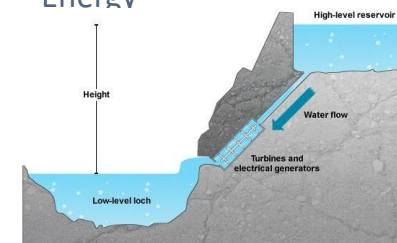
5. Solar Energy – Renewable Energy



Tidal energy



7. Hydroelectricity – Renewable Energy



- In a hydroelectric power station water is stored behind a dam in a reservoir. This water has gravitational potential energy.
- The water runs down pipes (potential to kinetic energy) to turn the turbine
- The turbine is connected to a generator to produce electricity (kinetic to electrical energy).

Mechanical devices

1: Mechanical Devices - Motion

There are four types of motion:

Linear Motion is movement in one direction along a straight line.



Oscillating Motion

This motion is similar to reciprocating motion, but the constant movement is from side to side along a curved path.



Rotary Motion

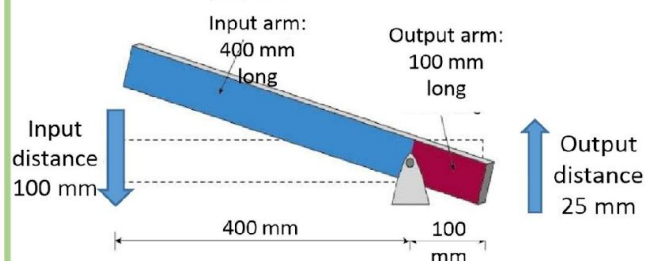
Examples of circular motion include a ball tied to a rope and being swung round in a circle



Reciprocating Motion, this is repetitive up-and-down or back-and-forth linear motion



4: How to work out a levers distance of travel



$$\text{Output} \div \text{Input} \times \text{Input distance} = \text{Output distance}$$

$$100 \div 400 \times 100 = 25 \text{ mm}$$

2: Mechanical Devices – Levers

There are three classes of levers.

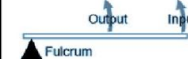
Class One

A class one lever has its input on one side of the fulcrum and its output on the other.



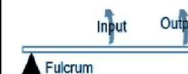
Class Two

A class two lever has its input at one end of the lever, its output in the middle and fulcrum at the other end.



Class Three

A class three lever has its output at one end of the lever, its fulcrum at the other with its input in the middle.

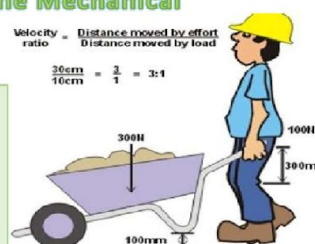


5: How to work out the Mechanical Advantage

Or use the following formula:

$$\text{MA} = \frac{\text{Load}}{\text{Effort}} = \frac{300\text{N}}{100\text{N}} = 3$$

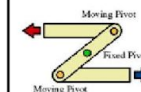
This is written as 3:1 or just MA of 3



3: Mechanical Devices – Linkages

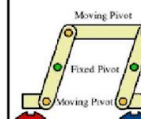
Reverse motion linkage

The reverse motion linkage changes the direction of the input motion so that the output travels in the opposite direction. If the input is pulled the output pushes and vice versa. It uses a central bar held in position with a fixed pivot (fulcrum) that forces the change in direction and two moving pivots which are connected to the input and output bars.



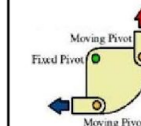
Parallel motion or push/pull linkage

The push/pull linkage maintains the direction of the input motion so that the output travels in the same direction. If the input is pulled the output is pulled and so on. It uses three linking bars, four moving pivots and two fixed pivots.



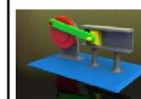
Bell crank linkage

The bell crank linkage changes the direction of the input motion through 90 degrees. It can be used to change horizontal motion into vertical motion or vice versa. It uses a fixed pivot and two moving pivots.



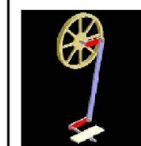
Crank and slider

The crank and slider linkage changes rotary motion into reciprocating motion or vice versa. It uses a crank which is held with a fixed pivot. A connecting rod uses two moving pivots to push and pull a slider along a set path.



Treadle linkage

The treadle linkage changes rotary motion into oscillating motion or vice versa. It uses a crank which is held with a fixed pivot. A connecting rod uses two moving pivots and a further fixed pivot to create a windscreen wiper motion.



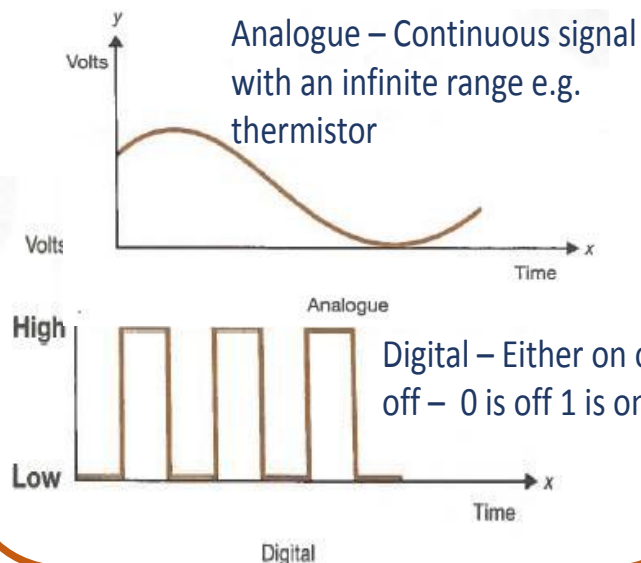
Electronic systems and processing

1. Processes

Components that process electronic signals and enable output devices to perform tasks. This is controlled by an integrated circuit (IC)
e.g. A microcontroller

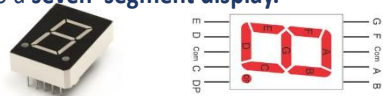


2. Digital and Analogue Signals



3. Counters

Counters – Keep count of how many times something occurs, output information to a **seven segment display**.



4. Programming

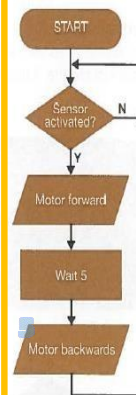
Micro controllers also called Peripheral interface controllers (PICs) can be programmed to perform differently by a computer.

Timers

Devices used to perform specific tasks. 2 types monostable and astable.

Monostable – output turned on for a set period of time e.g. Automatic doors

Astable – fluctuates between on and off – oscillating output e.g. Seatbelt alarm in a car



Start:

Decision: Has the motion sensor (PIR) connected to the input been activated?

If NO, continue to wait for the PIR to be triggered by movement.

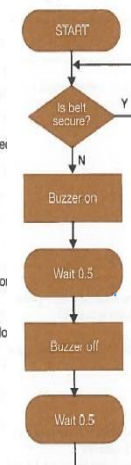
If YES, continue with the program.

Output: The motor turns on and opens the doors.

Process: Delay for 5 seconds; the motor is on long enough to open the door and let people through.

Output: The motor turns on again in reverse and the doors automatically close.

The circuit loops back to the top awaiting the next trigger of the PIR.



Start:

Decision: Has the seatbelt been fixed into the seatbelt clip?

If YES, loop back to the start of the program.

If NO, continue with the program sequence.

Output: The buzzer turns on.

Process: Delay for 0.5 seconds; the buzzer stays on during this time.

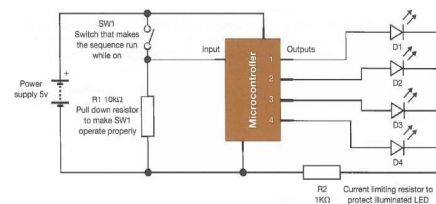
Output: The buzzer turns off.

Process: Delay for 0.5 seconds; the buzzer stays off during this time.

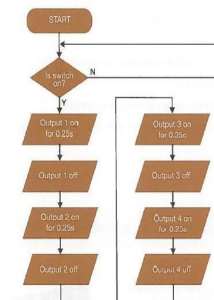
The circuit loops back to the top to check if the driver still has seatbelt unfastened.

5. Programming 2

Microcontrollers – How a microcontroller would control a bike light.



Program for the microcontroller to make LED's flash in sequence



Start:

Decision: Has the lighting sequence start switch connected to the input been activated?

If NO, continue to wait for the switch to be triggered by the user.

If YES, continue.

Output and process: The first LED connected to output 1 turns on for 0.25 seconds.

Output: The first LED connected to output 1 turns off.

These steps repeat for LEDs 2, 3 and 4.

The circuit loops back to the top to check if the switch has been activated.

KS4

Textiles

As a means to further develop your critical thinking and interpretation/analytical skills, as well as a means to develop your cultural capital and creativity, it is important for you to expose yourself to the work of a range of Textile designers/artists. This year, two of the Textiles artists you will be looking at are discussed below:

Billie Zangewa

Billie Zangewa (born in 1973 in Blantyre, Malawi) is a half-Malawian, half-South African artist who hand sews silk fabrics to create collage tapestries, and who now lives in Johannesburg. Since 2004, her art has featured in international exhibitions including at the Paris Art Fair at the Grand Palais in Paris.

Zangewa's work is autobiographical and centralizes Black femininity and everyday domesticity and motherhood. Her artistic approach is indicative of the artist's expressing resistance to the oppression she faces through self-love.

Zangewa works primarily with raw silk offcuts in intricate hand-stitched collages, creating figurative compositions that explore her intersectional identity in the contemporary context and challenge the historical stereotyping, objectification and exploitation of the black female body. Working in a flat, colourful style, she depicts narratives concerned with experience: both personal and universal. These narratives do not make grand gestures or even overt political statements, but rather focus on mundane domestic preoccupations; universal themes connecting us to each other. Almost always the protagonist in her works, Zangewa becomes a heroine whose daily life is revealed through the scenes she illustrates.

Zangewa's finished tapestries celebrate imperfection with their raw, irregular edges and often large pieces seemingly cut out of the tapestry that seem to impede on the scene. This tactic also works to break any illusions of the work being painted on canvas.



Sheila Hicks

Sheila Hicks (born 1934) is an American artist. She is known for her innovative and experimental weavings and sculptural textile art that incorporate distinctive colours, natural materials, and personal narratives.

Working primarily with fibre; Hicks creates vibrant and dynamic sculptures and wall hangings that refer to traditional artisan textiles such as weaving, knitting, knotting, and braiding. Her fibre forms – with their bright colours – whether shaped into vertical cords, disks, or horizontal tubes, present a visual experience.



KS4

Textiles

In Textiles Design we use a range of specialist techniques in order to decorate textiles to make them more aesthetically pleasing and interesting. The information below explains some of the techniques you will explore this year.

Tufting

Tufting is the act of a needle punching through a backing material in the form of a loop. The traditional method is to stretch Monks Cloth over a frame and punch yarn through it using a tufting gun or tufting needle. Depending on loop heights, these loops can add texture, dimension, and, if cut, the "cut pile" can add a velvet like appearance to the tufted area.



Fabric Painting

Fabric painting simply refers to any painting done on a fabric. It encompasses everything from ancient artifacts with intricate resist paintings to the painting a young child may do on a t-shirt. Fabric painting has been around for thousands of years.



3D Shibori

3D Shibori is a technique for adding texture and shaping textiles. You wrap items into fabric, secure them with thread and set them with heat, and in this way the process leaves a "memory on cloth" – a permanent record, whether of patterning or texture, of the particular forms of resistance to the change. Cloth holds the memory of action performed on it!



Wet Felting

Wet felting involves creating rectangular fabric made of several layers of wool (not plant or synthetic fibres because those won't felt well), applying water and mild soap, and sponging or agitating the wool to encourage the fibres to lock together



Lino Printing

Lino Printing is a form of block printing that involves carving a pattern or design into a linoleum, rubber or vinyl surface that can then be printed from. The recesses carved out leave the design in relief and it is the raised design that the ink is applied to and then transferred to the paper when pressure is applied by hand or printing press.

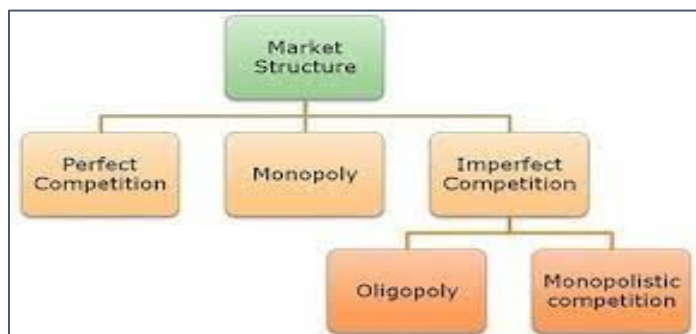


Screen Printing

Screen printing, also known as silk screening or silkscreen printing, is the process of transferring a stencilled design onto a surface using a mesh screen, ink, and a squeegee (a rubber blade). The basic process of screen printing involves creating a stencil on a mesh screen and then pushing the ink to create and imprint the design on the below surface.



Competition

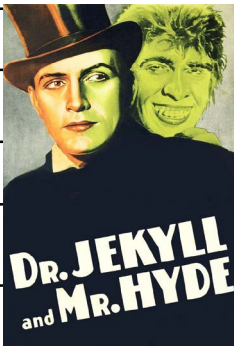


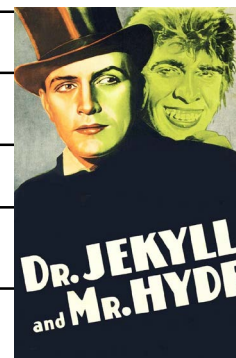
KEY TERMS

Competition	When two or more firms in a market sell the same or similar products to the same group of customers.
Monopoly, e.g. Google (as a web browser)	A market which consists of one firm OR is dominated by one firm. Firms have near total control over the price.
Oligopoly, e.g. (Visa & Mastercard)	A market which is dominated by a few large firms. Firms have great control over prices charged and compete using non-price methods.
Competitive Markets	A market where there are many buyers and sellers, firms have no control over the prices charged.

Impact of competition on...	Advantages	Disadvantages
Producers	<ul style="list-style-type: none"> Can produce higher quality products and provide more choice which can attract customers 	<ul style="list-style-type: none"> Lower prices due to competition and increased costs of production due to increased advertising makes it harder for firms to survive.
Consumers	<ul style="list-style-type: none"> Lower price, better quality and greater choice. 	<ul style="list-style-type: none"> Increased competition makes it harder for consumers to make rational choices because of too much choice.

Characteristic	Monopoly	Oligopoly	Competitive Markets
Size	Very Large	Large	Small and Medium
Number of firms	One Dominant Firm	Few dominant firms	Many firms
Control over price	Very high: Price Setters	High: Price setters	None: Price Takers
Level of price	Very high	High	Low
Level of output	Very Low	Low	High
Barriers to entry?	Very high	High	Low / None
Efficiency	Dynamic	Dynamic	Productive

Chapter	Plot	Character		Vocabulary	Context
1 The Story of the Door	Passing a strange-looking door whilst out for a walk, Enfield tells Utterson about incident involving a man (Hyde) trampling on a young girl. The man paid the girl compensation. Enfield says the man had a key to the door (which leads to Dr Jekyll's laboratory)	Dr. Henry Jekyll	A doctor and experimental scientist who is both wealthy and respectable.	Protagonist: main character	Fin-de-siècle fears – at the end of the 19 th century, there were growing fears about: migration and the threat of disease; sexuality and promiscuity; moral degeneration and decadence.
2 Search for Hyde	Utterson looks at Dr Jekyll's will and discovers that he has left his possessions to Mr Hyde in the event of his disappearance. Utterson watches the door and sees Hyde unlock it, then goes to warn Jekyll. Jekyll isn't in, but Poole tells him that the servants have been told to obey Hyde.	Mr. Edward Hyde	A small, violent and unpleasant-looking man; an unrepentant criminal.	Third person limited narrative: one character's experiences closely narrated	Victorian values – from the 1850s to the turn of the century, British society outwardly displayed values of sexual restraint, low tolerance of crime, religious morality and a strict social code of conduct.
3 Dr Jekyll was Quite at Ease	Two weeks later, Utterson goes to a dinner party at Jekyll's house and tells him about his concerns. Jekyll laughs off his worries.	Gabriel Utterson	A calm and rational lawyer and friend of Jekyll.	Epistolary: written in the form of a letter	Victorian London – the population grew from 1 million in 1800 to 6.7 million in 1900, with a huge numbers migrating from Europe. As well as being one of the biggest and wealthiest cities in the world, it was rife with poverty and crime.
4 The Carew Murder Case	Nearly a year later, an elderly gentleman is murdered in the street by Hyde. A letter to Utterson is found on the body. Utterson recognises the murder weapon has a broken walking cane of Jekyll's. He takes the police to Jekyll's house to find Hyde, but are told he hasn't been there for two months. They find the other half of the cane and signs of a quick exit.	Dr. Hastie Lanyon	A conventional and respectable doctor and former friend of Jekyll.	Controversial: causing strong disagreement	Darwinism: the implications of Darwinism and evolution haunted Victorian society. The idea that humans evolved from apes and amphibians led to worries about our lineage and about humanity's reversion to these primitive states (atavism).
5 Incident of the Letter	Utterson goes to Jekyll's house and finds him 'looking deadly sick'. He asks about Hyde but Jekyll shows him a letter that says he won't be back. Utterson believes the letter has been forged by Jekyll to cover for Hyde.	Richard Enfield	A distant relative of Utterson and well-known man about town.	Atavism: reverting to something ancestral/ancient	
6 Remarkable Incident of Dr Lanyon	Hyde has disappeared and Jekyll seems more happy and sociable until a sudden depression strikes him. Utterson visits Dr Lanyon on his death-bed, who hints that Jekyll is the cause of his illness. Utterson writes to Jekyll and receives a reply that suggests he is has fallen 'under a dark influence'. Lanyon dies and leaves a note for Utterson to open after the death or disappearance of Jekyll. Utterson tries to revisit Jekyll but is told by Poole that he is living in isolation.	Poole	Jekyll's manservant.	Degeneration: moral decline	
7 Incident at the Window	Utterson and Enfield are out for walk and pass Jekyll's window, where they see him confined like a prisoner. Utterson calls out and Jekyll's face has a look of 'abject terror and despair'. Shocked, Utterson and Enfield leave.	Sir Danvers Carew	A distinguished gentlemen who is beaten to death by Hyde.	Primitive: belonging to an earlier time	
8 The Last Night	Poole visits Utterson and asks him to come to Jekyll's house. The door to the laboratory is locked and the voice inside sounds like Hyde. Poole says that the voice has been asking for days for a chemical to be brought, but has rejected it each time as it is not pure. They break down the door and find a twitching body with a vial in its hands. There is also a will which leaves everything to Utterson and a package containing Jekyll's confession and a letter asking Utterson to read Lanyon's letter.	Mr. Guest	Utterson's clerk (secretary) and handwriting expert.	Duality: two-sidedness	Duality – the idea that humans have a dual nature was emerging towards the end of the 19 th Century. On one side was the rational, civilised self, and on the other side, a savage nature, repressed by society. As a child, Stevenson was fascinated by the story of the notorious Deacon Brodie, who was a respectable member of Edinburgh's society by day, however he led a secret life as a burglar and gambler by night.
9 Dr Lanyon's Narrative	The contents of Lanyon's letter tells of how he received a letter from Jekyll asking him to collect chemicals, a vial and notebook from Jekyll's laboratory and give it to a man who would call at midnight. A grotesque man arrives and drinks the potion which transforms him into Jekyll, causing Lanyon to fall ill.	DR JEKYLL AND MR HYDE – Key Themes		Duplicity: falseness	Dr John Hunter was a celebrated 18 th century surgeon. Like the fictional Dr Jekyll, His experimental methods were controversial to the medical establishment. He also dissected thousands of cadavers which means that he must have had close links with the criminal trade of bodysnatching. Stevenson possibly based Jekyll's residence, with his back entrance and laboratory, on Hunter's own residence.
10 Henry Jekyll's Full Statement of the Case	Jekyll tells the story of how he turned into Hyde. It began as a scientific investigation into the duality of human nature and an attempt to destroy his 'darker self'. Eventually he became addicted to being Hyde, who increasingly took over and destroyed him.	Reputation / Respectability		Masquerade: disguise	
		Science		Disreputable: of a bad reputation	Repression: holding something back
		Violence		Metamorphosis: transformation	Threshold: doorway / boundary
		The supernatural		Restraint: holding back	Transgressive: breaking the rules
		Duality		Hypocrisy: when someone pretends to be different or better than they really are	Unorthodox: going against what's normal
		Secrecy			



Structure



Drop

Set the scene and describe the setting or landscape.

