

Year 10 Option Subjects

Knowledge Organiser

September - December 2023

AMBITION, CONFIDENCE, CREATIVITY,
RESPECT, DETERMINATION

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Why do we have knowledge organisers?

Knowledge organisers are a collation of the basic essential knowledge for success in each subject area that will underpin your learning for the term.

They are designed to provide the information you will need to be committing to your long term memory through recall exercises in Low Stakes Quizzing.

How do we use knowledge organisers?

You should be using these KOs to create your homework quizzes so that you are practising retrieving information.

1. You can do this by testing yourself on the definition of key terms (both recalling the key term and then swapping to recall the definition), practice labelling diagrams, retrieves reasons and justifications for the main learning points.
2. They can also be used for 'memory dumps' where you try to recall as much of the information about a topic as possible and then use the KP to fill in the gaps.
3. They can also be used in class to assist with retrieval of the core knowledge needed for each subject.

You should have these with you at all times in school and out on your desk in all lessons.

If you lose your KO or it becomes too dishevelled, please purchase a new one from the Head of Year or the School Office.

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1 Key Features of Medieval Society

Medieval England was a Christian country with a strictly ordered society.

Almost everyone in Medieval England was a **Christian**. The Roman Catholic Church was very wealthy and every parish had its own church.

Society was ordered in a strict hierarchy: the **King** had most power and gave land to the **barons** who in return shared it with **knights**.

Peasants worked the land and **90%** of people lived in the countryside.

Technology was limited but **trade** was **widespread**. **Wool** was traded with **Europe**.

People believed in ancient ideas about health like the Greek theory of the **four humours**, which stated that illness occurred when the body's **humours** - **blood**, **phlegm**, **black bile**, and **yellow bile** - were out of balance

2 Life in the Medieval countryside

90% lived in the countryside where life was difficult but quite healthy.

- Peasants lived in small homes made from **wattle and daub**. They had open fires with no chimneys.
- Animals sheltered inside homes at night
- A peasants' diet was quite healthy with lots of fruit and vegetables, **pottage**, milk and cheese, and fish.
- Peasants depended on a good harvest. In 1315 a bad harvest led to the **Great Famine**, killing 10%
- Peasants drank **small beer** which killed the bacteria and germs in the water.
- Waste collected in **middens** or **cesspits** contaminated drinking water from springs and streams

3 Life in Medieval towns

Medieval towns provided benefits and dangers to health.

- Houses were tightly packed together, allowing disease to spread quickly
- Each town held a weekly **market**, which provided a variety of fresh food
- **Drovers** brought livestock into town to be slaughtered, filling the streets with **dung** and blood
- Some towns had a **conduit** in the town square which provided clean water
- **Gongfarmers** were paid to remove human waste from latrines and cesspits and **rakers** were paid to clean the streets
- Only the very rich had latrines in their houses. Most people shared outdoor **latrines** with neighbours

4 Responses to the Black Death

The Black Death hit England in 1348, killing 50% of the population. It was deadly because no one knew what caused it and treatments and preventions were ineffective

Beliefs about the causes of the Black Death

The disease was caused by the Yersinia Pestis pathogen that was passed on by the bite of a flea that lived on black rats.

However, no one at the time knew this. Instead, they thought it was caused by:

- God punishing them for their sins
- Bad-smelling air (miasma)
- The movement of the planets

Actions taken to prevent/treat the Black Death

Attempts to treat or prevent the disease were ineffective, for example:

Priests urged people to pray for forgiveness so that God would take the disease away
Flagellants whipped themselves in the streets to prove to God that they were sorry for their sins

Doctors believed that balancing the humours by bloodletting would cure people with the Black Death

People placed posies of sweet-smelling flowers in their houses to purify the air and get rid of miasma

Although King Edward III ordered the Mayor of London to clean the city streets, the government did very little to deal with the disease.