Zoom

Choose something that you will 'zoom in' on and describe in detail

Flash

Change the time or place of your story

Echo

Bring it back to where you were at the start. What has changed?

Punctuation:

Full stop.
Question mark?
Exclamation mark!
Comma,
Semi-colon;
Colon:
(Brackets)
Speech marks ""

Adverbs:

Cautiously,
Violently,
Rapidly,
Eagerly,

Figurative Language Examples to Magpie:

Suspense suffocated the air; it spread like a disease.

The moon glared down on them, illuminating the fearful city.

The moon watched intently as the last of the crowds made their way home.

As the wind increased rapidly, the trees stood like giants.

Up until this moment, his life had been an unbreakable prison.

Two choices flooded her mind: run or fight.



Vocabulary

Synonyms for Great	Synonyms for Dark	Synonyms for Scared
Majestic Tremendous Awe-inspiring Glorious	Dingy Gloomy Ghastly	Terror-struck Agitated Horried
Synonyms for Miserable	Synonyms for Kill	Synonyms for Beautiful
Sorrowful Despairing Downhearted	Slaughter Crucify Slay	Angelic Exquisite Radiant Dazzling
Synonyms for Watched	Synonyms for Anger	Synonyms for Red
Observed Glared	Wrath Fury Rage	Crimson Scarlet

Sentence Types:

Complex sentence with embedded clause:

The sky, which had previously seemed so threatening, now smiled down upon the majestic fields.

Short, simple sentences. (Can you repeat the first word or phrase?)

Fear gripped him like a plague. ***Fear*** was suffocating the last drops of bravery he had in him. ***Fear*** was going to ensure his downfall.

Adverbial phrases

As the trapdoor slammed shut, silence filled the air.

English Language Paper 1: Explorations in Reading and Creative Writing Knowledge Organiser

1 hour 45 minutes

The absolute basics:

Read the text – 5 mins

Section A

- Q1 – List 4 things (5 mins)
Q2 – How does the writer use language to... (10 mins)
Q3 – How does the writer structure the text to... (10 mins)
Q4: [statement] To what extent do you agree? (30 mins)

Section B

Q5: Writing to describe or narrate (45 mins inc. planning time)

Start of the exam (5 mins)

1. Read the blurb given for the text. Highlight key words which given you a clue about what you will be reading e.g. character, setting, time.

2. Read the passage carefully. Take time to make sure you understand it and text mark (highlight) as you go.

Look out for:

1. Key quotes about character or setting
2. Pivotal moments
3. Sentences which build a particular tone or mood.

Section A: Question 1 (5 mins, 4 marks)

Question stem: Write down four things you learn...

Planning

1. Read the question and highlight the key words, including the lines it asks you to focus on.

2. Draw a box around the lines you need to focus on in the insert.

Writing

1. Write in full sentences.
2. One point per line.
3. Keep it simple i.e. explicit inferences

Question 2 (10 mins, 8 marks)

Question stem: How does the writer use language to...

Planning

1. Read the question and highlight the key words to ensure you understand what the focus of your answer will be.

2. Re-read the section of text the question asks you to focus on.

3. Highlight key quotations which will help you answer the focus of the question. Consider the use of different language devices.

Basic things to look out for: 5 senses, colour, adjectives and verbs.

Grade 7+ extended metaphors, semantic fields, assonance.

Writing

1. You are writing 3 clear PEAs to answer the question.

2. Each should focus on a different language device used.

Grade 7+ = Develop PEAs into PEAAs to show how devices are used across the extract and an overall effect is created.

3. Your 'Points' should use the wording of the question.

Useful sentence starters

Possible intro if time:

Throughout the extract the writer creates a ... tone/atmosphere.

Point:

The writer has used a [language device] to suggest/imply/create...

Evidence:

For instance, '...'

Analysis:

The use of ... makes it sound like...
The word/phrase/subject term '...' creates an impression of...
We might realise/imagine/feel...

Question 3 (10 mins, 8 marks)

Question stem: How has the writer structured the text to interest you as a reader?

Planning

1. Read the question and highlight the key words. This question is about how the text is put together and organised, rather than the language devices used.

2. At the top of the answer booklet write: STOPSEC

Setting
Time
Opening
Perspective
Shift in focus
Ending
Character



3. Skim through the whole source again. Highlight and label where you see different STOPSEC features - particularly focus on how the opening and ending are effective.

Top tip: for a really clear response, think about what the writer focuses your attention on at the beginning, what they focus you on at the end-and whether this is similar or different. Then ask WHY?

Writing

1. Aim for 3 PEA paragraphs: beginning contrasted to the end-to give a general overview of the text first of all, then consider how your focus shifts in the middle of the extract and why -your analysis isn't focusing on the use of words and phrases, but on the atmosphere/tone created by the different structural (STOPSEC) features used at different points. A final PEA could be written about another interesting structural feature: repetition, juxtaposition, tone, sentences etc.

Useful sentence starters:

Possible intro if time:

Throughout the extract the reader carefully structures the text to interest the reader. They particularly consider [insert STOPSEC feature/s you will focus on.]

Point:

The writer opens the text by introducing/using [insert STOPSEC feature] in order to suggest/create...

This links to/is contrasted with the ending of the text, where there is a shift in focus to...

Evidence:

For instance, this is seen when '...'

Analysis:

The use of ... creates a sense of...
It tells us...
We are shown that...
The ... develops...
This interests the reader because...

Notice: The analysis is NOT on words but on the effect of the structure and the impressions it creates for us.

Question 4 (30 mins, 20 marks)

Question stem: '[statement about the text]' To what extent do you agree?

Planning

1. Read the question and highlight the key words, including the section of the text if specified. Think carefully about how far you agree with the statement.

Top Tip: Usually it is best to AGREE with the statement. But consider how far you agree. Is there evidence to argue against this opinion? Create a debate in your answer.

2. Draw a box around the section of the text if specified.

3. Read through and highlight words/phrases/language devices you will use to argue FOR, and maybe against the statement.

Writing

1. Aim for 3 PEAELs in 20 mins. Pick out key words in each and explore their effect.

Useful sentence starters (see previous questions too - you can reuse these if appropriate!):

To some extent I agree with...
I certainly agree that...
However, it could also be argued that...
Overall I agree that...

PROOF READ YOUR WORK!

(Allow 5 mins for this)

-Spelling inc. homophones e.g. to/too/two or there/their/they're

-Improve any dull words to make them more exciting!

Section B: Question 5 (45 mins, 40 marks)

Question focus: Writing to narrate (story) or describe.

Planning (THIS IS REALLY IMPORTANT!)

1. Decide which task you would like to do (narrate or describe). There might not be a choice! Reminder of the structure for each below:

Describe	Narrate
Panoramic Zoom Zoom Zoom Panoramic	Rule of 1: 1 setting, 1 character, 1 event, 1 hour Hook → Character intro → Development → Turning point → Resolution

2. Plan using the structures above. You should also consider:

-What good vocab could you use from the extract you have just read?

Vary your sentence openers with verbs, adverbs, prepositions, adjectives. Use a semi-colon (instead of because)

Remember these things →

Use plenty of description, even in a narrative. Vary the length of your sentences (inc. at least 1 holophrastic phrase) and your paragraphs.
Commas after subordinate clauses Variety of language devices

Food Preparation & Nutrition

Adapting diets for different dietary and energy requirements

Energy balance

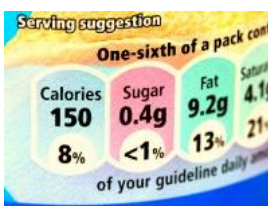
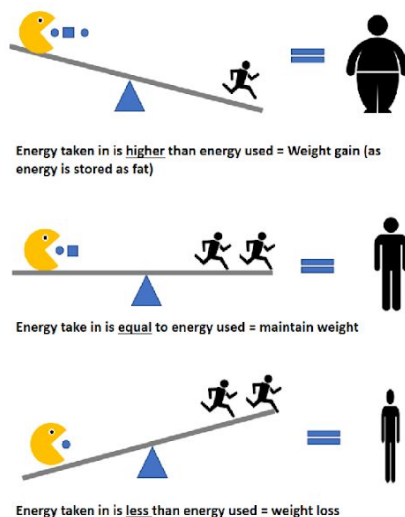
In order for our bodies to maintain a healthy weight, we need to be in **energy balance**.

This means the amount we **take in from food** we eat **must be (balanced) used up** by **Basal Metabolic Rate** and **Physical Activity Levels**

When energy intake is higher than energy output, over time this will lead to weight gain (positive energy balance).

When energy intake is lower than energy output, over time this will lead to weight loss (negative energy balance).

Remember any unused energy will be stored as fat



Energy is measured in **Calories (Kcals)** or **Kilojoules (KJs)**. **Nutrients** are measured in **grams (grs)**.

Most manufacturers present the calorie amount on the front as part of the 'traffic' light system in food labelling

Stage of Life	Main Change in body	Activity Levels	Nutrient Requirement	Energy requirement
Baby	-Growing -Learning how to do things: swallow, hold things, crawl, walk	Low/Medium Initially spend a lot of time sleeping, can't walk until approx. 1 years,	All nutrients are initially provided by the mothers milk. Key nutrients: Fat, Protein & Calcium	Low/Mid: low PAL but growing
Child	Growing	High – spend a lot of time playing	All nutrients, esp. Complex Carbs, Protein, Calcium. Eaten in small portion	Mid/High: higher PAL, growing but still smaller body
Teenager	Growing Puberty: -Boys more muscular -Girls start periods -Hormone development can cause oily skin	Medium – varies depending on individual but not as active as child, focus on socialising/school work might reduce activity levels	All nutrients, esp. Complex Carbs, Protein, Calcium *Girls need iron to help maintain replacement of red blood cells.	Mid/High: PAL might vary but growing rapidly during puberty. Body size grows Boy become more muscular.
Adult	Stopped growing Changes to body know happen as a result of diet & fitness	Medium – varies depending on person, but less likely to be as active as before due to work/life commitments	Balanced diet. *Pregnant women need to eat particularly healthy to support the growth of their baby. Should Avoid fatty foods	Mid: Adults are no longer growing but body size, amount of muscles and PAL will affect energy requirements
Older Adult 65+	-Have less energy, slower, bones become weaker, muscles lose strength and gain more body fat, some older people may shrink, skin becomes wrinkly	Medium/Low: Loss of energy will make activity levels lower. Mobility issues/illness might also affect this.	Balanced healthy diet but high in Calcium (and Vit D), Protein, Iron (Vit C). Should also avoid Fatty foods.	Mid/Low: Lower PAL, muscles become weaker. Higher body fat.

*Remember **Vitamin C** is needed to absorb **Iron**. So will be particularly important for girls and pregnant women and **Vitamin D** is needed to absorb **Calcium** so particularly important for energy stage where growing is happening OR maintenance of bone strength is required.

Metabolism describes the chemical reactions in the body's cells that change food into energy.

Basal Metabolic Rate (BMR) refers to the minimum amount of energy our body needs to keep our body alive and working **when resting**. Depending on a person's age this can be between 40-70% of the energy they require each day.

Physical Activity Level (PAL) refers to the amount of energy somebody needs for movement and physical exercise each day. Somebody who is physically activity will have a higher PAL.

Recommended Daily Intake (RDI): recommended amount of calories needed by a person. Eg. 2000 for a women, 2500 for a man. Will vary depending on PAL, body size, muscle amount, gender etc.

The BMR varies for different people, depending on:

Their body size: as the body grows, the BMR increases more energy is needed by the larger body. **The gender**: women usually have a lower BMR than men, because they tender to be smaller and they have more muscle and women have more body fat. **Their PAL** (Physical Activity Level). Muscles require more energy to maintain in comparison to fat, therefore regular exercise (use of muscles) can increase their BMR. **Their age**: children have lower rates than adults (as they are smaller in size). BMR decreases in old age (as you get older you tend to lose muscle and gain body fat **and** have a lower PAL)

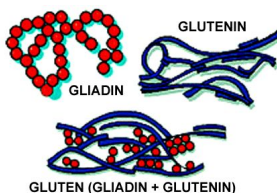
Food Science: Function of Ingredients

Kneading



The process used to make bread or pasta dough. **Kneading** stretches the **Gluten*** (protein found in Wheat), which helps to give structure and create a stretchy and pliable texture.

***Flour** contains 2 **proteins**: Gliadin & Glutenin. When mixed with water **gluten** is formed. Different types of flour have different gluten content.



Leavening

Leavening is the process of making dough rise. Yeast and Baking Soda are common **raising agents or leavening agents**. These agents work by creating carbon dioxide bubbles which is trapped in the **gluten webs** formed during **kneading** or **mixing**. During baking these bubbles expand further causing the dough to rise.



Dextrinization



When **dry** (toaster, oven, grill) heat is applied to a **starchy** food (bread/pizza dough, cake, biscuit), the **starch molecules** are broken down into sugars called **dextrins**. This is called **Dextrinization**. The dextrins change the colour (brown) and taste of the food. If the food is overcooked the **starch** turns to **carbon**.



Emulsification



Aeration

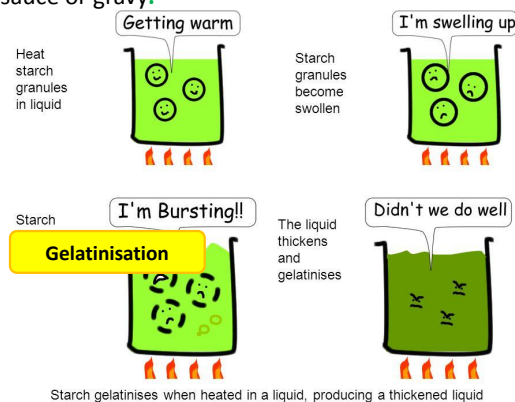


Even if shaken well, Oil and Water will not mix, eventually they will separate back out. An emulsion (like Mayo) is a (stable) mixture of water and oil liquids. To make the mixture stable an emulsifier like egg yolk or mustard can be added and whisked with force. This is called **Emulsification**.

Aeration is the process of adding very tiny pockets of air to something – either cake batter or within egg proteins (to make meringue).

Creaming splits and then reforms fat molecules as a result air is trapped. Sugar will help stabilize the mixture. The tiny air bubbles trapped expand when heated creating a fluffy, light texture.

When **starch molecules** are heated and surrounded by a liquid (like milk) they begin to absorb the liquid, eventually bursting and thickening. This is called **Gelatinisation**. Often used to make a cheese sauce or gravy.



Foams



A foam forms when small bubbles of gas are trapped in a solid or liquid. Egg whites are often used to make foams as they have greater structure. As the foam is cooked the e. whites coagulates, setting the shape.

Plasticity



Plasticity describes a fat's ability to spread. This can be affected the temperature and fat content.

Shortening

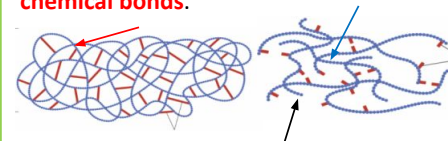
Oils and fats are used in a baked product to reduce the development of **gluten** giving the foods a crumbly texture. The fats and oils break down the **gluten** into "shorter strands" hence the term **shorteners**. Coating the flour in fat prevents the flour from absorbing water, therefore stopping **gluten** from forming. If too much gluten developed, the food would be stretchy and elastic.

Shortening is used in most doughs and batters, to give the baked product a crisp and crumbly texture. **Rubbing in (A)** the fat causes the baked product to have a crumbly texture – Shortcrust Pastry (Mince Pies) where as **layering chunks of fat (butter)** separates the strands of **gluten** therefore creating a flaky texture (Sausage Rolls).

When fat is **whisked** with sugar, a process called **creaming (B)**, the texture will be more like a cake, and be soft and springy.

Denaturation & Coagulation

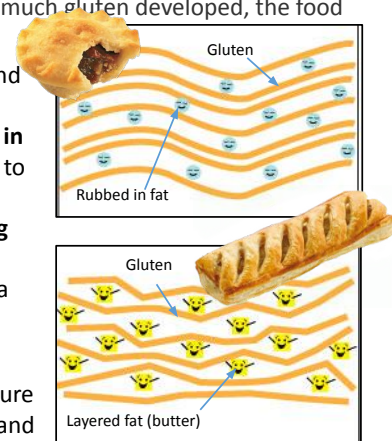
Protein Molecules are made up of **chains of Amino Acids**. They are connected by **chemical bonds**.



These **bonds** can be **broken** by **heat, acid and movement**, which in turn changes the shape or structure of the protein molecule. This is **Denaturation**.



Denatured protein molecules are larger and therefore knock into one another and join together in large groups, this is called **Coagulation**. Heat helps to coagulate foods eg. Eggs change shape, texture, thickness as they cook.



Year 10 - The Challenge of Natural hazards - Weather

Global Circulation Model	Extreme Weather
<p>Heat from the equator is transferred around the globe in three cells that connect with each other, known as the tri-circular model. This creates a global pattern of atmospheric pressure and winds.</p> <p>The Hadley Cell</p> <ul style="list-style-type: none"> - Temperatures at the equator are high because the incoming solar radiation is more intense as the sun's energy is more concentrated. - Due to these high temperatures at the equator, air rises up into the atmosphere - creating low pressure - As the air rises it becomes colder, causing condensation (forming clouds that leads to rainfall. - This is why tropical rainforests are found along the equator. - The air then separates and starts to move N and S towards the poles - The air then becomes cooler and sinks around 30° north and south of the equator. - As it sinks it becomes warmer and drier creating a high-pressure zone with cloudless skies. This is where deserts are found. <p>The Ferrel Cell</p> <ul style="list-style-type: none"> - Higher latitudes between 30° degrees and 60° degrees (deciduous forest, Taiga)- N and S) - Here we have the mixing of air masses - warmer air from the tropics and cold air from polar regions. <p>The Polar Cell</p> <ul style="list-style-type: none"> - At the poles, air is cooled and sinks towards the ground creating high pressure - known as Polar high - 90 is Cold, dry descending air - polar desert 	<p>UK - examples</p> <p>Heatwave - 40.3 0C record 19th July 2022 Heavy snow - December 2023 Strong winds - Storm Dudley and Storm Eunice Feb 2022 Flooding - Somerset Levels 2014</p> <p>Tropical Storms</p> <p>A hazard that brings heavy rainfall, strong winds and other related hazards such as mudslides, floods and storm surges e.g. hurricanes</p> <p>Location: form between approximately 5° and 30° latitude.</p> <p>Formation</p> <ol style="list-style-type: none"> 1. Ocean water reaches at least 27°C, the warm air rises quickly, causing an area of very low pressure. 2. As the air continues to rise quickly it draws more warm moist air up from above the ocean leading to strong winds. 3. The storm spins due to the coriolis effect which is the deflection of winds caused by the spinning of the earth. 4. The rapidly rising warm air spirals upwards, cools, condenses and large cumulonimbus clouds form. 5. These clouds form the eye wall of the storm and produce heavy rainfall. 6. In the centre of the storm, cold air sinks to replace the rapidly rising warm air, forming the eye of the storm - here, conditions are calm and dry.

Tropical Storm Case study: **Typhoon Haiyan 2013****Details:** Category 5, wind speed 313km/h, 281.9mm rainfall

Primary effects	Secondary effects
<ul style="list-style-type: none"> - 6300 deaths - 600 000 people displaced - 40 000 homes damaged - 90% of Tacloban city destroyed - Tacloban airport badly damaged - 30 000 fishing boats destroyed - Strong winds damaged - Buildings and power lines and destroyed crops 	<ul style="list-style-type: none"> - 14 million people affected - 6 million lost their source of income - Flooding caused landslides and blocked roads - Powers supplies off for a month - Ferry and airline services disrupted slowing aid effort - Shortages of food and water - Disease outbreaks

Immediate responses	Long-term responses
International government and aid agencies responded quickly providing food, water and temporary shelters US assisted with search and rescue and aid 1200 evacuation centres	Financial aid UN, UK and US Rebuilding roads and airport Cash for work programs to clear debris Oxfam supported replacement of fishing boats Cyclone shelters

UK Extreme Weather **Somerset Levels - 2014****Causes:**

350mm of rainfall in January and February
 Storm surges prevent water escaping into Bristol Channel
 Rivers not dredged for 20 years

Impacts

Social	Economic	Environmental
<ul style="list-style-type: none"> - 600 homes flooded - 16 farms evacuated - Some residents evacuated to temporary accommodation - Power supplies cut off 	<ul style="list-style-type: none"> - Damage costs est. £10 million - 14 000 ha of agricultural land under water or 3-4 weeks - 100 livestock evacuated - Bristol to Taunton railway line closed at Bridgwater 	<ul style="list-style-type: none"> - Floodwaters were heavily contaminated with sewage and other pollutants - Debris had to be cleared - Stagnant water had to be re-oxygenated before being returned to rivers

Responses

Immediate	Boats used for transport, Sandbags
Longer term	Somerset Levels and Moors plan - £10 million scheme including: dredging, river banks raised, pumping station and tidal barrage at Bridgwater

Year 10 - Ecosystems: Tropical Rainforest

<p>Tropical Rainforests Characteristics High biodiversity (number of different plants & animals) Climate is very wet with over 2000mm of rainfall a year, with a warm average daily temperature over 28°C</p> <p>The soil is not very fertile, most of the nutrients are washed away quickly due to the heavy rainfall.</p> <p>The rainforest has distinct layers. Emergents can grow over 50m tall to reach the sunlight. Most animals and plants are found in the canopy.</p> <p>Goods and services Goods: physical materials from environment e.g rubber, fruits, timber, medicines Services: functions that help humans survive e.g. carbon sink, flood prevention, reduction of soil erosion</p>	<p>Plant Adaptations</p> <p><u>Drip tip leaves:</u> plants have pointy tips to allow the water to run off the leaves quickly to avoid them breaking.</p> <p><u>Buttress roots</u> - large roots have ridges which create a large surface area that help to support large trees.</p> <p><u>Lianas:</u> vines that climb on other trees and use them as their 'trunk' to obtain sunlight in the canopy</p> <p>Animal adaptations</p> <p><u>Sloth</u> uses <u>camouflage</u> and moves very slowly to make it difficult for <u>predators</u> to spot.</p> <p><u>Indian elephant:</u> travels in herds to protect young, large ears flap to cool themselves down and use trunk to obtain food and water</p> <p><u>Lemur:</u> a long tail to help them balance and strong back legs to help them jump from tree to tree to get to the food in the canopy</p>	<p>Threats:</p> <ul style="list-style-type: none"> • Commercial Farming - Malaysia: largest exporter of palm oil in the world • Logging - Malaysia largest exporter of tropical wood in 1980s - clear felling was common • Mining - mainly in and smelting common in Malaysia. Roads and rainforest clearance for oil and gas recently. • Roads - the construction of access roads for farmers, loggers and miners results in large parts of the tropical rainforest being destroyed. • Hydroelectric power (HEP) - Bakun Dam 700km² of forest and farmland flooded. Provides energy for industrialised Peninsular Malay. • Population - population growth has resulted in the loss of tropical rainforest as land is cleared to build houses and infrastructure. <p>Impacts Reduction in biodiversity, soil erosion, contribution to climate change through loss of carbon sink, water pollution, loss of indigenous homes</p> <p>Management</p> <ul style="list-style-type: none"> • Logging and replanting - selective logging of mature trees ensures that the rainforest canopy is preserved. • Education - Promoting the value and benefits of biodiversity associated with tropical rainforests. • Ecotourism - this encourages sustainable tourism that creates jobs for local people whilst ensuring that the money generated is used to protect and conserve . • International agreements - agreements to protect tropical rainforests have been made between different countries through debt-for-nature.
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Year 10 - Ecosystems: Polar and Tundra

<p><u>Cold environments characteristics</u></p> <p>Polar: Climate - long cold winters, with annual temperatures mostly below freezing. Polar areas are often windy, with very little <u>precipitation</u>. Permanent <u>ice caps</u> cover polar landscapes. Soil - the soil is covered in ice throughout the year. Plants - hundreds of species of <u>moss</u>, algae and <u>lichen</u> survive the harsh conditions of the Polar biome. Few other plants can survive.</p> <p>Tundra Climate - cold, windy and little rainfall. Snow covers the ground for much of the year. Average temperature is between -12°C and -6°C. The summer season lasts for 50-60 days each year during which there is permanent daylight. Permafrost - this is the layer of frozen soil under the Earth's surface. The frozen ground may extend as deep as 450 m. Soil - this is high in organic material because it is too cold for dead <u>organisms</u> to <u>decompose</u>. Plants - trees do not grow.</p>	<p>Plant adaptations Bearberry is a low growing plant that can stay out of the wind chill. Its fine silky hairs also help to keep it warm. Leathery leaves are also an adaptation to the cold of the tundra.</p> <p>Animal Adaptations. Polar bears are well adapted for survival in the Arctic. Their adaptations include:</p> <ul style="list-style-type: none"> • a white appearance - as camouflage from prey on the snow and ice • thick layers of fat and fur - for insulation against the cold • a small surface area to volume ratio - to minimise heat loss • a greasy coat that sheds water after swimming - to help reduce heat loss • large feet - to distribute their load and increase grip on the ice 	<p>Case study Svalbard.</p> <p>Location: Arctic Ocean Most northerly inhabited island in the world. Longyearbyen is the main town.</p> <p>Population: 2,700</p> <p>Opportunities: <u>Mineral extraction:</u> Coal mining vital as main economic activity -300 people employe</p> <p>Geothermal energy: potential future energy source to exploit as near mid-Atlantic ridge and hot rocks are close to surface</p> <p>Fishing: rich fishing grounds - 150 species inc. cod. Sustainable fishing quota protects overfishing</p> <p>Tourism: 300 jobs for local people in a growing industry. 70 000 visitors annually as people seek to explore extreme environments</p>
<p>Svalbard: Challenges: Developing <u>infrastructure</u> for mineral extraction, <u>fossil fuels</u> or tourism is very difficult in cold environments. The following challenges can cause problems for development:</p> <ul style="list-style-type: none"> • Extreme temperature - very low temperatures and long hours of darkness make building very difficult. • Relief - mountainous areas and rugged terrain make cold environments very inaccessible for vehicles delivering materials for construction. • Buildings - if the permafrost layer begins to melt, the ground becomes very unstable and susceptible to landslides. Creating foundations for buildings is very difficult making further development challenging. • Infrastructure - building roads and pipelines for water and electricity supplies is very difficult on frozen ground that is liable to melting. 		

Early Elizabethan England 1558-88

Summary: When Elizabeth became queen in 1558 she faced many problems including religious divisions; financial weaknesses; threats from abroad; questions around her legitimacy; and her gender. Her first task was to secure her position as queen; this included surrounding herself with a privy council she trusted; addressing the religious divisions in England and dealing with the problem of Mary Queen of Scots. Elizabeth faced many serious threats both within England and from abroad. Mary still wanted the Catholic, Mary Queen of Scots on the throne. Philip II of Spain also wanted to remove Elizabeth from the throne. Spain and England were religious and political rivals. There was particular tension when Drake tried to challenge Spanish dominance in the New World and when Protestants in the Spanish Netherlands rebelled. These tensions culminated in Philip II sending the Spanish Armada to invade England in 1588. Elizabeth's 1's reign was a time of expansion with growth in many different areas of society and life. There were developments in education and exploration, including a failed attempt to colonise Virginia.

KT1: Queen, Government and Religion (1558-69)

[1.1] The situation on Elizabeth's accession

- The monarch was at the top of **society**, followed by the nobility, gentry, yeoman, tenant farmers, the poor and then vagrants.
- The government was made up of the **Court, Privy Council, Parliament, Lords Lieutenant and Justices of the Peace (JPs)**.
- As monarch, Elizabeth could declare war and make peace, call and dismiss parliament, rule in some legal cases and grant titles, land, money and jobs
- Elizabeth's **legitimacy** was questioned because she was a woman, had not married, and because her father Henry VIII had divorced his first wife, Catherine of Aragon, and it was believed that Elizabeth was born out of wedlock.
- Elizabeth was highly **intelligent**, well **educated** and had an excellent grasp of politics. She could speak 5 language and made great speeches.
- When Elizabeth came to the throne, the country was in **£300,000 of debt**.
- Elizabeth were concerned that, because France and Spain were no longer at war, they could form a Catholic alliance against her.

[1.2] The 'settlement' of religion

- The English **Reformation** began in 1532, when Henry VIII created the Church of England. There was much hostility between **Catholics and Protestants**.
- The North and North-West of England tended to be more strongly Catholic whereas the South-East of England was mainly Protestant.
- Elizabeth wanted to find a compromise between the two denominations and so created the **Religious Settlement in 1559**. It came in three parts: **The Act of Supremacy** (made Elizabeth supreme governor of the Church and all clergy had to swear an oath of allegiance), **The Act of Uniformity** (established the appearance of churches and the form of services) and the **Royal Injunctions** (a set of instructions to help enforce the Acts).
- 8,000 priests took the oath of supremacy but only one bishop did, so Elizabeth appointed 27 new bishops. The majority of normal people accepted the settlement and attended services but may have still held onto their Catholic beliefs in private.

[1.3] Challenge to the religious settlement

- Puritans** (radical Protestants) opposed keeping **crucifixes** in churches as they felt they represented idols. Elizabeth demanded crucifixes be displayed but when some Puritan bishops threatened to resign, she backed down. Puritans also believed that **vestments** should be plain and simple
- The Catholic campaign against Protestantism was known as the **Counter-Reformation**. In 1566, the Pope issued instructions that Catholics should not attend Church of England services. Elizabeth did not investigate **recusants** too closely as she did not want to make martyrs of people.
- Around one-third of the nobility were recusants, especially in north-west England.
- In 1569, the Earls of Northumberland and Westmorland rebelled in the **Revolt of the Northern Earls**. They took Durham Cathedral and celebrated a Catholic mass. The rebellion was put down and hundreds of rebels were executed.
- When religious war broke out in France, Elizabeth agreed to help French Protestants in 1562, hoping to get Calais back in return. This failed and the French made peace. Elizabeth lost Calais for good in the **Treaty of Troyes** (1564).
- With Catholic Spain controlling the **Netherlands**, Catholics and Protestants united in the Dutch Revolt (1566) against the Spanish. Elizabeth was under pressure to help but wanted to avoid war. Instead, she allowed **Sea Beggars** to shelter in English ports. In 1568, Elizabeth took gold from Spanish ships that took refuge in English ports. She argued that since it was a loan it did not belong to Spain. The event is known as the **Genoese Loan**.

[1.4] The problem of Mary Queen of Scots

- Mary Queen of Scots was a Catholic with a **strong claim to the English throne**. She was Elizabeth's **second cousin** and there were no issues about her legitimacy. Her mother, Mary of Guise, was from a powerful French noble family.
- When MQS was away ruling in France (with her husband, King Francis II), her mother rules Scotland. Her Scottish Protestant lords rebelled and Elizabeth secretly sent money to help the rebels. The rebellion ended with the **Treaty of Edinburgh** (1560) which said that Mary would give up her claim to the English throne. When Francis died, Mary returned to Scotland but the Protestant lords controlled government. Mary herself never approved the treaty.
- MQS married her second husband, **Lord Darnley** in 1565 and gave birth to a son, James. Darnley was murdered. Probably by the Earl of Bothwell (who would become Mary's third husband). This scandal led to the lords rebelling again and they forced Mary to abdicate. She was **imprisoned** in a castle but escaped in 1568 and raised an army to try to regain her throne. She was defeated and fled to England seeking support from Elizabeth
- A court heard the case of Darnley's murder in 1568. Mary said the court had no right to try her because she was an anointed monarch. The court did not reach a verdict and Mary remained in England in **captivity**.

Key developments

- 1532** Start of the English Reformation.
- 1556-58** Dutch Protestants Revolt against Spanish.
- 1558** Elizabeth succeeded her Catholic sister Mary I and re-established the Protestant, Anglican Church in England
- 1558** Elizabeth's favourites, Sir Robert Dudley and Sir William Cecil were appointed to the Privy Council. Catholic members of the privy council were replaced by Protestants.
- 1559** *Treaty of Cateau-Cambresis* – England returned Calais to France after the territory was lost during the reign of Mary I
- 1559** *Religious Settlement* was imposed and visitations commenced
- 1556** The pope issued an instruction against the Religious Settlement that English Catholics should not attend Church of England services.
- 1560** Elizabeth helped Scotland Protestant lords to defeat Mary of Guise. The *Treaty of Edinburgh* was signed which stated that Mary Queen of Scots would give up her claim to the English Throne. Mary Queen of Scots did not approve of the Treaty and wanted to be named as Elizabeth's heir.
- 1560** Mary Queen of Scots returned to Scotland from France following the death of her Husband, King Francis II. Although she was queen, the Protestant lords controlled the Scottish government
- 1563** Phillip II banned the import of English cloth to the Netherlands in order to prevent the spread of Protestantism
- 1568** Philip and the Duke of Alba defeated Dutch Protestants who had been rebelling against Spanish rule in the Netherlands
- 1568** *The Genoese Loan* - Elizabeth seized gold from Spanish ships docked in English ports. The gold belonged to Italian bankers and was on loan to Philip.
- 1567** Mary's second husband, Darnley was murdered and she remarried Bothwell who had been suspected of the murder. The scandal led to the Protestant Scottish lords rebelling. Mary was forced to abdicate and imprisoned in a castle.
- 1568** Mary Queen of Scots escaped her prison and raised an army in attempt to win back her throne. She was defeated and fled to England, seeking help from Elizabeth against the rebels

KT2: Challenges to Elizabeth at Home and Abroad (1569-88)

[1.[2.1] Plots and revolts at home

- **The Revolt of the Northern Earls, 1569:** When Elizabeth introduced Protestantism and promoted Protestants from the gentry into important government positions, the Earls of Northumberland and Westmorland led northern Catholics against her.
- **The Ridolfi Plot, 1571:** Roberto Ridolfi was an Italian banker who was also a spy for the pope. He arranged a plot to murder Elizabeth, launch a Spanish invasion and put Mary Queen of Scots on the throne. Again, the plan was for Mary to marry the Duke of Norfolk.
- **The Throckmorton Plot, 1583:** Planned for the French Duke of Guise, the cousin of MQS, to invade England. Philip II would provide financial support. A young Englishman, Francis Throckmorton, was to act as a go-between with Marry. The pope approved of the plans.
- **The Babington Plot, 1586:** Planned for the Duke of Guise to invade England with 60,000 men and put Mary on the throne and also encouraged English Catholics to rebel. Anthony Babington, wrote to Mary about the plot but Walsingham intercepted the letters and Babington was executed. Elizabeth signed Mary's death warrant in February 1587.

[2.2] Relations with Spain

- Elizabeth's foreign policy aims were to develop and improve trade, protect England's borders, protect the throne and avoid war.
- **Francis Drake** was an English merchant. In 1572, he was hired by Elizabeth as a **privateer**. She also issued him with secret orders to attack Spain's colonies
- Drake's 1577-80 voyage led him to **circumnavigate** the globe - the first Englishman to do so. He set off with 5 ships and returned with just one, the **Golden Hind**. During his voyage, Drake plundered Spanish ports and ships along the coasts of Chile and Peru and claimed a region of North California, naming it **New Albion**. It is estimated that when he returned, Drake brought with him £400,000 of Spanish treasure.
- From 1576, Spanish ships were sailing to the Netherlands with troops and resources for the Duke of Alba's army. Philip's brutal campaign against Protestantism alarmed English Protestants. Elizabeth wanted to avoid war so instead applied pressure on Philip through indirectly helping the Dutch
- By 1576, the Spanish government in the Netherlands was bankrupt and troops were not being paid and so they mutinied, sacking Antwerp. This was known as the **Spanish Fury**. It united all 17 Dutch provinces, Protestant and Catholic, against Spain. They drew up the **Pacification of Ghent** which demanded that all Spanish troops were to be expelled, the restoration of political independence and an end to religious persecution. Elizabeth sent a loan of £100,000 to the rebel and agreed to send an expeditionary force.
- In 1584, the French Catholic league signed the **Treaty of Joinville** with Philip II to secure his help against French Protestants.

2.3] Outbreak of war with Spain, 1585-88

- After the Treaty of Joinville, Elizabeth could no longer avoid direct action in the Netherlands.
- In August 1585, Elizabeth signed the **Treaty of Nonsuch** with the Dutch Protestants. Elizabeth had agreed to intervene directly in the Netherlands on the side of the rebels. She would finance an army of 7,400 troops under her favourite, Robert Dudley, the **Earl of Leicester**.
- In October 1585, Elizabeth also sent Francis Drake to raid Spanish New World settlements.
- The Earl of Leicester was not given enough money for men or supplies to launch a large campaign as Elizabeth was still hoping to negotiate with Philip.
- In January 1586, Leicester accepted the title of Governor General of the Netherlands. Elizabeth was furious as it implied she was deposing Philip as king of the Netherlands. In the summer, English forces were weakened when English captain, Rowland York, and Sir William Stanley defected to the Spanish side.
- Elizabeth recalled Leicester from the Netherlands for good in 1587.
- Since 1586, the Spanish had been preparing for the **Armada**. In March 1587, Elizabeth ordered Drake to attack Spain's navy. On 19 April, he sailed into Cadiz harbour and over 3 days destroyed 30 ships. This was known as the **'singeing of the King's beard'**.