5 Public health in Medieval towns and monasteries

Despite their limited medical knowledge, people in towns and monasteries made great efforts to improve public health

The Church led the way in hygiene

Religious communities, such as monasteries or cathedrals, often had clean water for ceremonies such as baptisms

Monasteries also had the wealth required to dig trenches and lay pipes

By the 15th Century, however, the power of the Church began to decrease

Towns made efforts to improve public health

Towns passed by-laws to improve public health before the Black Death

In Bristol dung heaps and prostitutes were moved to the outskirts of town

After 1348, towns passed more laws to improve public health. In London, rich residents paid for latrines and conduits to be built

Key Vocabulary

By Laws	Laws that only apply in the local area
Cathedral	The largest church in an area
Cesspit	A pit for collecting human waste
Conduit	A stone channel for transporting water
Contaminated	Made dirty
Drovers	Someone who drives animals to market
Famine	A period of hunger caused by a lack of food
Hazardous	Dangerous
Hierarchy	A social system where people are ranked from top to bottom
Humours	The four substances that made up the body, according to Greeks
Latrine	A medieval toilet
Miasma	Foul-smelling air
Midden	A pit for collecting waste
Monastery	A religious building run by monks
Outskirts	Places around the outside of a city or town
Parish	A small area with it's own church
Pottage	A vegetable stew
Pathogen	Bacteria/virus causing disease
Peasants	A farm labourer with low social status
Small Beer	A weak beer
Wattle and Daub	Sticks and mud
Widespread	Everywhere

6 Key Features of Early Modern Society

Early Modern England was largely similar to Medieval England although change was gradually beginning

The population grew at a rapid rate, rising to 6 million in 1750. Nevertheless, most people continued to live in the countryside.

Trade expanded to America and India, bringing new products like sugar and tobacco.

Although monarchs still had a lot of power, parliament became far more important. Only 3% could vote though.

Although religion remained dominant, people in the early modern period began to search for a scientific way of understanding the world, aided by new inventions such as the microscope.

The printing press was invented in the late fifteenth century. This allowed books to be made quickly and cheaply and ideas spread more quickly.

7 Changing living conditions in the Early Modern period

Living conditions improved for some but for most they stayed largely the same

The rich could afford new developments

- ✓ The rich could afford a variety of foods, including imports such as coffee, sugar, and tobacco
- ✓ Houses were made out of stone or brick and were heated by coal fires, creating pollution
- ✓ The rich paid for fresh water to be piped into their homes
- ✓ The first flushing toilet was invented in 1596 and the very rich had then in their homes

The lives of the poor remained largely the same

- ✗ The diet of the poor was unchanged and famine was still a danger
- ✗ Most people continued to get water from conduits and water sellers
- ✗ The poor still used cesspits to store their waste. Every year or two, scavengers cleared the cesspits which over flowed as the population rose

8 Responses to the Plague

The Plague was feared throughout this period. Responses were largely ineffective but national government got more and more involved

The **Plague** - the same disease as the **Black Death** - returned to England roughly every 20 years

The last outbreak in 1665 (the Great Plague) killed 15% of London’s population

There was still no understanding of the real causes, with God and miasma blamed instead

For the first time, the national government began to take action

1518

Henry VIII issued a proclamation that ordered houses infected with plague to be identified and isolated. Those leaving isolation had to carry a white stick.

1578

Elizabeth I issued **Plague Orders**. These 17 rules included killing cats and dogs, shutting up infected houses, and burning the clothes of victims

1604

The **Plague Act** introduced harsh punishments for breaking isolation. Plague victims found outside could be hanged.

Local governments continued to combat the spread of disease

In 1550 York posted **watchmen** to stop plague victims entering the city.