[2.4] The Armada

- Philip's Armada had 130 ships, 2,431 guns and around 30,000 men. It was under the command of the **Duke of Medina-Sidonia**. It would sail along the English Channel to the Netherlands where it would join up with the Duke of Parma. Together they would transport 27,000 troops to Kent and Parma would march on London and depose Elizabeth.
- One reason for English victory was their **ships**. New ships, known as **galleons**, were easier and faster to manoeuvre. English ships could also fire more cannonballs.
- **Spanish supplies** were stored in barrels of wood which caused food to rot.
- **Communications** between Medina-Sidonia and Parma had to go by sea and so by the time a message was sent that Medina-Sidonia was in the Channel, it was too late - his fleet would not be ready to sail for another 48 hours.
- The Armada was spotted in the Channel on **29 July 1588**. The English opened fire on 31 July and captured 2 ships.
- On the night of 6 August, the English sent **fireships** in amongst the Spanish fleet, which scattered the Armada. When it regrouped on 8 August, the two sides fought in the **Battle of Gravelines**. The Armada was defeated and scattered by the winds.

Key developments

1492 Discovery of the New World
1559 Elizabeth's Religious Settlement
1567 Spanish travel led to Netherlands to crush Protestant revolt
1568 Mary Queen of Scots arrived in England from France
1586 Philip begins preparing for the Armada
1569 Revolt of the Northern Earls against Elizabeth fails . 450 rebels were executed Elizabeth chose not to execute the Duke of Norfolk or Mary
1570 Elizabeth was excommunicated by the Pope who called for all loyal Catholics to depose her in the hope it would cause a Catholic rebellion
1571 The Ridolfi Plot fails . Highlighted the threat of Spain
1572 Elizabeth hired Drake as a privateer to raid Spanish Ships
1576 Spanish Fury and Pacification of Ghent: After unpaid Spanish troops looted Antwerp all 17 Dutch provinces (Catholic and Protestant) formed an alliance that called for Spanish troops to be expelled from the Netherlands
1577-80 Drake is the second person to circumnavigate the globe
1583 Throckmorton Plot fails . Highlighted the threat of Catholic France and Spain uniting.
1584 Treaty of Joinville created an alliance between Catholic France and Spain.
1585 Act of Preservation of the Queen's Safety/Treaty of Nonsuch - Elizabeth agreed to take direct action against Spain in the Netherlands. This effectively put England at war with Spain.
1586 Babington Plot. Elizabeth's government become determined to crush the Catholic threat
1587 Mary Queen of Scots was executed after years of Elizabeth being reluctant to execute an anointed monarch
1587 Attack on Cadiz- Drake sailed into Cadiz harbour, Spain's most important Atlantic port, and over 3 days destroyed 30 ships. Also known as the 'singeing of the King's beard'
1588 Elizabeth defeats Phillip in the Spanish Armada

KT3: Elizabethan society in the Age of Exploration (1558-88)

[3.1] Education and leisure

- Attitudes towards education were beginning to change but you were still prepared for the life you were expected to live based on the Tudor social hierarchy.
- Children on the **nobility** learned a variety of subjects, such as foreign languages, Philosophy, History and Government.
- The greatest change was the development of **grammar schools**. 42 grammar schools were founded in the 1560s. They were set up for boys considered bright, who came from families of the gentry, professionals or business owners. Some grammar schools ran alternative curriculums for sons of merchants and craftsmen.
- **Petty schools** were often set up and run in a teacher's home. Boys whose parents could afford to send them to school started their education here.
- Most Elizabethans had **no formal education** and learned what they needed from their families.
- It is estimated that around 30% of men and 10% of women were literate by the end of Elizabeth's reign.
- For those able to go on to higher education, they would attend either Oxford or Cambridge **University**, starting at the age of 14/15.
- Your social class also determined what sports and leisure activities you could take part in.
- Nobility: hunting, hawking, fishing, fencing and tennis.
- Craftsmen, farmers and labourers: football.
- Other leisure activities included **baiting** and **cock-fighting**. These were spectator sports.
- The **Theatre** was a popular pastime and the first purpose-built theatre was the Red Lion, constructed in 1567.

[3.2] The problem of the poor

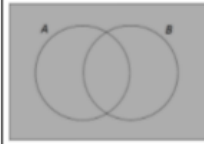
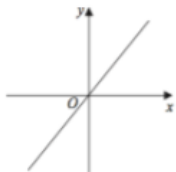
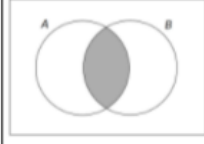
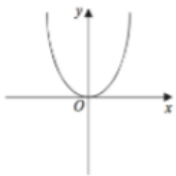

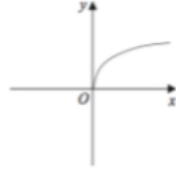


- Poverty during Elizabeth's reign was caused by **population growth**, the **rising price of food** (food became more in demand as the population grew), a change to **sheep farming** for wool rather than growing crops, and **enclosure**.
- Enclosure meant replacing large, open fields with individual fields belonging to one person. Enclosure often made landowners rich but ordinary labourers could not afford increased rents and therefore suffered. Also, more efficient techniques for farming meant that fewer labourers were needed.
- **Vagabonds** (homeless people without jobs who roamed around begging for money) were feared as they threatened law and order. Vagabonds and the number of urban poor grew rapidly.
- Financial help was available for the poorest. This was known as **poor relief** and was paid for by a local tax called the poor rate.
- The poor were categorised by those who were unable to work due to age or illness (**impotent or deserving poor**) and those who could work but chose not to (**able bodied or idle poor**). Vagrants/vagabonds faced severe punishments, such as whipping or imprisonment if caught.
- Government action: **Statute of Artificers (1563)** ensured that poor relief was collected. The **Vagabonds Act (1572)** aimed to deter vagrancy through punishment, the creation of the poor rate and finding work for the able bodied poor. The **Poor Relief Act (1576)** aimed to distinguish between the able-bodied and impotent poor and to help the able bodied find work. It also established the **house of correction**.

[3.3] Exploration and voyages of discovery

- Elizabethans explored due to **expanding trade** and new opportunities in the **New World**, the idea of **adventure**, and the development of **new technology**, such as quadrants, astrolabes and the development of maps. In 1569, the Mercator map was developed by cartographer Gerardus Mercator and used lines of longitude and latitude.
- **Ships** became larger, more stable, faster and had better fire power. Ships known as **Galleons** were developed in the 16th Century.
- Drake's **circumnavigation** of the globe in 1577-80 showed England as a great seafaring nation and encouraged others to explore.

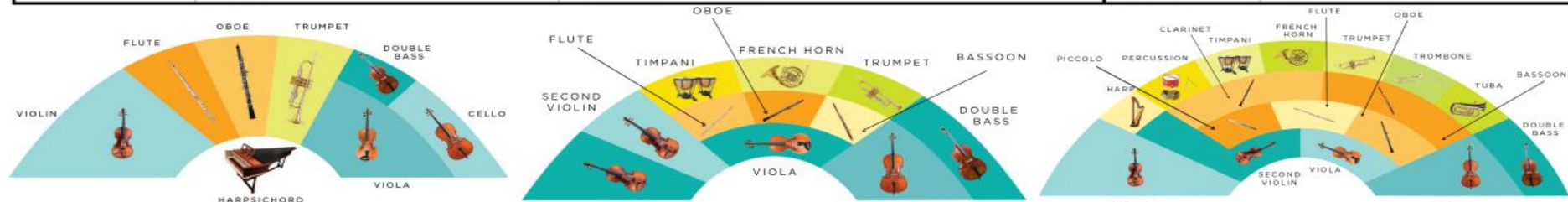
[3.4] Raleigh and Virginia

- **Raleigh** was born into a gentry's family and became an explorer and courtier during Elizabeth's reign. He was also a writer and historian.
- In 1584, Raleigh was given a grant by Elizabeth to explore and settle lands in North America. There had already been two failed attempts. Raleigh did not lead the expedition himself but investigated, organised and raised funds for it.
- Raleigh sent a **fact-finding mission** to explore Virginia in **1584**. The expedition brought back two Native Americans, **Manteo and Wanchese** who helped the colonists to establish contact with the Natives.
- In 1585, **107 colonists** (Raleigh had hoped for 300) set sail. Almost half were soldiers but others included landowners, farmers and craftsman who hoped to make their fortune. Richard Grenville was the expedition commander and Ralph Lane was made Governor of Virginia. The group landed in Roanoke in late 1585. The colonists had left England **too late** to reach Virginia in time to plant crops. Due to the climate in Virginia, any food the colonists did have rotted quickly. Some food on one of the ships, the **Tiger**, was ruined (including seeds to plant) when the **ship was damaged**. Colonists became reliant on the Natives and any remaining colonists returned to England in 1586.
- In a second expedition to Roanoke, Manteo was made Lord of Roanoke and artist John White was put in charge of the expedition. White's adviser, George Howe, disappeared and was found dead with 16 arrow wounds. Manteo led an attack on the Natives. White was asked to return to England to report on the expedition. When he returned to Roanoke three years later in 1590, it was **deserted**. What happens remains a mystery but explanations include a hurricane or relocation to another settlement.

A: Sequences		C: Venn diagrams		Maths Knowledge Organiser Year 10 Cycle 2		F: Proportion							
Square numbers	1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225...	ξ	Universal set		D: Sampling		$y = kx$	y is directly proportional to x					
Cube numbers	1, 8, 27, 64, 125, 216...	$A \cap B$	A intersect B A and B		Random sample	Each item has the same chance of being selected.	$y = kx^2$	y is directly proportional to the square of x					
Triangular numbers	1, 3, 6, 10, 15, 21, 28, 36, 45, 55...		$A \cup B$	A union B A or B		Stratified sample				The number of people taken from each group is proportional to the group size.	$y = k\sqrt{x}$	y is directly proportional to the square root of x	
Fibonacci sequence	0, 1, 1, 2, 3, 5, 8, 13, 21, 34...			A'	Complement of A Not A					Qualitative data			
B: Probability		$A' \cap B$			B but not A		E: Standard form		$y = \frac{k}{x^2}$	y is inversely proportional to the square of x			
$P(A)$	Probability of A		Standard form				$a \times 10^n$						
$P(A \text{ and } B)$	$P(A) \times P(B)$		a	A number between 1 and 10									
$P(A \text{ or } B)$	$P(A) + P(B)$			n	A positive or negative integer								
$P(\text{not } A) =$ (for mutually exclusive events)	$1 - P(A)$												
Relative frequency	$\frac{\text{Frequency}}{\text{Total number of trials}}$												

AoS2: Concerto Through Time

What is a Concerto?		Key Terms	
1. Solo and Orchestra	Uses a solo instrument (solo concerto) OR a group of soloists (concerto grosso) with an orchestral	1. Acciaccatura	An ornament: a very quick, "crushed" grace note (before the main note)
2. Three Movements	1. Fast 2. Slow 3. Fast	2. Alberti Bass	A broken chord accompaniment figure, usually played in quavers
3. Virtuosity	The soloist shows off the capabilities of the instruments and/or the solo performer	3. Appoggiatura	A slightly longer grace note
4. Metre	Common or Simple time most commonly used in concertos (4/4; 3/4; 6/8)	4. Cadenza	Orchestra stops whilst the soloist has a virtuosic solo section (sometimes improvised)
Baroque		Key Terms	
1600-1750	Corelli; Vivaldi; Bach	5. Chromatic Harmony	Harmony that uses complex chords, using notes that are not part of the scale (accidentals)
1. Small orchestra , consisting of strings and continuo section (bass line and chords)		6. Concertino	The group of soloists in a concerto grosso
2. Concerto Grosso very popular during this period		7. Concerto Grosso	A concerto with a group of soloists instead of just one
3. Diatonic harmony , mostly based on primary chords (I, IV, V)		8. Continuo	Continuous bass line, played by a bass instrument (cello) and a chord instrument (harpichord)
4. Heavy use of ornamentation		9. Contrapuntal	Polyphonic. Lots of independent melodic lines playing together.
5. Often uses contrapuntal texture and use of sequence a lot to develop melody		10. Diatonic Harmony	Music in a major or minor key - often based around primary chords
6. Terraced dynamics due to the use of the harpichord		11. Doubled	When the melody is played by another instrument
Classical		12. Ground Bass	A short repetitive theme in the bass line whilst other parts vary over the top
1750-1810	Mozart; Haydn; Beethoven	13. Mordent	An ornament: changing quickly to the note above or below the main note.
1. Medium sized orchestra , with separate woodwind section including clarinets. No continuo		14. Ornament	Decorative notes, e.g.: acciaccaturas, appoggiaturas, trills etc
2. More likely to have horns and timpani used and contrasting dynamics with cresc and dim		15. Ripieno	The orchestral backing in a concerto grosso
3. Diatonic harmony still		16. Rubato	Momentarily not keeping to strict tempo to allow a slight quicken/slow of expression
4. Use of equal length question and answer phrases , known as periodic phrasing		17. Sequence	When a melodic idea/motif is repeated higher or lower each time
5. Melody and accompaniment main type of texture, with orchestra often playing homophonically		18. Terraced Dynamics	Either loud or soft. No crescendo or diminuendo
6. Introduction of cadenzas at the end of the first movement in particular		19. Trill	An ornament: alternating quickly between two notes next to each other
Romantic		20. Tutti	A section of music where everybody plays
1810-1910	Brahms; Tchaikovsky; Mendelssohn	21. Valves	On brass instruments they allow all notes to be played (as opposed to just the harmonic series)
1. Large orchestra , more likely to include large brass and percussion sections		22. Virtuosoic	Difficult to play/showing off
2. Brass instruments now have valves giving them a larger range			
3. Solo concertos much longer , more virtuosic and cadenzas not longer improvised but written			
4. More chromatic harmony , creating more dissonance , allowing more emotional/dramatic moods			
5. More contrasting dynamics, tonality and pitch used to create emotional/dramatic moods			
6. Modulations to more distantly related keys .			
Changes to the Orchestra			
Strings	Violin; Viola; Cello; Double Bass	The number of strings increases to be able to be heard over the growing orchestra over time.	
Woodwind	Flute; Oboe; Bassoon	+ Clarinets	+ Piccolo; Cor anglais; Bass clarinet; Contrabassoon
Brass	Trumpet; Horn (rarely used)	Used more often	+ Trombone; Tuba
Percussion	Timpani		+ Snare; Bass drum; Cymbals; Glockenspiel
Other	Harpichord	Harpichord fell out of use with the invention of the piano	



AoS4: Film and Video Game Music

Key Ideas		Key Terms			
1. Purpose	Music in a film is there to set the scene, enhance the mood, tell the audience things that the visuals cannot, or manipulate their feelings. Sound effects are not music!	1. Click Track	A click metronome heard by musicians through headphones as they perform to keep in time	5. Mickey Mousing	When music fits exactly with a specific action on screen
2. Theme Song	Sometimes a song, usually a pop song, is used as a theme song for a film. This helps with marketing and publicity.	2. Cues	The parts of the film that require music. This is agreed between the director and composer	6. Non-diegetic	Music that is not part of the action: the audience can hear it but the character in the film cannot
3. Video Game Music	Music for video games fulfils a very similar function to that of film music.	3. Diegetic	Music that is part of the action: the characters in the film can actually hear the music	7. Sync point	A precise moment where the music needs to fit with an action
Composing to enhance a mood:		4. Leitmotif	A short melody that is associated with a character or idea in a film	8. Underscore	Music played underneath action or dialogue - used to set a mood
War/Military	1. Use of simple/duple metre will work for a military style drum beat	Pitch & Melody		Harmony & Tonality	
	2. Percussion instruments used to help depict a military band, including snare, bass drum and cymbals.	1. Arpeggio/Broken Chord	Going up or down the notes of a chord one at a time, ascending or descending	1. Atonal	Not in a key - often sounds dissonant
	3. Brass instruments evoke a military feel but also heroism associated with fanfares.	2. Chromatic scale	Going up or down by one semitone at a time	2. Consonant	Not clashing - harmony that sounds nice
Drama	1. Thick textures and rich timbres can help to convey emotion	3. Conjunct/stepwise	Moving up or down by step (notes that are next to each other)	3. Dissonant	Clashing harmony
	2. Often using string instruments	4. Disjunct/leap	Moving up or down by leaps (notes that are further apart from each other)	4. Major/Minor	The key - generally major keys sound happy and minor keys sound sad
	3. Major tonality for epic/triumphant feel. Minor tonality for tragedy/reflectiveness	5. Ostinato	A repeating pattern (can be melodic or rhythmic)	5. Pedal Note	a held note under or over the rest of the music
Horror	1. Sustained/tremolo strings bring tension to a scene, especially when played quietly	Dynamics, expression and articulation		Texture	
	2. Sudden changes in dynamics and pitch prevent the listener from feeling comfortable	1. Accent/Stab	A note that is louder than the ones surrounding it (a chord is known as a stab in film music)	1. Antiphonal	Alternating groups of instruments
	3. Unpleasant/screeching timbres and dissonance	2. Crescendo/Diminuendo	Getting louder/quieter gradually	2. Call and Response	Question and answer
Comedy	1. Faster tempo and major key to help create a bright melody	3. Glissando	A very quick scale, played as fast as possible so that it is as close to a slide as possible	3. Homophonic	Chords
	2. Pizzicato strings and usually a lot of Mickey Mousing	4. Muted	A dampened sound on a brass or string instrument	4. Monophonic	A single melody - no harmony
Tragedy	1. Minor tonality with heavy use of strings	5. Legato	Played smoothly	5. Polyphonic	Many independent lines of music
	2. Slow tempo, unless conveying a panic before a tragedy	6. Pizzicato	When a violin, viola, cello or double bass is plucked (instead of bowed)	6. Octave	The interval of an 8th
	3. Generally quiet dynamics with warm timbres	7. Staccato	Short, detached notes	7. Imitative	A melody repeated a little later by another instrument

AoS5: Conventions of Pop

Rock n' Roll of the 50s & 60s		Rock Anthems of the 70s & 80s		Pop Ballads of the 70s, 80s & 90s		Solo Artists from 90s to the present	
Small dance hall/clubs or concert halls	Little Richard/Elvis Presley	Clubs/Festivals or Stadiums	Queen/Europe	Clubs/Concert Halls or individual listening	Elton John/Bonnie Tyler	Clubs/Small concert hall or Stadium	Rihanna/Adelle/Ed Sheeran
1. Moderate - fast tempo, with a strong back beat rhythm, in 4/4		1. Moderately fast tempo, in 4/4, with a steady rock beat (often a back beat)		1. Often in 4/4 (sometimes in 6/8 or 3/4) with a slow tempo		1. A range of popular styles including: pop, rock, rap, RnB, electronic and dance	
2. Almost always using primary chords, often using 12 bar blues structure		2. Powerful and uplifting lyrics designed to be sung along with by the audience in the chorus		2. Range of textures to reflect the emotional lyrics of the song		2. More use of electronic instruments and synthesisers with improvements in technology	
3. Melody and accompaniment texture, with homophonic chordal accompaniment		3. Power chords used on electric guitars, to create a melody and accompaniment texture		3. Sentimental lyrics often reflected in the vocals with the use of rubato and melisma		3. Typical band instruments but with more computerised additions and effects	
4. Syncopated walking bass lines, and often swung rhythms in the chords		4. Riffs played by keyboards, electric guitars and bass, with long drum or guitar solos		4. Harmony often using a mix of major and minor chords with inversions		4. Effects like autotune can now be applied to live performances and so are used more creatively	
5. Rock band instruments mostly acoustic: piano, drums, guitar (electric), bass/double bass and brass		5. More electronic sounds using music technology: distortion; overdrive, delay and wah-wah pedals		5. Instruments with a typical band setup (guitar, drums, bass) but with more piano and strings		5. Still often uses a typical pop song structure (as do the other 3 styles)	

Key Terms

1. A capella	Voices without instrumental accompaniment	11. Glissando	A slide between two notes, when you can hear individual notes (e.g.: like on a piano)	21. Reverb	Effect added to vocals once they have been recorded to add 'warmth' - gives a slight echo
2. Autotune	An effect which alters pitch in vocal and instrumental music recording and performances	12. Hook	The catchy part of the song, often in the chorus	22. Riff	A repeating melodic or rhythmic idea
3. Back beat	A drum beat which emphasises the second and fourth beats of the bar	13. Instrumental break	A section where the singing stops and there is a solo on an instrument	23. Rubato	Momentarily not keeping to strict tempo to allow a slight quicken/slow of expression
4. Bridge	A section that links the verse and chorus. Sometimes called a pre-chorus	14. Looping	Technology-based method of repeating a short musical idea	24. Sampling	A short extract of already composed music and reused in a new piece
5. Broken Chord	Each note of a chord played separately	15. Melisma	Lots of notes sung to a single syllable	25. Scat	Vocal improvisation with nonsense syllables or without words
6. Delay	Electronic effect that delays the sound. Sounds like an exaggerated echo	16. Middle Eight	A section of the song where there is a new, different tune	26. Strumming	Playing all the strings of a guitar at once to play a chord
7. Distortion	An effect used on guitars: a dirty, fuzzy kind of sound	17. Overdrive	An effect like distortion, but more subtle to create a more natural effect and less aggressive	27. Syllabic	Each syllable is sung to a single note
8. Falsetto	High pitched male voice (when he is using his head voice)	18. Panning	Making certain tracks come through different sides of the speakers/headphones (left/right)	28. Turn	Playing the note above, then the main note, then the note below and then back to the main note quickly
9. Fill	At the end of a phrase, the drummer plays a more complex beat for a moment	19. Picking	On guitar, playing one note at a time (as opposed to strumming)	29. Vibrato	Pulsating change of pitch. It is used to add expression
10. Flanger	A guitar effect that makes a whooshing sound	20. Portamento	When a singer slides between notes	30. Wah-Wah pedal	a guitar effects pedal that alters the tone and frequencies to mimicking the human voice saying "wah-wah"

Knowledge organiser AoS3: African drumming			Key terms
1. African drumming	Key ideas and concepts	Africa is a huge continent with a rich and diverse history. Music is performed every day in some African cultures; at celebrations, funerals and even for mundane tasks. The sounds and rhythms are like a language that crosses both time and place, communicating messages.	1. Djembe A single-headed, goblet-shaped drum that is played with the hands.
	African drumming	2. Dunun A large double-headed drum played with a stick.	2. Dunun A large double-headed drum played with a stick.
1. African drumming	African drumming	1. Djembe - a single-headed, goblet shaped drum that is played with the hands . They come in several sizes and can produce several different sounds with one drum. Traditionally played by men , whilst women play other percussion instruments. It can produce three different sounds - low, mid, and a high slap .	3. Agogo A bell-like instrument that can produce two pitches.
		2. African music is rarely written down. It is learnt by listening, copying and remembering.	4. Polyrhythm The combining of several different rhythms.
		3. Dunun - A large double-headed drum played with a stick . Often worn on the shoulder using a strap. Often a bell-like instrument is mounted on the dunun. A dunun can produce three sounds: open, muted and the bell sound .	5. Cross rhythms A complex polyrhythm that uses different 'conflicting' rhythms.
		4. Agogo - A bell-like instrument that can produce two pitches. Often leads the ensemble keeping everyone else in time.	6. Improvise Make up on the spot.
		5. Polyrhythm - the combining of several different rhythms. Many African rhythms are simple to play; however, when combined they create a complex sound.	7. Tempo The speed of the pulse in a piece of music.
		6. Cross rhythms - a complex polyrhythm that uses different 'conflicting' rhythms. Often the rhythms do not follow the same pulse . A common example is the two against three cross rhythm.	8. Master drummer The leader of the group.
		7. Call and response - one person shouts or plays a 'call', and the rest of the performers (or audience) respond . A caller might start a rhythm, and pass it to another drummer. It is often used in vocal singing . A caller controls the tempo of the piece, as well as when it starts and ends .	9. Virtuoso (virtuosic) Someone who possesses outstanding technical ability.
		8. Master drummer - a virtuosic (really good) musician who acts as the caller during the performance. As well as controlling the piece, they often perform the core rhythm that the other rhythms fit around. They may also improvise rhythms based on the core rhythm, as a kind of solo , and then fit it seamlessly back into the overall texture.	10. Call and response One person shouts or plays a 'call', and the rest of the performers (or audience) respond.
		9. Talking drum - played with a hooked stick , and contains string that can be tightened and loosened to alter the pitch . A special instrument in African culture. A performer can replicate the sound of human speech , and communicate messages using the drum. Historically this language was understood between tribes .	11. Talking drum A drum played with a hooked stick, and contains string that can be tightened and loosened to alter the pitch.
		10. Melody - Call and response singing. The majority of the musicians play percussion. Melodies are often short and contain only a few different pitches .	13. Triplets Three notes played in the time of two.
		11. Tonality - percussion based. Very little harmony or tonality.	14. Cyclic Short repeated patterns.
		12. Structure - the master drummer controls the structure . Instruments start and stop as indicated by the master drummer. Short improvisations are developed around set patterns . There may be a central vocal melody that keeps returning .	
		13. Instruments - several different drums are used. Several different sounds can be produced using a single instrument. Bells, rattles and shakers are used.	
		14. Texture - the music consists of several layers of drums and other percussion instruments. Drums combine in complex layers - polyrhythms .	
		15. Tempo, metre and rhythm - there is a strong pulse , which is usually divided into groups of three or four . Rhythms are 'cyclic'. Contrasting rhythms are played simultaneously (polyrhythms). Triplets and cross rhythms are often used.	

MUSIC

Knowledge organiser AOS3: The Music of Central and South America

Key ideas and concepts		Key terms	
1. Calypso	Calypso is a form of traditional music from the (twin) island nation of Trinidad and Tobago . It has since become popular throughout the Caribbean . Calypso music consists largely of songs , where the music and lyrics are equally important. The lyrics usually tell a story, or comment on politics and society.	1. Steel pans - tenor or pings	Play the melody
2. Samba	Samba is the dance and musical style that typifies Brazilian music. It combines a large number of different musical styles, but its roots are mainly in African drumming. Originally the rhythms of samba were played on guitar-like instruments and accompanied by small percussion. Taking influences from the American military marching bands, the samba developed into the percussion-based style we hear today.	2. Steel pans - altos, guitars and cellos	Play the chords
Music of Central and South America			
1. Claypso	<p>1. Steel pans - Percussion instrument constructed from oil drums. Different sized drums used for the melody, chords and bass line.</p> <p>2. Melody - call and response singing in the chorus. Chorus consists of short, simple phrases. The melodies are syncopated. Some of the instrumental melodies have an improvised quality.</p> <p>3. Tonality - simple harmony using primary chords (I, IV, V). Usually in a major key.</p> <p>4. Structure - Verse, chorus and instrumental sections.</p> <p>5. Instruments and timbre - Solo vocals with backing vocals. Often a combination of singing and spoken lyrics. Steel pans, bass guitar, guitar, percussion.</p> <p>6. Texture - Melody and accompaniment.</p> <p>7. Tempo, metre and rhythm - Usually in 2/4 or 4/4 with syncopation. The shaker and guitar often play continuously, providing a rhythm for the others to follow. Often there are stops in the rhythm between sections.</p>	<p>3. Steel pans - bass</p> <p>4. Tremolo</p> <p>5. Surdo</p> <p>6. Caixa</p> <p>7. Repinique</p> <p>8. Tamborim</p> <p>9. Agogo</p> <p>10. Ganzá</p> <p>11. Cuica</p>	<p>Plays the bass line.</p> <p>A rolling effect, rapidly play the same note, is used on long notes.</p> <p>Large drum played with a soft beater, and muted with the hand. Provides the basic rhythmic pulse.</p> <p>A snare drum that provides a constant rhythm.</p> <p>High pitch tom-tom drum to cut through the ensemble. Played with a stick.</p> <p>A small frame drum, tuned very high, and played with a small wooden or nylon beater.</p> <p>A bell-like instrument that can produce two pitches.</p> <p>Shaker-like instrument. Plays a constant pattern.</p> <p>A friction drum with a large pitch range, produced by changing tension on the head of the drum.</p>
2. Samba	<p>1. A 2/4 or 4/4 rhythm, nearly always 'felt' as two beats. Polyrhythmic layers of many different percussion instruments. Use of call and response.</p> <p>2. Led by one player with a whistle and a repinique. They are the master drummer and are usually a virtuoso.</p> <p>3. Melody - sometimes this is created with brass instruments and vocals. Often there is no melody or chords, hence often no harmony.</p> <p>4. - Samba often accompanies special events, such as carivals. It is always associated with dancing.</p> <p>5. No sheet music. Aural tradition.</p> <p>6. Structure - section where all instruments play individual repeated patterns (ostinato). A section where all the instruments play the same rhythm. A solo section for the repinique. A call and response section where instruments copy or respond to rhythms of the repinique.</p>	<p>12. Call and response</p> <p>13. Ostinato</p> <p>14. Virtuoso</p> <p>15. Clave rhythm</p>	<p>One instrument plays a 'call', and the rest of the performers (or audience) respond.</p> <p>A gradual increase in tempo.</p> <p>Someone who possesses outstanding technical ability.</p> <p>We learnt this as the Saturday / Sunday rhythm. Originally from Cuba played on claves.</p>

Knowledge organiser AoS3: The Eastern Mediterranean and the Middle East			Key terms
1. Greece	Folk music in Greece consists of both dances and songs. These are heard at celebrations and other social events. Folk songs might be heard in cafés, restaurants or bars.	1. Bouzouki	A stringed instrument that is played using a plectrum, similar to a guitar.
2. Israel & Palestine	Many regions in these two states have changed hands in recent history. They share many musical traditions. Diverse religious and cultural history - Jewish, Arabic and Christian. Also influences from Africa and the wider Middle East. Rich in vocal music.	2. Tremolo	When playing the bouzouki, this is fast repetition of notes.
Music of the Eastern Mediterranean and the Middle East		3. Defi	A Greek hand drum with bangles attached.
1. Folk music of Greece	1. Bouzouki - a stringed instrument that has three or four pairs of strings tuned to the same note or an octave apart. Usually plays the melody and plays distinctive slides and tremolos in thirds.	4. Diatonic	In a major or minor key.
	2. Melody - simple with lots of ornamentation. Move by step over a relatively small range. They are lyrical, enjoyable to sing. The scales are similar to major and minor with some chromatic alterations. Often harmonised a third higher by another part.	5. Slide	To glide from one note to the next.
	3. Tonality - Diatonic major and minor chords. The tonic (I) and dominant (V) are emphasised by the bass note. There is some modulation to other keys (often relative major or minor).	6. Doumbek	A goblet drum, similar to a djembe, but played with a lighter, faster touch.
	4. Structure - Short sections. Sections are repeated .	7. Oud	A pear-shaped stringed instrument played with a pick.
	5. Timbre and articulation - Many strings instruments, either plucked or bowed . Tremolo and slides are a feature. A wide range of hand percussion instruments. Several wind instruments used, resembling recorders and clarinets.	8. Modes	A type of scale often used in traditional music from around the world, rather than major or minor scales.
	6. Texture - The melody line is prominent with accompaniment. Off-beat chords are a feature.	9. Drone	A repeated note, or set of notes, repeated throughout a piece.
	7. Tempo, metre and rhythm - Irregular time signatures (5/8, 7/8), although simple time (2/4, 3/4, 4/4) is also common. The music is often created for dancing.	10. Microtones	Notes between the semitones of Western classical music.
	1. Oud - a pear shaped stringed instrument, similar to the European lute. Typically they have 11 strings, tuned in five pairs with one 'drone' sounding string. Functions as both a melody and an accompaniment instrument, and is played with a pick. Mainly used in Arabic music.	11. Maqsum	The name given to a basic rhythmic pattern used throughout the Middle East.
	2. Israeli music tends to adopt more Western musical instruments, rather than Arabic.	12. Saidi	An upbeat folk rhythm.
	3. Maqam - used in Arabic music, is a system of melodic modes or scales . Similar to the raga in Indian music. Many Arabic scales use microtones - notes between the semitones of Western classical music.	13. Accelerando	A gradual increase in tempo.
2. Israel & Palestine	4. Improvisation is a feature of Arabic music, especially at the beginning of a piece to establish the maqam .	14. Grace notes	An extra note added as an embellishment to a melody.
	5. Israeli folk dances are commonly associated with dancing and takes places at Jewish weddings and bar mitzvah ceremonies. Usually in 2/4 or 4/4. Bass plays on every beat, often playing the root note or the fifth. A chord instrument plays chords on the off-beat. A fast tempo. Gradual accelerando.	15. Ornamentation	Fast notes that are added to a melody, such as a trill.
	6. Israeli melodies are often played on the clarinet, violin and accordion, often using grace notes and pitch bends to create a distinctive sound. Melodic decoration and ornamentation are common.		

MUSIC

Knowledge organiser AoS3: Music of the Indian subcontinent

Key ideas and concepts

Key terms

1. Indian classical music	The Indian subcontinent is a vast and culturally diverse area. The classical music we have looked at comes from the north (Hindustani). The music is largely improvised based around ragas and talas, and usually contains three separate sections.	1. Guru	A master performer
2. Bhangra	Bhangra started in the Punjab region of India (now split between India and Pakistan) from the 14th Century. Normally performed at festivals. Modern bhangra is a fusion of traditional bhangra and western pop influences.	2. Improvise	Making up music during a performance, rather than referring to a pre-existing melody or part.
Music of the Indian subcontinent			
1. Indian classical music	1. Performers play entirely by ear and from memory , and learn from a master performer called a guru . 2. Performers (and often the audience) sit crossed legged on the floor during performances. 3. Performances can last several hours and are of indeterminate length. 4. The vast majority of the music is improvised , and the performers are constantly communicating and responding to each other with their playing. 5. Raga - a set of pitches , similar to a scale or mode. Used to create a melody. There are hundreds of different ragas to be used at different times of the day or year . Usually played on a sitar . 6. Drone - a repeated note or set of notes played throughout the piece. It is static - unchanging. It does not change chord. Traditionally played on a tanpura or shruti box .	4. Drone	A repeated note or set of notes repeated throughout a piece.
		5. Tala	A cycle of beats that repeat.
		6. Alap	The opening section of a piece of Indian classical music.
		7. Gat	The main, middle section of a piece of Indian classical music. It is a fixed composition .
		8. Jhala	The fast climax of a piece of Indian classical music.
		9. Sitar	A stringed instrument. Its distinctive sound is due to a number of 'sympathetic strings' incorporated within the instrument.
	7. Tala - a cycle of beats that repeat. Hundreds of different types. The tintal is 16 beats long - divided into 4 bols (bars). The sam is the first beat and is accented. Bols 1, 2 & 4 are the vibhag , and bar 3 is the khali vibhag . This is performed on a tabla - played with hands and fingers to create a wide variety of sounds and pitches. The performers improvises rhythms based on the tala. 8. The structure can be divided into 3 sections: Alap - opening section, slow, improvised, in free time, only the drone and melody play. Gat - tabla plays, there is a clear pulse, some fixed phrases may be played, but still has lots of improvisation. Jhala - fast and exciting final section, music becomes faster and more virtuosic. 9. Famous performers include Ravi Shankar (sitar) and Alla Rakha (tabla).	10. Tabla	A pair of Indian drums, capable of a wide variety of sounds and pitches.
		11. Sarod	A lute
2. Bhangra	1. The term 'bhangra' originally referred to a type of Punjabi dancing . 2. Traditional bhangra is from the Punjab region. 3. Modern bhangra formed by British Asian musicians and is a fusion between traditional bhangra and western pop influences. 4. The structure of most bhangra pieces is similar to a standard pop song, featuring verses, choruses and instrumental sections. 5. Modern bhangra uses synthesisers, drum machines, samples . It often contains shouts of 'Hoi' . 6. Instrumental sections are frequently constructed of riffs and the use of samples. 7. Famous performers include Punjabi MC .	12. Tanpura	A stringed instrument used to create a drone.
		13. Sarangi	A stringed instrument that is bowed.
		14. Bansuri	A side blown flute.
		15. Dhol	A double-headed barrel drum.
		16. Tumbi	A high-pitched, single-stringed instrument.
		17. Riff	A short repeated phrase.
		18. Chaal	The fundamental rhythm used in bhangra, played on the dhol.
		19. Synthesiser	An electronic keyboard instrument.
		20. Sampling	Taking an extract from one recording and using it in another.

Component 1 The Cardiovascular System

Functions of the cardiovascular system:

The cardiovascular system consists of the:

- The heart pumps blood around the body
- Blood transports gasses, blood cells and nutrients
- Blood vessels carry the blood

Function	Explanation
Transport of nutrients	Nutrients we eat are broken down from the food we eat and transported to the body in the blood
Transport of oxygen	The cardiovascular system transports oxygen around the body in the blood. Oxygen is needed to provide energy to the working muscles during aerobic exercise.
Transport of carbon dioxide	Carbon dioxide is produced as a by-product during aerobic energy production. The cardiovascular system takes carbon dioxide away from the muscles to the lungs and exhaled.
Clotting of open wounds	Blood contains blood cells called platelets. They are transported in the blood. They help to clot wounds by performing a plug to prevent blood loss.
Regulation of body temperature	Blood vessels can help regulate body temperature. When we get hot blood vessels near the skin will get bigger (vasodilation) this will increase blood flow so heat can radiate from the skin. When we get cold the blood vessels near the skin will get smaller (vasoconstriction) this will decrease blood flow so less heat is lost through radiation.

Redistribution of blood flow:

Vascular Shunting: When we exercise blood is redistributed. The working muscles need more oxygen than other inactive areas of the body such as the stomach. Blood is diverted away from inactive areas to the working muscles.

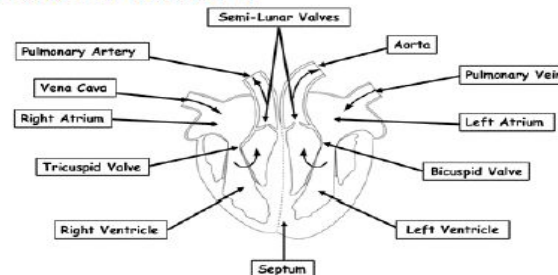


Vasoconstriction means that the blood vessels constrict to make them smaller. Chemical changes signal the nervous system to **constrict** blood vessels to **inactive** areas.



Vasodilation means that the blood vessels dilate to make them bigger. Chemical changes signal the nervous system to dilate blood vessels that supply active areas.