In the 1600s many towns built **pest houses** to house the plague victims away from the city

9 Local government

Local government continued to play a role improving public health

In York, for example, city **aldermen** introduced the following rules:

Pigs were not allowed to wander the streets

Fines for throwing human waste into the street

No one could build a **privy** over the main city stream

10 National government and the Gin Craze

The problems caused by drunkenness forced the government’s role to expand

By the 1720s, cheap gin was causing social and health problems



1729 1736 1743

The early **Gin Acts** tried to control gin drinking but were ineffective



1751

The 1751 act was successful because it introduced harsh **punishments** for illegal gin selling, including:

- Whipping
- Transportation to Australia

Key Vocabulary

Aldermen	Local government officials
Cesspit	A pit for collecting human waste
Famine	A period of hunger caused by a lack of food
Flushing toilet	A toilet that uses water to get rid of human waste
Gin	A strong alcoholic spirit
Gin Act	A law designed to reduce gin drinking
Isolated	Cut off from the rest of the population
Isolation	Being cut off from the rest of the population
Parliament	A part of the government that is elected
Pest houses	Houses for isolated plague victims
Privy	A toilet
Proclamation	A government order
Scavengers	People whose job it was to clear the cesspits
Transportation	Punishment by being sent to Australia
Watchmen	Local officials who patrolled the streets at night
Water callers	People who carried water around and sold it

11 Key Features of Industrial Society

Industrial England was transformed by the Industrial Revolution and was unrecognisable to previous periods.

INDUSTRIALISATION

- Britain was transformed from an agricultural to an industrial country
- Steam engines were used to power vast factories.

URBANISATION

- Britain's population skyrocketed from 21 million in 1850 to 37 million in 1900.
- Huge numbers moved to booming and overcrowded cities such as Manchester and Leeds

POLITICAL CHANGE

- There was a class divide between the rich and the working class
- The government followed laissez-faire policies
- Working men won the right to vote in the 1880s

SCIENTIFIC ADVANCES

- New scientific thinking, like Darwin's theory of evolution, challenged religious ideas
- There were rapid advances in medical knowledge, such as Louis Pasteur's germ theory

12 Changing living conditions in the Industrial period

Rapid industrialisation and urbanisation led to horrific living conditions that were worse for the working class

HOUSING

- The poor lived in slum housing in overcrowded industrial cities
- Cramped lodging houses or back-to-back houses were common

FOOD

- The urban poor had a terrible diet, living on potatoes, bread and butter
- There was no tinned food or refrigeration and food was often adulterated

WATER

- Water companies controlled access to water and charged high prices
- In poor areas, whole streets shared one pump
- Water was pumped from rivers which were contaminated with human and industrial waste

WASTE

- The poor continued to share privies with their neighbours
- Sewage was collected into cesspits which contaminated nearby water supplies
- Most richer families now had flushing toilets that further contaminated rivers

13 Cholera

14 Public Health reforms in the 19th Century

Unsanitary living conditions and limited medical knowledge caused deadly and repeated cholera epidemics in the 19th Century

Cholera arrived in England in 1831. There were epidemics in:

1831 1848 1854 1866

Cholera epidemics would repeat in later years, killing tens of thousands of people.

The cholera bacteria was carried in contaminated drinking water, although this was not widely understood. Instead, inaccurate ideas about the causes spread:

Most people believed in miasma theory: the idea that cholera was caused by bad-smelling air

Many still believed that disease was a punishment from God

Some doctors believed cholera was contagious and could be passed on by touch

Attempts to prevent cholera became more effective as understanding of the disease improved and the government took action

The 1846 Cholera Bill instructed residents to connect their homes to sewers in order to reduce miasma. However, this only increased the flow of waste into rivers, spreading cholera further.

1846 During the 1854 epidemic, John Snow proved that cholera was carried by contaminated water and could be prevented by changing the water supply. However, his conclusions were largely ignored.

1854 Following the Great Stink of 1858, Parliament granted £3 million to Joseph Bazalgette to build 1300 miles of sewers across London. The sewers allowed waste to be taken out on the tide.

1858

Public health improved greatly throughout the 19th century as the government moved away from a laissez-faire attitude.

For the first time, the government introduced public health acts to improve sanitation

1848 The 1848 Public Health Act allowed local authorities to set up Boards of Health in order to build sewers and provide clean water. However, impact was limited because this was not compulsory.