Structure of the heart:



Septum separates the right and left sides of the heart

Valves prevent the backflow of blood

Arteries take blood away from the heart

Veins take blood towards the heart

Pulmonary artery take blood to the lungs

Pulmonary vein takes blood from the lungs back to the heart

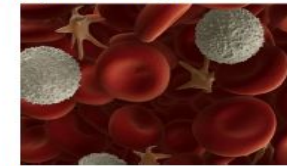
Aorta delivers oxygenated blood to the body

Structure of blood vessels:

Blood Vessel	Structure	Importance During Physical Activity
Artery 	<ul style="list-style-type: none"> • Thick muscular walls • Thick elastic walls • Small lumen (internal diameter) • Carry blood at high pressure • Carry blood away from the heart • Usually carry oxygenated blood (except the pulmonary artery) 	When we exercise, blood pressure increases due to the demand for oxygen from the working muscles. Arteries take the blood to the working muscles. They dilate to allow more blood through.
Vein 	<ul style="list-style-type: none"> • Thin walls • Large lumen (internal diameter) • Carry blood at low pressure • Contain valves • Mainly carry deoxygenated blood (except the pulmonary vein) 	When we exercise aerobically the body produces waste products such as carbon dioxide. The blood in the veins take this to the lungs to be exhaled. The valves in the veins prevent the back flow of blood at low pressure.
Capillary 	<ul style="list-style-type: none"> • Very thin walls (one cell thick) • Small lumen (internal diameter) • Link smaller arteries with small veins • Allow gaseous exchange 	When we exercise, we need to deliver oxygen to the working muscles and remove the waste product, carbon dioxide. Capillaries allow the gaseous exchange at the lungs and the muscles.

Function of blood:

Blood has four components that each play a role in physical activity:



Red blood cells

Red blood cells carry oxygen and carbon dioxide.

The oxygen binds with haemoglobin in the blood. It is then transported to the working muscles by the plasma.

The waste product carbon dioxide is also transported by the red blood cells, it is also carried by the plasma.

White blood cells

White blood cells fight infection and disease. When playing sport, they prevent infection if we get cut or scratched. They also keep us healthy so we are fit to train and take part in physical activity.

Platelets

Platelets help prevent bleeding by clotting (sticking together) and forming a plug. This is important to allow performers such as boxers to stop the bleeding if they get a cut, allowing them to continue performing.

Plasma

Plasma is the liquid part of the blood it acts as a transport system that transports the blood cells, platelets and nutrients to different parts of the body.

Component 1 The Respiratory System

Composition of air:

Inspired Air		Expired Air	
Nitrogen	78%	Nitrogen	78%
Oxygen	21%	Oxygen	16%
Carbon Dioxide	0.04%	Carbon Dioxide	4%

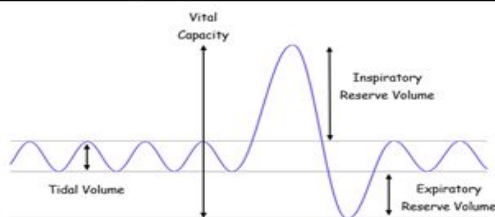
Oxygen levels go down in expired air. Oxygen is used for energy production and for recovery

Carbon dioxide increases in expired air. Carbon dioxide is a waste product of energy production, so there is more carbon dioxide to breathe out

Nitrogen levels stay the same. The body does not use nitrogen for energy production

Lung volumes:

Lung volume	Explanation
Tidal Volume	The amount of air inspired (inhaled) or expired (exhaled) in a normal breath. Tidal volume at rest is 0.5 litres
Vital capacity	The maximum amount of air the lungs can expire (breathe out) after the maximum inspiration (breathe in). Vital capacity is approximately 2.5 litres
Expiratory Reserve Volume	The maximum volume of air that can be exhaled
Inspiratory Reserve Volume	The maximum volume of air that can be inhaled



Components of the respiratory system:



Lungs: They allow air to be moved in and out of the body

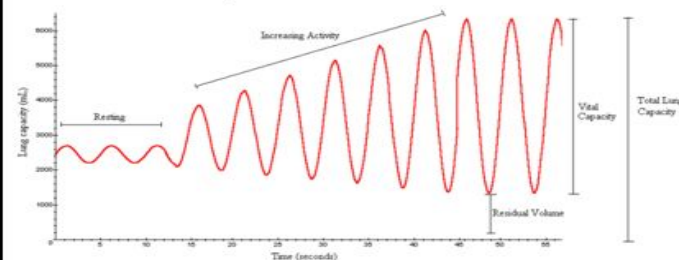
Bronchi: Air travels to each lung via a bronchus

Bronchioles: Branch out throughout the lungs and carry the air from the bronchi to the alveoli

Diaphragm: A domed sheet of muscle that helps us breathe in and out

Alveoli: Tiny air sacs that allow the exchange of oxygen and carbon dioxide

Tidal volume during exercise:



- When our body is at rest, breathing is low and shallow
- During exercise the demand for oxygen increases, oxygen is needed for energy production
- Breathing increases in depth and rate to meet the demand of oxygen
- Carbon dioxide is a by-product of aerobic energy production
- We need to remove the carbon dioxide and breathe it out
- To allow all of the above to happen tidal volume increases

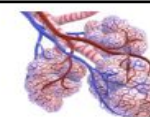
Role of the diaphragm:

Inspiration – the diaphragm contracts and flattens to make more space in the chest so the lungs can expand to pull air in

Expiration – the diaphragm relaxes and returns to a dome shape, making the chest cavity smaller. This helps force air out of the lungs

Structure of alveoli:

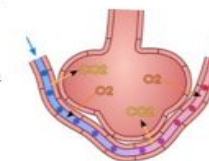
- Tiny air sacs
- Very thin walls
- Surrounded by capillaries



Alveoli and gas exchange

Gas exchange:

Gases move from areas of high concentration to areas of low concentration. If there is more oxygen in the alveoli than the capillaries oxygen will move into the capillaries



Gas exchange alveoli to capillary

Alveoli have a high pressure of oxygen and the capillaries surrounding the alveoli have a low pressure of oxygen. Oxygen moves from the alveoli to the Capillaries

Gas exchange from capillaries to alveoli

Capillaries surrounding the alveoli have a high pressure of carbon dioxide and the alveoli have a low pressure of carbon dioxide. Carbon dioxide moves from the blood (capillaries) into the alveoli

Physics Waves Knowledge Grid		
	Question	Answer
1	Waves definition	Waves transfer energy without transferring matter.
2	Frequency	Number of waves per second measured in Hertz (Hz)
3	Wavelength	The distance from a point on one wave to the same point on the next wave
4	Amplitude	The maximum displacement from the rest position
5	Period	The time for one complete wave, measured in seconds (s)
6	Equation for period	Period = $1 \div \text{frequency}$ $T=1/f$
7	Equation for wave velocity, using frequency	wave velocity = frequency x wavelength $v = f\lambda$
8	Equation for wave velocity, using distance	velocity = distance \div time $v = x/t$
9	Wavefront	A surface containing points affected in the same way by a wave at a given time.
10	Longitudinal waves	Waves with vibrations in the same direction as energy transfer
11	Transverse waves	Waves with vibrations perpendicular to the energy transfer
12	Examples of longitudinal waves	Sound and some seismic waves
13	Examples of transverse waves	Electromagnetic waves, water waves and some seismic waves
14	How to measure the velocity of sound in air	Make a sound, measure the time it takes to reach an observer, measure distance, then use $v = x/t$
15	How to measure the velocity of water waves	Measure the wavelength and frequency, then use $v = f\lambda$
16	Reflection	Change of direction at a boundary when the wave bounces back
17	Refraction	The change in direction of a wave passing from one medium to another caused by its change in speed.
18	Transmission	When a wave travels through a medium.
19	Absorption	When a wave's energy is taken into a material.
20	When a wave goes into a more dense material	The wave slows down and moves towards the normal.
21	When a wave goes into a less dense material	The wave speeds up and moves away from the normal.

Physics Light and the Electromagnetic Spectrum Knowledge Grid			
	Question	Answer	
1	Properties of all electromagnetic waves	Transverse waves that travel at the same speed in a vacuum, transferring energy.	
2	Order of the electromagnetic spectrum	radio waves, microwaves, infrared, visible, ultraviolet, x- rays and gamma rays	
3	Order of the colours of the visible spectrum	red, orange, yellow, green, blue, indigo, violet	
4	Electromagnetic spectrum	A continuous range of waves from radio to gamma that are grouped in decreasing wavelength and increasing frequency.	
5	Our eyes can only detect...	visible light (a small range of the e/m spectrum)	
6	Danger of microwaves	Internal heating of body cells	
7	Danger of infrared	Skin burns	
8	Danger of UV	Damage to surface cells and eyes, leading to skin cancer and eye conditions	
9	Danger of X-rays and gamma rays	Mutation or damage to cells in the body.	
10	Uses of radio waves	broadcasting, communications and satellite transmissions	
11	Uses of microwaves	cooking, communications and satellite transmissions	
12	Uses of infrared	cooking, thermal imaging, short range communications, remote controls and security systems	
13	Uses of visible light	vision, photography and illumination	
14	Uses of UV	security marking, fluorescent lamps, detecting forged bank notes and disinfecting water	
15	Uses of X-rays	observing the internal structure of objects, airport security scanners and medical x-rays	
16	Uses of gamma rays	sterilising food and medical equipment, and the detection of cancer and its treatment	
17	How radio waves are produced	Produced by oscillations in electrical circuits (radio transmitters)	
18	How radio waves are detected	They produce oscillations in electrical circuits (radio receivers)	HT only
19	How electromagnetic radiation is produced	Changes in atoms or their nuclei	

Physics Radioactivity Knowledge Grid					
	Question	Answer		Question	Answer
1	Nuclear model of the atom	A positively charged nucleus, consisting of protons and neutrons, surrounded by negatively charged electrons in orbits at different distances.	20	Gamma ray	Electromagnetic radiation
2	Size of atom	$1 \times 10^{-10}\text{m}$	21	Properties of alpha particles	Low penetration power (stopped by paper), highly ionising
3	Isotope	Atoms of the same element with the same number of protons and a different number of neutrons.	22	Properties of beta particles	Medium penetration power (stopped by aluminum), medium ionising ability
4	Relative mass of protons, neutrons, electrons and positrons	Protons: 1, Neutrons: 1, Electrons: 1/2000, Positrons: 1/2000	23	Properties of gamma rays	High penetration power (almost stopped by thick lead or concrete), low ionising ability
5	Relative charge of protons, neutrons, electrons and positrons	Protons: +1, Neutrons: 0, Electrons -1, Positron: +1	24	Process of beta minus decay	A neutron decays to make a proton and high speed electron.
6	Atoms are electrically neutral because...	Number of protons is equal to the number of electrons.	25	Process of positron decay	A proton decays to make a neutron and a positron.
7	Electrons change orbit because...	they absorb or emit electromagnetic radiation.	26	Units of activity for a radioactive source	Becquerel (Bq)
8	Losing electrons forms...	positive ions.	27	Half-life	Time taken for half the unstable nuclei to decay
9	Types of radiation	Alpha, beta minus, positron, gamma rays and neutrons	28	Random and spontaneous	Don't know which atom will decay or when each atom will decay
10	Radioactivity	When an unstable nucleus emits radiation in a random process	29	Symbol for alpha	α
11	Activity	The total number of decays or emissions per second, measured in Becquerels (Bq).	30	Symbol for beta minus	β^-
12	Count rate	The number of decays measured by a detector measured in counts per second.	31	Symbol for gamma radiation	γ
13	Background radiation	Radiation from man made and natural sources all around us.	32	Symbol for neutron	n
14	Types of ionising radiation	alpha, β^- (beta minus), β^+ (positron) and gamma rays (also UV and X-ray)	33	Dangers of ionising radiation	Tissue damage and mutations of DNA in cells causing tumours
15	Man made background radiation sources	Fallout from nuclear weapons testing, medical sources	34	Precautions when using radioactive sources	Store in lead lined boxes, a few meters away from people, handle with long tongs, do not ingest, limit dosage in hospitals and monitor dose with photographic film
16	Natural background radiation sources	Radon from radioactive rocks and cosmic rays	35	How half-life affects risk levels	The longer the half-life of a source the longer it will give out radiation. A short half-life source will give out a lot of radiation quickly.
17	Two methods of detecting radioactivity	photographic film and a Geiger–Müller tube	36	Contamination	The unwanted presence of a radioactive source.
18	Alpha particle	Helium nucleus (2 protons and 2 neutrons)	37	Irradiation	The exposure of an object to radiation. The object does not become radioactive.
19	Beta particle	An electron emitted from the nucleus			

Crime and Punishment – Islam

Topic	Muslim View	Importance	Impact on Muslims Today
Justice	<ul style="list-style-type: none">Justice is fairness in practice within society.Muslims recognise the importance of justice from the Quran.The law of Allah teaches that Muslims should be fair.	<ul style="list-style-type: none">Justice is a key idea promoted in the Qur'an.Shariah law has strict rules about justice.Muslims believe that Allah considered justice in creation.	<ul style="list-style-type: none">Muslims will act fairly and justly towards others.This can be done in everyday interactions.Muslims act justly as it will affect their afterlife.Muslims share wealth through Zakah.
Crime	<ul style="list-style-type: none">Crime is an action someone commits against the state.It breaks the law of the land (e.g. murder or theft).Crime is considered to be a problem in society.	<ul style="list-style-type: none">Allah orders Justice.Crime is a distraction from Allah.The Ummah – Helping those affected by crime.ProMo taught the importance of living a good life.	<ul style="list-style-type: none">Muslim Chaplains' Association – Supports Muslim chaplains working in prisons as well as prisoners in and out of prison.Mosaic – Supports people of all backgrounds growing up in deprived communities.
Good, evil and suffering	<ul style="list-style-type: none">Muslims have clear teachings on good, evil and suffering.These ideas are seen to be related to each other through the ideas of reward for good behaviour and the infliction of suffering for evil behaviour.	<ul style="list-style-type: none">Suffering is part of Allah's plan.Suffering is a test of faith and character.Suffering is a reminder of sin and Allah's revelationSome suffering is due to human action.	<ul style="list-style-type: none">Muslims believe that Allah is always watching, so they try to live their lives helping others (e.g. food banks).Some suffering is due to human action which means that Muslims will try to act morally correctly.
	Non-religious views: Humans are responsible for their own actions. Natural disasters can't be controlled. Evil and suffering are not punishments. Evil proves there is no God. Therefore no afterlife.		
Punishment	<ul style="list-style-type: none">In order for the law to work properly, those who break the law should be punished.Punishment is justice – retribution for victims.Shariah law sometimes dictates punishment.	<ul style="list-style-type: none">Punishment helps build a peaceful society.Creates a stable society and prevents more crimes.Gives offenders a chance to change (reform).Make some amends for the crime committed.	<ul style="list-style-type: none">There is a difference of opinion where Shariah law differs from western law in societies like the UK.Muslims think that punishment is important to ensure crimes do not happen again and law is maintained.
Aims of Punishment	<ul style="list-style-type: none">Punishment has a number of key aims: Protection, Retribution, Deterrence and reformation.	<ul style="list-style-type: none">Punishment establishes peace and justice on Earth as Allah intended.The aim should be on reform and deterring crime.	<ul style="list-style-type: none">Muslims may have divergent views about which of these aims is most important.Those who do wrong should be encouraged to change.
Forgiveness	<ul style="list-style-type: none">Forgiveness is accepting someone's apology for their misdeed and moving on.It is considered important in Islamic life.Islam is a religion of peace.	<ul style="list-style-type: none">Allah is compassionate, merciful and forgives.When a person truly repents, they should be forgiven.A killer may be forgiven if they pay compensation to the family (Qur'an).	<ul style="list-style-type: none">People will try to match Allah's compassion and mercy.Muslims believe that those who repent will be forgiven on the day of judgement, so behave suitably.Restorative justice is a good method to overcome conflict.
Treatment of Criminals	<ul style="list-style-type: none">Muslims believe that it is important for criminals, even though they have committed crimes, to be treated in a fair way.This usually means a fair trial at least.	<ul style="list-style-type: none">The Qur'an teaches that even someone who has done wrong and is being kept captive deserves to be treated in the correct, humane way.Some believe that when someone has done wrong, their freedoms and rights should be limited.	<ul style="list-style-type: none">Muslims think people should be treated equally, although they accept that criminals deserve punishment for crimes.Muslims believe that criminals should have a fair trial and this should include a trial by jury.Torture is always wrong and disproportionate.
The Death Penalty	<ul style="list-style-type: none">Capital punishment is also known as the death penalty.Both religious and non-religious views support or are against capital punishment.It has been abolished in the UK but not in some countries.The purpose includes deterrent for others.	Muslim views For: <ul style="list-style-type: none">The Qur'an, Shariah and the Prophet Muhammad teach that it was acceptable.ProMo sentenced people to death	<ul style="list-style-type: none">The Hadith teaches that the death penalty can be used for the crimes of murder and for Muslims who refuse their Islamic duty.The Qur'an also says the death penalty can be for rape, homosexuality and working against Islam (apostasy)
		<ul style="list-style-type: none">Capital punishment is an option – not the only one.Muslims may focus on the sanctity of life argument.If the law doesn't include CP then they accept this law.	
Humanists and atheists generally oppose the use of the death penalty, as they believe premeditated killing is wrong – even when carried out by the state. There is also the possibility of error. When situation ethics are applied, some may believe that in certain circumstances capital punishment might be the better option.			

Crime and Punishment – Islam

Key Quotes	Linked Topics
'Uphold justice and bear witness to God, even if it is against yourselves, your parents, or your close relatives.' Surah 4	Justice
'God commands justice, doing good.' Surah 16	Justice, Crime
'With intoxicants and gambling, Satan seeks only to incite enmity and hatred among you, and to stop you remembering God and prayer.' Surah 5	Crime, Hudud
'Good and evil cannot be equal. (Prophet), repel evil with what is better.' Surah 95	Good, evil and suffering
'We created man from a drop of mingled fluid to put him to the test.' Surah 76	Good, evil and suffering
'We have prepared chains, iron collars, and blazing Fire for the disbelievers.' Surah 76	Crime, Hudud, Evil
'As for those who did evil, each evil deed will be requited by its equal.' Surah 10	Punishment, Qisas
'Do not kill each other, for God is merciful to you.' Surah 4	Aims of Punishment
'But if you overlook their offences, forgive them, pardon them, then God is all forgiving, all merciful.' Surah 64	Forgiveness
'Do not let hatred of others lead you away from justice.' Surah 5	Justice, crime, treatment of criminals
'Fair retribution saves life for you.' Surah 2	'...the married adulterer, a life for life, and the deserter of his Din (Islam).' Hadith
	Justice, death penalty, Qisas

Key Words	Meaning
Justice	Doing what is right and fair based on the law
Crime	An act that is against the law
Qadi	A judge in Muslim law
Shari'ah	Islamic legal system based on Muslim scholars' understanding of the Qur'an, Sunnah and the Hadith
Fitrah	The nature humans are born with
Blood Money	Money paid to the relatives of a murder victim
Qisas	The law of retaliation
Situation Ethics	The idea that people should base moral decisions on what is the most loving thing to do
Deterrence	Something to put people off wrongdoing
Protection	Keeping people safe from harm
Reformation	Changing for the better
Retribution	Punishment for a wrong or criminal act
Forgiveness	To pardon a person for a wrong they have done
Madinah Charter	A constitution or set of laws for the state Muhammad established in Madinah
Restorative justice	An action that focuses on the rehabilitation of offenders through reconciliation with victims and the community at large
Fair trial	A public hearing by an independent tribunal established by law, that takes place within a reasonable time
Human Rights	Rights which all human beings are entitled to
Torture	Inflicting severe pain on someone
Trial by jury	A trial where the jury's decision directs the actions of the judge
United Nations (UN)	An international organisation of independent states formed in 1945 to promote peace, international cooperation, and security
Utilitarianism	The idea that whatever promotes the greatest good or happiness for the greatest number of individuals is what is morally right
Apostasy	Leaving a religion
Blasphemy	Offending religious beliefs
Capital punishment	Legal or authorised killing of a person for committing a crime. Also known as the death penalty
Treason	Being disloyal to one's country by plotting to overthrow the government or ruler

Crime and Punishment – Islam

Key Quotes	Linked Topics
<i>The servants of the Lord of Mercy are those who walk humbly on the earth, and who, when aggressive people address them, reply, with words of peace (Surah 25)</i>	Peace, Peacekeeping, Pacifism
<i>Be a community that calls for what is good, urges what is right, and forbids what is wrong (Surah 3)</i>	Peacekeeping, Peace, Pacifism
<i>If two groups of believers fight, you should try to reconcile them (Surah 60)</i>	Peacekeeping – reconciliation
<i>Remember God's favour to you: you were enemies and then He brought your hearts together and you became brothers by His grace: you were about to fall into a pit of Fire and He saved you from it (Surah 3)</i>	Conflict, Peacekeeping, Peace
<i>The horrors of war...have made many people question the existence of a benevolent and omnipotent deity (British Humanist Association)</i>	Humanist (non-religious) view on conflict and war
<i>If anyone kills a person, unless in retribution for murder or spreading corruption in the land – it is as if he kills all mankind (Surah 5)</i>	Peace, Pacifism, WMD
<i>If an act of disobedience (to Allah) is imposed (by a ruler), he (citizen) should not listen to or obey it (Hadith)</i>	Passive resistance
<i>Fight them until there is no more persecution, and all worship is devoted to God alone (Surah 8)</i>	JWT, Holy War, Jihad, WMD
<i>The believers fight for God's cause, while those who reject faith fight for an unjust cause (Surah 4)</i>	JWT, Jihad, Holy War
<i>Prepare against them (disbelievers) whatever forces you (believers) can muster (Surah 8)</i>	WMD, Holy War, Jihad

Key methods terms

Aim	A general statement about what a sociologist expects to find out in research
Hypothesis	A prediction about what the sociologist expects they will find in research
Pilot study	A small test-run of a study which is carried out before the main study to check for any problems (e.g. equipment)
Sampling	How participants are chosen to take part in a study (e.g. volunteer, opportunity)
Primary data	Data which is collected first hand by the researchers (e.g. using a questionnaire or interview)
Secondary data	Data that already exists and is used by the researcher (e.g. official statistics, letters)
Quantitative data	Data which IS in the form of numbers
Qualitative data	Data which is NOT in the form of numbers and tends to be visual or in letters (e.g. diaries, photographs)
Validity	The accuracy of the findings – how truthful the data is.
Reliability	How consistent the findings are. If we repeated the study, would we find the same results?

Sampling methods

Random – all participants have an equal chance of being chosen (e.g. names out of hat)
 ✓ Less biased and likely to be more representative
 ✗ May not be fully representative – could choose all males
Volunteer – participants choose/self-select to take part (e.g. responding to an advert)
 ✓ Easy to gain a sample, less likely to drop out
 ✗ May not be representative – only certain people will agree
Opportunity – participants who are available are chosen
 ✓ Easy to gain a sample ✗ may not be representative
Stratified – participants chosen according to % in the population
 ✓ Most representative ✗ difficult for the researcher to do

Primary research methods

Method	Advantages	Disadvantages
Questionnaires	✓ Participants are likely to be honest as anonymous ✓ Can be given to a large sample so more representative	✗ Participants may not understand the questions ✗ May not be honest as want to appear desirable
Structured interviews (set questions)	✓ Can compare responses easily between participants ✓ Less likely to be biased as set questions	✗ May not get full detail or gain a deep understanding ✗ Cannot ask additional questions
Unstructured interviews (no set questions)	✓ Can get full detail and a deep understanding ✓ You can build rapport/relationship so may be more honest	✗ May not get full detail or gain a deep understanding ✗ Cannot ask additional questions
Group interviews	✓ Can gain a variety of opinions ✓ May be more honest as have group support	✗ Some participants might take over the interview ✗ Participants might be embarrassed to be honest
Participant observation (researcher joins group)	✓ May understand behaviour more as joining in ✓ Can ask questions to help with research	✗ Could be biased as too involved ✗ Difficult to note behaviour so may not be accurate
Non-participant observation (watches from a distance)	✓ Less likely to be biased as not involved ✓ Easier to note behaviour so more likely to be accurate	✗ May not get full understanding of behaviour as not involved in the group
Longitudinal study (follows a group over time)	✓ Can look at the influence of different factors over time ✓ Can gain detailed information of the group you study	✗ Participants may drop out of the study ✗ Sample is likely to be small so not representative

Secondary sources of data

Method	Advantages	Disadvantages
Official statistics (quantitative)	✓ Often large sample sizes – more representative ✓ Easy to analyse and compare over time as quantitative ✓ Likely to be accurate as collected by the government	✗ May not give reasons for behaviour (just trends) ✗ May not include all behaviours e.g. crime statistics may ignore the dark figure
Documents (qualitative) e.g. letters, diaries, school reports	✓ Lots of detailed data as qualitative ✓ Can find reasons behind behaviour	✗ May be small sample sizes and not representative ✗ May be time-consuming to analyse ✗ Could be biased and not valid

Triangulation and mixed methods

Where a sociologist uses more than one method to find out lots of information about a topic e.g. using a questionnaire, interview and observation.
 Is used to:
 Gain more data on a topic
 Check the validity/accuracy of the data
 ✗ But, the data may be difficult compare as it is collected using different methods.

Key terms	Sociological views of families		Family diversity		
Breadwinner - The person in the family who earns the money, usually the male. Cereal packet family - The 'ideal' nuclear family shown in the media and advertising. Cohabitation - When two partners live together in a relationship without being married. Commune - Self-contained and self-supporting communities where childcare, property etc. are shared. Conjugal roles - The domestic roles of married partners who does what in the home. Domestic division of labour - The division of tasks such as housework and childcare in the family. Double shift - When women are in full time employment and be responsible for household tasks. Expressive role - Traditionally a woman's role in the family according to Parsons, where they look after the emotional needs of the family. Extended family - A family which contains members beyond the nuclear Family diversity - This means there are a range of families in society today e.g. lone-parent, reconstituted, same-sex. Household - One or more people who live at the same address but may not related e.g. university students. Instrumental role - Traditionally the male's role within the family to be the breadwinner and provide financially for the family. Lone-parent family - A family of one parent and their dependent children Usually headed by the mother. Neo-conventional family - A typical nuclear family but where both parents go to work. Nuclear family - A family of one man and one woman with their dependent children. Patriarchy - Male power and dominance over women. Reconstituted family - A family of one man and one woman with children from previous relationships. Secularisation - A decline in religious belief and activity. Stratified diffusion - How the roles adopted by those at the top of the social hierarchy (richer families) filters down to the rest of society. Symmetrical family - Families which are equal on both sides where partners have joint roles	Functionalist	The family is a key social structure as it performs several essential functions for individuals and society. Murdock argue it performs four vital functions: 1. Sexual Function: regulates sexual behaviour that is approved by society, prevents breakdown and maintains stability 2. Reproductive function: creates the next generation to fill roles needed 3. Economic function: providing shelter, food & clothes, economic cooperation 4. Socialisation function: provides primary socialisation and learning of shared norms and values Parsons – the family performs two important functions today 1. Primary socialisation 2. Stabilisation of adult personalities (warm bath theory) × Functionalists ignore the dark side of the family and the impact of diversity		Increase or decrease	Reasons why
			Nuclear	↓	Secularisation Increase in divorce Changing position of women
			Reconstituted	↑	Increase in divorce Changing attitudes Greater individualism
			Lone parent	↑	Increase in divorce Changing position of women Changing attitudes
	Marxist	The family helps to maintain the class divide and benefits capitalism. This happens in three main ways: 1. Inheritance: money and wealth is passed down in richer families through inheritance and is not shared with the working classes 2. Consumerism – families are targeted as consumers who buy products, children use 'pester power', profits go to the ruling class 3. Socialisation – children learn to accept hierarchy and that someone is in charge meaning they accept it in the workplace and don't revolt Zaretsky – The family provides an 'illusion' that society is fair and this maintains capitalism as it prevents a revolution × Marxists ignore positive functions and that not all families benefit capitalism	Same sex	↑	Changing laws (gay marriage is legalised) Changing attitudes
			Beanpole	↑	Increase in life expectancy Decrease in the birth rate
			Neo-conventional	↑	Changes in law (equal pay) Changing attitudes Changing position of women
			Cohabiting couple	↑	Changing attitudes Changing position of women Increase in divorce
	Feminist	The family helps to maintain the gender divide and promotes patriarchy in society (male dominance and power). This happens through: 1. Men acting as the breadwinner in the family (they usually earn more) so have more control and power 2. Women often have a double shift or triple shift and take on the majority of unpaid housework 3. Domestic abuse from men in the family 4. Gender socialisation in families teaching stereotypical roles for boys and girls × Feminists ignore that some women may enjoy/choose the housewife role and that positive changes have been made	One person household	↑	Increase in divorce Longer life expectancy Greater individualism
	New Right	Nuclear families are the ideal family type and are the best for members and society because: • They promote traditional values such as marriage • Children grow up with two role models (for better socialisation) • They are more likely to be financially stable and less likely to be reliant on benefits (and become part of the underclass) They see lone-parent and same-sex families as causing problems for society	Alternatives to families Living alone (increasing among younger and older individuals) Living in a commune (shared property, resources, childcare etc. An example: Living in a kibbutz		

Key studies	Changing patterns of marriage			Changing relationships
Rapoport and Rapoport (functionalist) Families are changing, there is increasing diversity Five different aspects of family diversity: organisational (eg internal divisions of domestic labour), cultural (beliefs and values), class (eg how the family's position in the social class system affects the availability of resources), life course (stage in the family life cycle) and cohort (historical period).	Trends	Reasons	Impacts	Families over time Pre-industrial: Extended families, worked as a productive unit, families performed most functions Industrial: Nuclear families, male took on breadwinner role, government took over functions from families Contemporary: Family diversity, diversity of roles, smaller families
Parsons (functionalist) Family has two basic functions which are common to all families in all societies: primary socialisation of children and the stabilisation of adult personalities e.g to give and receive emotional support	First time marriages are decreasing	Secularisation / changing attitudes Changing position of women Increasing cost of marriage	Less married nuclear families More cohabitating couples	Gender roles Willmott and Young: Families are more symmetrical with shared contributions and equal roles. Reasons for symmetrical families: changing attitudes, commercialisation of housework. Stratified diffusion: roles filter from middle to working class (will become less equal)
Young and Willmott (functionalist) Large scale social survey (over 2,000 respondents in Greater London and surrounding areas) Families are more symmetrical with both husband and wife make similar contributions to the running of the household eg shared chores and decisions. More common in working class families. Stage 4 is the 'managing director family'. This is work centred and the wife is responsible for home and children – more common in middle class families	Remarriages are increasing	Secularisation / changing attitudes Increase in divorce / changes to divorce laws	More reconstituted families Serial monogamy	Are gender roles more equal?
Zaretsky (Marxist) The family also helps to maintain capitalism in society. He thinks that the family helps to provide an 'illusion' that society is fair and provides a safe haven away from exploitation at work. Women become responsible for personal relationships within the family. This cushions them from capitalism.	Age of first time marriage is increasing	Changing position of women Increasing cost of marriage Changing attitudes	More couples cohabit before marriage	Yes Symmetrical families – joint conjugal roles The New Man Women take part in decision making
Delphy and Leonard (Feminist) Men benefit the most from the exploitation of women's labour. They believe that the family has a central role in maintaining patriarchy. Women are oppressed because even when wives have paid employment outside the home they still have to carry out household tasks which are not equally shared	Increase in same-sex marriages	Changing attitudes Changes in law		No Double shift/triple shift The New Man is myth – women still responsible (men cherry pick) for housework/childcare Men still make the most important decisions ¼ women are victims of domestic abuse (evidence of patriarchy)
Oakley (Feminist) Segregated conjugal roles adopted by men and women are part of the conventional family also known as the 'cereal' packet' family. This contains married parents and at least one child, the father is the breadwinner and the mother stays at home to look after the house and children. This type of family may actually exploit women and support patriarchy.	Is marriage still important?			Parents and children Relationships in the past: Parents had authority, strict discipline, children 'seen and not heard' Relationships today: Parents show less discipline, children have more freedom, families are more child-centered Reasons for changes: women are having less children (families are more child-centered), greater emphasis on children's rights, families more likely to be dual worker Toxic childhood: children poisoned by junk culture of media and food, leading to poor behaviour and development
Criticisms of families: isolation, loss of functions, lack of contact, dysfunctions, patriarchy	Remarriages are increasing Same sex marriages are increasing Married persons tax allowance was introduced (policies encourage marriage) People still aspire to be married	First time marriages are decreasing Cohabitation is more acceptable Divorce is increasing (suggesting marriage isn't valued) Some couples choose a civil partnership		Extended families In pre-industrial era, extended families were important Extended families may be less important today due to: seeing less of each other (living far away), may only see for special occasions Extended families may still be important today due to: Grandparents helping with childcare, better technology to keep in contact, still common in some cultures
	Changing patterns of divorce			
	Trends in divorce	42% of marriages end in divorce The divorce rate has increased compared to 30 years ago The divorce rate has declined slightly over the past 10 years but is still high		
	Reasons for increases in divorce	Changes in law – Divorce reform act (1969) widened the grounds for divorce (to include irretrievable breakdown), waiting time for a divorce decreased from 3-1 years Changing attitudes – More acceptable to divorce Changing position of women – greater financial independence		
	Sociological views of divorce	Functionalist – divorce can lead to fewer dysfunctional families and greater harmony. Divorce creates jobs to help the economy. Divorce shows people have higher expectations of marriage. Marxist – divorce is more common in working class families due to stress/inequality caused by capitalism, Feminist – divorce can be positive to allow women to escape patriarchal relationships.		

Y10 Cycle 2 KO Life at school, career, ambitions (H)

2.1. ¿Qué estudias? (What do you study?) / ¿Cómo son tus asignaturas? (What are your subjects like?) / ¿Qué estudiabas en el pasado? (What did you study in the past?) [Quizlet list 2.1](#)

Hoy en día- nowadays	Mi asignatura favorita es/ <u>era</u> ...My favourite subject is/ <u>was</u> ...	el español (Spanish) el teatro (drama) la química (chemistry) el dibujo (art) la educación física (P.E) la física (physics) la geografía (geography) el inglés (English) el francés (French) la informática (computing) la música (music)	ya que- because porque- because dado que- because puesto que- because	el profesor / la profesora es... and the teacher is...	agradable nice / cariñoso/a caring gracioso/a funny / comprensivo/a understanding impaciente impatient / egoísta selfish
Este año- this year	Me interesa/ <u>me interesaba</u> ...I'm interested in/ I <u>was</u> interested in...			es/ <u>son</u> it is/ <u>they are</u>	fascinante(s) fascinating práctico/a(s) practical útil(es) useful emocionante(s) exciting aburrido/a(s) boring difícil(es) difficult / fácil(es) easy entretenido/a(s) entertaining interesante(s) interesting
Normalmente- normally	Me fascina/ <u>me fascinaban</u> ...I'm fascinated by/ I <u>was</u> fascinated by...				
Hace dos años- two years ago	Odio / Odiaba...I hate/ I <u>used to</u> hate...				
La semana pasada- last week	Estudio / Estudiaba I study/ I <u>used to</u> study...				
Antes- before	Me interesan/ <u>me interesaban</u> ... I'm interested in/ I <u>was</u> interested in... Me fascinan/ <u>me fascinaban</u> ... I'm fascinated by/ I <u>was</u> fascinated by... Me apasionan/ <u>me apasionaban</u> ... I'm passionate about/ I <u>used to</u> be passionate about...	las ciencias (science) / las matemáticas (maths) los idiomas (languages) la historia y la tecnología (history and technology)	aunque- although y- and	el profesor nos hace reír / trabajar mucho- the teacher makes us laugh / work a lot La profesora se enfada por nada / nos da muchos deberes- the teacher gets angry at nothing / gives us a lot of homework es una asignatura importante para mi futuro- it's an important subject for my future es fácil sacar buenas notas- it's easy to get good grades	
Top band expressions - DPR6 Complex reasons: la asignatura se me da bien / mal - I'm naturally good/bad at the subject mis notas han subido/bajado mucho recientemente - my grades have gone up/down a lot recently					

2.2. ¿Cómo es tu instituto? (What is your school like?) / ¿Cómo era tu escuela primaria? (What was your primary school like?) [Quizlet list 2.2](#)

En mi escuela primaria In my primary school	había there used to be	una biblioteca con una gama amplia de libros y revistas a library with a wide range of books and magazines muchas clases con pizarras interactivas many classrooms with interactive whiteboards laboratorios con productos químicos y herramientas científicas laboratories with chemical products and scientific tools	Y pienso que and i think that Y creo que And I believe that	somos/éramos muy afortunados - we are/were very fortunate
Antes en mi instituto Before in my school				
Actualmente Nowadays	en mi instituto - in my school	hay - there is/are tenemos we have contamos con we have hemos construido we have built	y en mi opinión and in my opinion y a mi parecer and from my point of view	es/era una gran oportunidad - it is/was a great opportunity es bueno para mi futuro - it is good for my future me ayuda a estudiar it helps me to study me ayuda a mantenerme en forma it helps me to keep fit
Ahora mismo Right now		un salón de actos con un escenario y muchas sillas a main hall with a stage and many chairs un comedor con una variedad de comida deliciosa y sana a dining room with a variety of delicious and healthy food más instalaciones deportivas del siglo veintiuno more 21st century sports facilities una piscina climatizada a heated swimming pool un gimnasio con muchas pesas a gym with lots of weights un patio con un campo de fútbol, una cancha de baloncesto y una pista de tenis a playground with a football pitch, a basketball court and a tennis court una fuente en el patio a fountain in the playground una zona de lectura a reading area / una zona de descanso a resting area		
Últimamente Recently				
Top band expressions - DPR11 Conditional tense: En la escuela de mis sueños habría... In my dream school there would be// Si fuera director(a), desarrollaría / mejoraría... If I were the head teacher, I would develop / I would improve...				