1875 The 1875 Public Health Act forced local authorities to take responsibility for sewers and water supply.

The government abandoned laissez-faire in the 19th Century because:

Edwin Chadwick put pressure on the government to act by publishing shocking research into public health in *The Sanitary Condition of the Labouring Population* in 1842

In 1861, Louis Pasteur published his germ theory, confirming that bacteria - and not miasma - spread disease

By the 1880s, all working-men had won the right to vote. The government now had to listen to the concerns of the poor.

Key Vocabulary

Adulterated	Make food / drink cheaper and less healthy by adding another substance
Back-to-back houses	Slum housing where houses are built close together without gardens
Boards of Health	Local government organisations responsible
Compulsory	Something you have to do, not optional
Contagious	Describing a disease that can be passed from person to person
Contaminated	Dirty, containing pathogens
Epidemic	A widespread occurrence of a disease
Germ Theory	The idea that bacteria causes disease
Industrialisation	More people working in factories
Laissez-faire	Government not involved in people’s lives
Lodging houses	Houses that are divided up and rooms rent to different families
Privies	Shared outside toilets
Sanitation	Cleanliness
Urbanisation	More people living in towns and cities

In the 20th Century, Britain underwent dramatic economic, political, social and cultural changes

Economic change In 1900...

Most people worked with their hands, such as coal miners

New technology, such as cars and radio, boosted the economy

In 2000...

Most people worked in 'service industries' such as tourism

Technology such as the Internet, and air travel transformed the economy

Political change

In 1900...

Working men over the age of 21 had the **right to vote**

All men and women over 18 had the **right to vote**

The government began to realise it had to do something to look after the poor

Governments expanded the **welfare state**, e.g. the NHS and National Insurance

Social change

In 1900...

About **37 million** people lived in Britain

Most people were **working-class** and worked long hours for low pay

In 2000...

The population expanded to **58 million**

Britain had a larger **middle-class** who had more comfortable lives

Cultural change

In 1900...

Most people believed in God and went to **Church**

People played football or worked their **allotment** in their spare time

In 2000...

Most people trusted **science**, not religion

People had more money to spend on **leisure**, including watching TV and gaming

Living conditions significantly improved in the twentieth century but new challenges to public health emerged.

HOUSING

- The 1919 Housing Act ordered local councils to build council houses with running water, indoor toilets, and gardens
- After 1945, New Towns were built to solve the problem of overcrowding
- The 'Right-to-buy' scheme in the 1980s led to a shortage of council housing

FOOD

- New technology such as **refrigeration** and **canning** made food cheaper
- New **supermarkets** increased the variety of food available to British families
- **Fast food** consumption increased

AIR QUALITY

- Coal smoke from homes and factories produced thick **smog** in large cities
- Increased car ownership added to air pollution

INACTIVITY

- Increased car ownership led to an increase in inactivity in the late 20th Century
- New forms of leisure such as TV led to an obesity crisis

17 Response to Spanish Flu

Government response to the Spanish Flu in 1918-1919 was slow and ineffective

- The Spanish Flu was spread by soldiers returning from the First World War and killed over 50 million people worldwide
- In Britain, the death rate was so high that wood for coffins ran out and mass graves had to be used
- Occupied by the war, the government response was slow:
- The government did not issue advice until late 1918 when it was too late
- Important decisions such as closing schools were left to local authorities
- A silent film, Dr Wise on Influenza, was released that explained precautions such as making face masks but not enough copies were made.