Y10 Cycle 2 KO Life at school, career, ambitions (H)

2.3. ¿Llevas uniforme? (Do you wear a uniform?) [Quizlet list 2.3](#)

En mi instituto <i>In my school</i>	Una camisa blanca <i>A white shirt</i> Una chaqueta azul <i>A blue blazer</i> Una falda verde <i>A green skirt</i>	y opino que mi uniforme <i>and I think my uniform</i>	es cómodo/feo/bonito/práctico <i>is comfortable/ugly/pretty/practical</i>
Llevo <i>I wear</i>	Unos pantalones azules <i>Some blue trousers</i> Una corbata <i>A tie</i> Unos calcetines negros/grises <i>Some black/grey socks</i> Unas medias negras <i>black tights</i>	y mi mejor amigo/a piensa que nuestro uniforme <i>and my best friend thinks our uniform</i>	me/le permite trabajar con facilidad <i>it allows me/him-her work with ease</i> me/le permite ahorrar dinero en ropa - <i>it allows me/him-her to save money on clothes</i> hace que sea fácil elegir la ropa por la mañana <i>makes it easy to choose clothes in the morning</i>
		Un aspecto positivo/negativo es que <i>A positive/negative aspect is that</i> Lo mejor/ peor es que <i>The best/worst is that</i>	

2.4. ¿Cómo son las reglas en tu instituto? (What are the rules like?) [Quizlet list 2.4](#)

Se debe / No se debe <i>You must / you mustn't</i>	Llegar al instituto con puntualidad <i>Arrive to school on time</i> Llevar pendientes/maquillaje <i>Wear earrings/make-up</i> Correr por los pasillos <i>Run in the corridors</i> usar el móvil <i>to use the phone</i> Fumar en cualquier espacio del instituto <i>Smoke in any space in the school</i> Mostrar respeto hacia el edificio <i>Show respect towards the building</i> Ser educado y considerado <i>Be polite and considerate</i> Comer en clase <i>eat in class</i>	Y a mi parecer... <i>And from my point of view</i> Y según mi mejor amigo/mi profesor/a de inglés... <i>And according to my best friend/my English teacher</i>	Las reglas son muy estrictas /justas /prácticas /necesarias <i>The rules are very strict/fair/practical/necessary</i> las normas son una pérdida de tiempo <i>rules are a waste of time</i> las normas (no) son importantes <i>rules are (not) important</i>
Hay que /Tenemos que <i>You must /We have to</i>		Top band expressions – DPR12 Subjunctive: <u>Es necesario que tengamos</u> unas reglas justas/prácticas <i>It's necessary that we have fair/practical rules</i> <u>Es esencial que tengamos</u> unas reglas justas/prácticas <i>It's essential that we have fair/practical rules</i>	
Está prohibido <i>It is prohibited</i>			

Y10 Cycle 2 KO Life at school, career, ambitions (H)

2.5. Háblame de tus prácticas laborales (Talk to me about your work experience) ¿Dónde hiciste las prácticas laborales? (Where did you do your work experience?) [Quizlet list 2.5](#)

<p>Hice mis prácticas laborales en <i>I did my work experience in</i></p> <p>El febrero pasado pasé una semana trabajando en <i>Last February I spent a week working in...</i></p> <p>El año pasado, tuve la oportunidad de hacer mis prácticas laborales en... <i>Last year, I had the chance to do my work experience in...</i></p>	<p>una agencia de viajes <i>a travel agent</i> una oficina <i>an office</i> una fábrica <i>a factory</i> un taller <i>a workshop</i> una tienda benéfica <i>a charity shop</i> una granja <i>a farm</i> la empresa de mi madre <i>my mum's business</i> un supermercado <i>a supermarket</i> un hotel <i>a hotel</i></p>	<p>fue una experiencia útil/ inútil <i>It was a useful/ useless experience</i> aprendí un montón sobre... <i>I learned loads about...</i> gané...libras <i>I earned ... £</i></p>	
		<p>Top band expressions – DPR9 Preterite tense</p> <p>fue una pérdida de tiempo porque <i>It was a waste of time because</i> no me pagaron nada <i>they didn't pay me anything</i> me pagaron... libras <i>they paid me... £</i> lo pasé terrible / lo pasé genial / lo pasé bomba <i>I had a terrible time/ I had a great time / I had a great time</i></p>	
<p>El primer/último día, tuve que <i>On the first/last day, I had to</i></p> <p>Todos los días, tenía que... <i>Every day, I had to...</i></p>	<p>archivar documentos <i>file documents</i> empezar/terminar a las... <i>start/finish at... o' clock</i> sacar fotocopias <i>make photocopies</i> asistir a reuniones <i>attend meetings</i> mandar correos <i>send emails</i> traducir documentos <i>translate documents</i> ayudar a los clientes <i>help customers</i></p>	<p>Mis compañeros eran... <i>My workmates were</i></p> <p>Los clientes eran... <i>The customers were...</i></p>	<p>simpáticos <i>nice</i> groseros <i>rude</i> guays <i>cool</i> fiables <i>trustworthy</i> positivos <i>positive</i> negativos <i>negative</i></p>

2.6. ¿Cuáles son tus planes para el futuro? (What are your plans for the future?)/ ¿Cuál sería tu trabajo ideal? (What would be your ideal job?) [Quizlet list 2.6](#)

<p>En el futuro, me gustaría ser <i>In the future, I would like to be</i></p> <p>Después de mis GCSE, tengo la intención de ser <i>In the future I have the intention of being</i></p> <p>El próximo año, voy a trabajar como <i>Next year, I am going to work as a</i></p> <p>Cuando acabe mis exámenes, voy a estudiar para ser... <i>When I finish my exams, I am going to study for a degree to become..</i></p>	<p>abogado/a <i>lawyer</i> albañil <i>builder</i> amo/a de casa <i>house husband/wife</i> azafato/a <i>air steward</i> bailarín/bailarina <i>dancer</i> / bombero/a <i>firefighter</i> contable <i>accountant</i> / cocinero/a <i>cook</i> enfermero/a <i>nurse</i> / escritor(a) <i>writer</i> diseñador(a) <i>designer</i> / fontanero/a <i>plumber</i> fotógrafo/a <i>photographer</i> / ingeniero/a <i>engineer</i> jardinero/a <i>gardener</i> / mecánico/a <i>mechanic</i> médico/a <i>doctor</i>/ peluquero/a <i>hairdresser</i> periodista <i>journalist</i>/ policía <i>police officer</i> soldado <i>soldier</i>/ veterinario/a <i>vet</i></p>	<p>ya que sería un trabajo <i>because it would be a ... job</i></p> <p>porque he oído que es un trabajo... <i>because I have heard that it is a ... job</i></p>	<p>artístico <i>artistic</i> / emocionante <i>exciting</i> exigente <i>demanding</i> / fácil <i>easy</i> difícil <i>difficult</i> / manual <i>manual</i> variado <i>varied</i> / con responsabilidad <i>with responsibility</i> con buenas perspectivas <i>with good prospects</i> bien pagado <i>well-paid</i></p>
		<p>Todos los días, tendría que <i>Every day, I would have to</i></p> <p>En mi trabajo ideal, tendría que... <i>In my ideal job, I would have to ...</i></p>	<p>cuidar a los clientes <i>look after customers</i> contestar llamadas telefónicas <i>answer phone calls</i> hacer entrevistas a famosos <i>interview famous people</i> preparar / servir platos distintos <i>prepare / serve different dishes</i></p>

Top band expressions - DPR6 Complex sentence starters

Siempre he querido ser... *I have always wanted to be ...* / Mis padres han dicho que debería ser... *My parents have said that I should be...*

Y10 Cycle 2 KO Life at school, career, ambitions (F)

2.1. ¿Qué estudias? (What do you study?) / ¿Cómo son tus asignaturas? (What are your subjects like?) / ¿Qué estudiabas en el pasado? (What did you study in the past?) [Quizlet list 2.1](#)

Hoy en día- nowadays Este año- this year Normalmente - Normally	Mi asignatura favorita es My favourite subject is Me interesa I'm interested in No me gusta I don't like Estudio I study	el español (Spanish) el teatro (drama) la química (chemistry) el dibujo (art) la educación física (P.E) la física (physics) la geografía (geography) el inglés (English) el francés (French) la informática (computing) la música (music)	ya que- because porque- because dado que- because puesto que- because aunque- although y- and	el profesor / la profesora es... and the teacher is... es it is era it was son they are	simpático/a nice / divertido/a funny impaciente impatient / egoísta selfish práctico/a practical útil useful aburrido/a boring difícil difficult fácil easy entretenido/a entertaining interesante interesting prácticos/as practical útiles useful aburridos/as boring difíciles difficult fáciles easy entretenidos/as entertaining interesantes interesting
Hace dos años- two years ago	Mi asignatura favorita era...My favourite subject was... me interesaba... I was interested in... Estudiaba I used to study...				
Además in addition	Me interesan I'm interested in No me gustan I don't like	las ciencias (science) / las matemáticas (maths) los idiomas (languages) la historia y la tecnología (history and technology)			

2.2. ¿Cómo es tu instituto? (What is your school like?) / ¿Cómo era tu escuela primaria? (What was your primary school like?) [Quizlet list 2.2](#)

En mi escuela primaria In my primary school Antes en mi instituto Before in my school	había there used to be	una biblioteca con muchos libros a library with many books muchas clases many classrooms laboratorios de ciencias science laboratories un salón de actos con muchas sillas a main hall with many chairs un comedor a canteen instalaciones deportivas sports facilities una piscina a swimming pool un gimnasio a gym un campo de fútbol football pitch una cancha de baloncesto a basketball court	Y pienso que and i think that Y en mi opinión and in my opinion	somos muy afortunados we are very fortunate es una gran oportunidad it is a great opportunity
Hoy en día Nowadays	En mi instituto in my school tenemos we have hay- there is			

2.3. ¿Llevas uniforme? (Do you wear a uniform?) [Quizlet list 2.3](#)

En mi instituto In my school Llevo I wear	Una camisa blanca A white shirt Una chaqueta azul A blue blazer Una falda verde A green skirt Unos pantalones azules Some blue trousers Una corbata A tie Unos calcetines negros/grises Some black/grey socks Unas medias negras black tights	y opino que mi uniforme es and I think my uniform is y mi mejor amigo/a piensa que nuestro uniforme es and my best friend thinks our uniform is Un aspecto positivo/negativo es que es A positive/negative aspect is that it is	cómodo comfortable feo ugly bonito pretty práctico practical
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Y10 Cycle 2 KO Life at school, career, ambitions (F)

2.4. ¿Cómo son las reglas en tu instituto? (What are the rules like in your school?) [Quizlet list 2.4](#)

Se debe <i>You must</i>	Llegar al instituto a las ocho <i>Arrive to school at eight</i> Llevar pendientes/maquillaje <i>Wear earrings/make-up</i> Correr por los pasillos <i>Run in the corridors</i> usar el móvil <i>use the phone</i> Ser educado y considerado <i>Be polite and considerate</i> Comer en clase <i>to eat in class</i>	Y pienso que... <i>And I think that</i> Y según mi mejor amigo/mi profesor/a de inglés... <i>And according to my best friend/my English teacher</i>	Las reglas son muy estrictas /justas /prácticas /necesarias <i>The rules are very strict/fair/practical/necessary</i> las reglas (no) son importantes <i>rules are (not) important</i>
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2.5. Háblame de tus prácticas laborales (Talk to me about your work experience) ¿Dónde hiciste las prácticas laborales? (Where did you do your work experience?) [Quizlet list 2.5](#)

Hice mis prácticas laborales en <i>I did my work experience in</i>	una agencia de viajes <i>a travel agent</i> oficina <i>office</i> una fábrica <i>a factory</i> un taller <i>a workshop</i> una tienda benéfica <i>a charity shop</i> un supermercado <i>a supermarket</i> un hotel <i>a hotel</i>	fue una experiencia útil/ inútil <i>It was a useful/ useless experience</i> gané...libras <i>I earned ... £</i> <u>Top band expressions – DPR9 Preterite tense</u> no me pagaron nada <i>they didn't pay me anything</i> lo pasé terrible / lo pasé genial / lo pasé bomba <i>I had a terrible time/ I had a great time /I had a great time</i>	
Todos los días, tenía que... <i>Every day, I had to...</i>	archivar documentos <i>file documents</i> sacar fotocopias <i>make photocopies</i> mandar correos <i>send emails</i> traducir documentos <i>translate documents</i> ayudar a los clientes <i>help customers</i>	Mis compañeros eran... <i>My workmates were</i> Los clientes eran... <i>The customers were...</i>	simpáticos <i>nice</i> groseros <i>rude</i> guays <i>cool</i> fiabes <i>trustworthy</i> positivos <i>positive</i> negativos <i>negative</i>

2.6. ¿Cuáles son tus planes para el futuro? (What are your plans for the future?) ¿Cuál sería tu trabajo ideal? (What would be your ideal job?) [Quizlet list 2.6](#)

En el futuro, me gustaría ser <i>In the future, I would like to be</i> El próximo año, voy a trabajar como <i>Next year, I am going to work as a</i>	abogado/a <i>lawyer</i> azafato/a <i>air steward</i> bailarín/bailarina <i>dancer</i> bombero/a <i>firefighter</i> contable <i>accountant</i> cocinero/a <i>cook</i> enfermero/a <i>nurse</i> diseñador(a) <i>designer</i> ingeniero/a <i>engineer</i> mecánico/a <i>mechanic</i> médico/a <i>doctor</i> policia <i>police officer</i>	ya que pienso que es un trabajo <i>because I think it is a ... job</i> pero mi madre piensa que es un trabajo <i>but my mother thinks that it is a ... job</i>	artístico <i>artistic</i> emocionante <i>exciting</i> exigente <i>demanding</i> fácil <i>easy</i> difícil <i>difficult</i> manual <i>manual</i> variado <i>varied</i> con responsabilidad <i>with responsibility</i> con buenas perspectivas <i>with good prospects</i> bien pagado <i>well-paid</i>
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SPaG

Grammar: Write in sentences

A sentence is a group of words that make sense. Sentences start with a capital letter and end with a full stop, question mark or exclamation mark. All sentences contain **clauses**. You should try to use a range of sentences when writing. There are three main types of sentences.

Simple sentence: A sentence containing one main clause with a **subject** and a **verb**.

He **reads**.

Literacy **is** important.

Compound sentence: Two simple sentences joined with a **conjunction**. Both of these simple sentences would make sense on their own. Varying conjunctions makes your writing more interesting.

He **read** his book **because** it **was written** by his favourite author.

Literacy **is** important **so** students **had** an assembly about reading.

Complex sentence: A longer sentence containing a main clause and one or more **subordinate clause (s)** used to add more detail.

The main clause makes sense on its own. However, a subordinate clause would not make sense on its own, it needs the main clause to make sense. The subordinate clause is separated by a comma (s) and/or conjunction. The clause can go at the beginning, middle or end of the sentence.

He read his book **even though it was late**.

Even though it was late, he read his book.

He read his book, **even though it was late**, because it was written by his favourite author.

How can you develop your sentences?

1. Start sentences in different ways. For example, you can start sentences with adjectives, adverbs or verbs.

Adjective: **Funny** books are my favourite!

Adverb: **Regularly** reading helps me develop a reading habit.

Verb: **Looking** at the front cover is a good way to choose a reading book.

2. Use a range of **punctuation**.

3. Nominalisation

Nominalisation is the noun form of verbs; verbs become concepts rather than actions. Nominalisation is often used in academic writing. For example:

It is important to **read** because it helps you in lots of ways.

Becomes: **Reading** is beneficial in many ways.

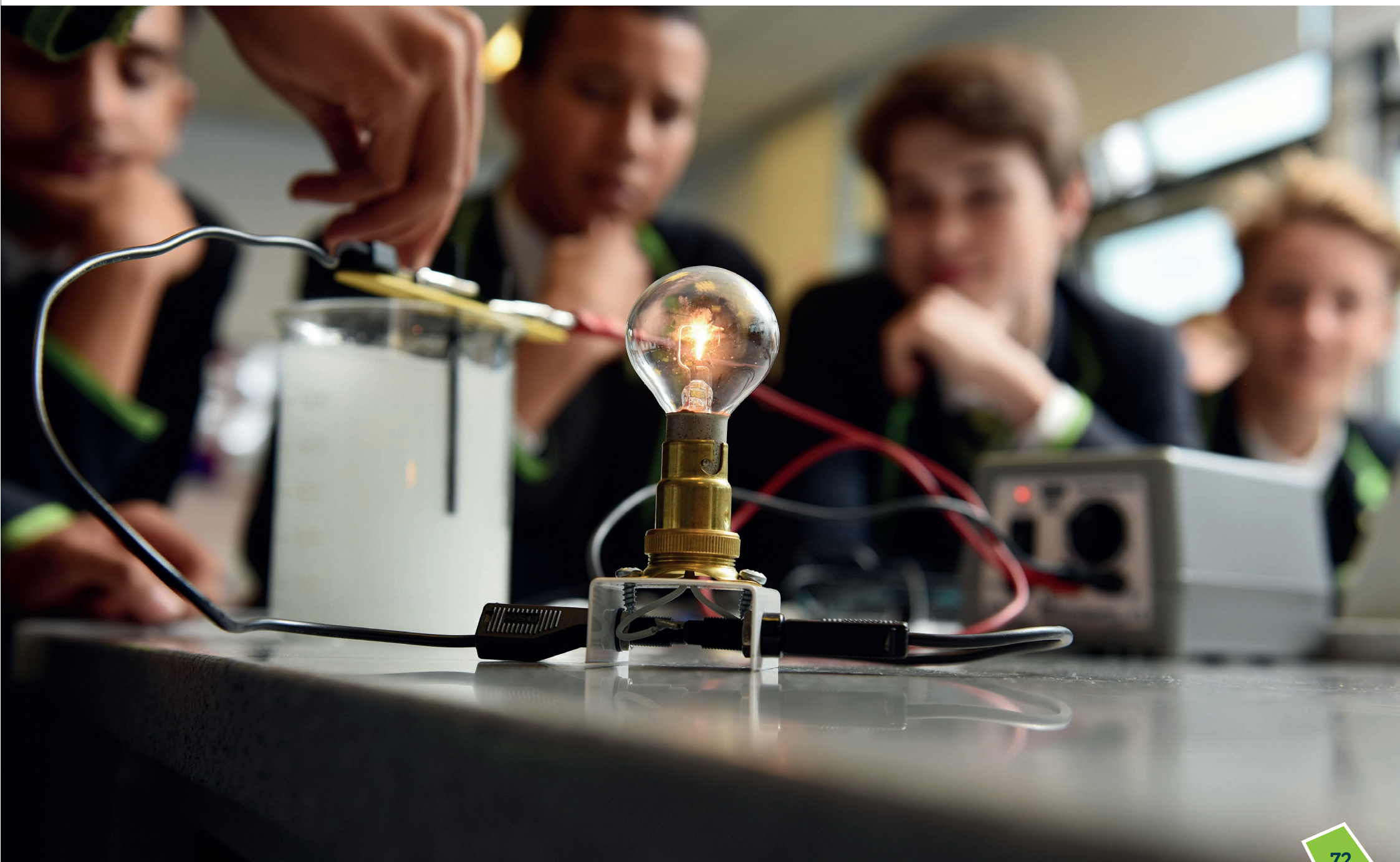
Germany **invaded** Poland in 1939. This was the immediate cause of the Second World War breaking out.

Becomes: Germany's **invasion** of Poland in 1939 was the immediate cause of the outbreak of the Second World War.

Connectives and Conjunctions

Cause And Effect	Because So Consequently Therefore Thus
Addition	And Also In addition Further (more)
Comparing	Whereas However Similarly Yet As with/ equally/ Likewise
Sequencing	Firstly Initially Then Subsequently Finally After
Emphasis	Importantly Significantly In particular Indeed
Subordinate	Who, despite, until, if, while, as, although, even though, that, which

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