18 Response to AIDS

The government response to the AIDS epidemic improved as the 1980s progressed

AIDS is a condition caused by the HIV virus that attacks the body's immune system. It can be spread via:

- Unprotected sexual intercourse
- Sharing hypodermic needles
- Pregnancy (from mother to baby)
- In the early 1980s, the AIDS epidemic caused panic and prejudice
 - ✗ Newspapers called AIDS the 'Gay Plague' and blamed it on gay men and drug users
 - ✗ Government advice wrongly suggested that AIDS could be spread through touch, adding to panic
- By the later 1980s, the government response improved
 - ✓ An information leaflet called 'Don't die of ignorance' was sent to every household
 - ✓ Hospitals provided free testing for the HIV virus
 - ✓ In 1987 Princess Diana was photographed shaking hands with AIDS patients, calming public fears

19 Government involvement in Public Health

During the 20th Century, the government became increasingly involved in improving public health in Britain

The NHS

- Introduced in 1948, the NHS provided free medical care 'from cradle to grave' including:

- Hospital care
- Prescriptions
- Dental treatment (until 1952)
- GP visits

Pollution controls

- In 1956 Parliament introduced the Clean Air Act to control pollution
- Anti-smoking

- The government has taken steps to reduce smoking, such as

1964 TV Adverts for cigarettes banned

2007 Smoking banned in all public places

2016 Blank packaging introduced

Healthy lifestyles

- Government campaigns encouraged healthier lifestyles, such as:

- The Five-a-Day campaign
- The NHS Couch to 5k programme

Key Vocabulary

Council Housing
From cradle to grave
Hypodermic needle
National Insurance
Middle Class
Prescriptions
Princess Diana
Right-to-buy
Service industries
Smog
Welfare state
Working Class

Housing built by local government and rented out
Throughout your entire life
A syringe often used by drug users
A government scheme providing unemployment benefits
Wealthier people who worked in offices, e.g. lawyers
Medicines
Prince Charles' wife, 1981-1992
1980s government policy to sell council housing
Jobs where people provided services, such as tourism or catering
Pollution caused by smoke in the air
Government programmes that look after the people
Poorer people who worked with their hands, e.g. coal miners

Year 10 Term 1 – The Living World – Page 1 – Ecosystems and Biomes

Key words Biodiversity: The variety of life in the world or a particular habitat. Commercial farming: to sell produce for a profit to retailers (shops) or food processing companies. Debt reduction: Countries are relieved of some of their debt in return for protecting their rainforests. Deforestation: The chopping down and removal of trees to clear an area of forest. Ecotourism: Responsible travel to natural areas that conserves (take care of) the environment, sustains the wellbeing of the local people, and may involve education. It is usually carried out in small groups and has minimal impact on the local ecosystem. Selective logging: The cutting out of trees which are mature or inferior, to encourage the growth of the remaining trees in a forest or wood. Soil erosion: Removal of topsoil faster than it can be replaced, due to natural (water and wind action), animal, and human activity. Topsoil is the top layer of soil and is the most fertile because it contains the most organic, nutrient-rich materials. Subsistence farming: A type of agriculture producing food and materials for the benefit only of the farmer and his family. Sustainability: Actions and forms of progress that meet the needs of the present without reducing the ability of future generations to meet their needs. Appropriate technology: (Also called Intermediate technology) Technology that is suited to the needs, skills, knowledge and wealth of local people in the environment in which they live. Desertification: The process by which land becomes drier and degraded (break down), as a result of climate change or human activities, or both. Over-cultivation: Exhausting the soil by over-cropping the land. Overgrazing: Grazing too many livestock (farm animals) for too long on the land, so it is unable to recover its vegetation.	Abiotic Relating to non-living things. Biotic Relating to living things. Biome Large scale ecosystem Consumer Creature that eats animals and/or plant matter. Decomposer An organism such as a bacterium or fungus, that breaks down dead tissue, which is then recycled to the environment. Ecosystem A community of plants and animals that interact (depend on) with each other and their physical environment. Food chain The connections between different organisms (plants and animals) that rely on one another as their source of food. Food web A complex hierarchy (order) of plants and animals relying on each other for food. Nutrient cycling A set of processes whereby organisms extract minerals necessary for growth from soil or water, before passing them on through the food chain - and ultimately back to the soil and water. Global ecosystem Very large ecological areas on the earth's surface (or biomes), with fauna and flora (animals and plants) adapting to their environment. Examples include tropical rainforest and hot desert. Producer An organism or plant that is able to absorb energy from the sun through photosynthesis. Leaching Where nutrients are removed from the soil by heavy rain	KPI 1 – To define what an ecosystem is and know their key components and that they exist at a range of scales - A range of ecosystems are spread across the world, each with distinctive (<i>different</i>) interacting characteristics and components (parts). They range from small (eg a freshwater pond) to global (eg the desert biome). - An ecosystem is a natural environment and includes the flora (<i>plants</i>) and fauna (<i>animals</i>) that live and interact within that environment. Flora, fauna and bacteria are the biotic or living components of the ecosystem. - Ecosystems are dependent on the following abiotic or non-living components: climate - the temperature and amount of rainfall are very important in determining which species can survive in the ecosystem; soil - the soil type is important as this provides nutrients that will support different plants water - the amount of water available in an ecosystem will determine what plants and animals can be supported. The biotic parts of the ecosystem have a complex relationship with the abiotic components - changing one will lead to a change in the other. Interdependence in ecosystems Food Chains: A food chain refers to the order of events in an ecosystem, where one living organism eats another organism, and later that organism is consumed by another larger organism. Food Webs: A food web consists of all the food chains in a single ecosystem KPI 2 To be able to explain how changes to a small scale ecosystem can have a knock on effect on its features Examples of small scale ecosystems include ponds and hedgerows In a hedgerow ecosystem a food chain might look like: Ladybird $\Rightarrow$ Sparrow $\Rightarrow$ Sparrow hawk A change in one part of an ecosystem can impact the rest of the food chain. E.g. Hedgerow is removed $\Rightarrow$ reduction in number of ladybirds due to loss of habitat $\Rightarrow$ reduction in number of sparrows and thrushes as they have lost a source of food $\Rightarrow$ reduction in number of sparrow hawks as less birds to hunt.	KPI 3 To describe and explain the distribution of global ecosystems The distribution (<i>pattern</i>) of global ecosystems is influenced by a variety of factors, including climate, geography, and the interaction between biotic and abiotic elements. Ecosystems can be broadly classified into major biomes, each characterized by distinct environmental conditions and dominant vegetation types. <u>Factors that impact features of biome include:</u> Ocean currents: If the ocean is cold then desert like conditions are formed as there is little evaporation. Certain ocean currents affect different areas of the world. The Gulf Stream brings warmer sea temperatures to the UK keeping the winters mild. Mountain ranges: In the USA & Asia inland areas isolated from the sea suffer from low rainfall. This is because the warm moist winds blowing over the oceans lose their moisture when they are forced upwards. This land is called a rain shadow. Altitude: Temperatures fall by about half a degree for every 100m increase in altitude and tough grasses replace trees on steep mountainsides Distribution of land and sea: Oceans heat up and cool down much more slowly than land. This means that coastal locations tend to be cooler in summer and warmer in winter than places inland at the same latitude and altitude. Glasgow, for example, is at a similar latitude to Moscow, but is much milder in winter because it is nearer to the coast than Moscow. <u>Location of biomes:</u> - Deserts - found between 15 and 35 degrees north and south of the Equator where there is little rainfall - Temperate Deciduous forests - found mainly in the mid latitudes where there are four distinct seasons - Tropical Rainforests - located near the Equator between 10 degrees north and south. Known for high temperatures and heavy rainfall.
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Year 10 Term 1 – The Living World – Page 2 - Tropical Rainforests

KPI 4 Describe and explain the physical characteristics of tropical rainforests

Climate:

- High temperatures and high humidity throughout the year.
- Average temperatures range between 25°C and 30°C.
- Annual rainfall exceeds 2,000 millimetres, with no distinct dry season.
- Rainfall is evenly distributed, resulting in a constant supply of water.

Vegetation:

- Dense and layered vegetation with multiple canopy levels.
- Emergent layer: Tallest trees, reaching heights of up to 60 meters.
- Canopy layer: Dense layer of tree branches and leaves, forming a continuous canopy.
- Understory layer: Smaller trees, shrubs, and ferns beneath the canopy.
- Forest floor: Sparse sunlight reaches the forest floor, limiting plant growth.

Biodiversity:

- High species diversity and abundance.
- Home to a wide variety of plants, animals, insects, and microorganisms.
- Many species are endemic, found only in specific rainforest regions.
- Examples of biodiversity include jaguars, toucans, orangutans, and a vast array of plant species.

Soils:

- Nutrient-poor soils due to rapid decomposition and leaching.
- Most nutrients are stored in living plants rather than the soil.
- The top layer of soil, called the humus layer, is rich in organic matter.

KPI 5 Describe how plants and animals have adapted to living in tropical rainforests

Plants:

- Buttress Roots: Large, shallow roots that provide stability to tall trees on the nutrient-poor soil. Help support the massive weight of trees in the dense (thick) forest.
- Drip Tips: Pointed, waxy leaves that allow water to run off quickly. Prevents the accumulation (building up) of water on the leaf surface, reducing the risk of fungal and bacterial growth.
- Lianas: Woody vines that climb tree trunks to reach sunlight in the canopy. Use the host tree for support and access to sunlight.
- Epiphytes: Plants that grow on other plants, particularly trees, without causing harm. Obtain nutrients and moisture from the air and rain. Examples include orchids, and ferns.
- Strangling Fig Trees: Begin as epiphytes in the canopy, sending roots downward. Roots grow around the host tree, gradually strangling it and taking over its space.

Animals:

- Arboreal Adaptations: Many animals live in the trees (arboreal habitat) and have adaptations to navigate this environment.
 - Prehensile tails: Used for grasping branches, seen in animals like monkeys and tree-dwelling anteaters. Strong limbs and claws: Aid in climbing and grasping branches. Good depth perception and leaping abilities: Helps animals move quickly and accurately in the dense forest.
- Camouflage: Many animals have evolved colours and patterns that blend with the surroundings, making them difficult to spot. Examples include leaf insects, stick insects, and tree frogs.
- Canopy Feeding: Some animals, such as sloths and orangutans, have specialized adaptations to obtain food in the canopy. Long limbs or prehensile tails allow them to reach for leaves, fruits, and flowers.

KPI 6 To examine the causes of deforestation and evaluate the impacts of deforestation for a named case study

Case study: Malaysia – 67% rainforest but rate of deforestation increasing faster than any tropical country in the world.

Causes of Deforestation:

- **Agriculture:**
 - Clearing forests for agriculture, particularly for commercial farming. Large-scale cultivation of crops like soybeans, palm oil, and cattle ranching contribute to deforestation, especially in tropical regions.
 - **Example:** In Malaysia plantation owners receive a 10-year tax incentive (*Paying reduced taxes*) if they grow palm oil.
- **Logging:**
 - The extraction of timber for commercial purposes, including the production of furniture, paper, and building materials. Clear felling now been replaced by selective logging.

Infrastructure Development:

- Construction of roads, highways, dams, and urban areas often requires the clearing of forests. Infrastructure projects aimed at facilitating economic growth can result in significant deforestation.
- **Example:** Bakun Dam was built in Malaysia and flooded 700km² of farmland

Mining:

- Mining activities, particularly for minerals such as gold, coal, and iron ore, can result in the destruction of large forest areas. Clearing land for mining operations and associated infrastructure can have severe environmental impacts.
- **Example:** In Malaysia tin mining and smelting has caused forest loss.

Impacts of Deforestation:

- Economic gains – job creation, tax revenue, cheap HEP, able to sell valuable minerals
- Economic losses – rainforest tourism could decrease.
- Environmental losses - Rising temperatures impact farming, reduces biodiversity (*range of plants and animals*), soil erosion, impacts local climate – reduces cooling effect of trees and impacts global climate – carbon store lost

KPI 7 To understand the importance of the tropical rainforest and ways in which it can manage effectively and sustainably

Sustainable Management Approaches:

Sustainable use of the rainforest	What it is?	Positives	Negatives
Selective logging and replanting	Only cutting down certain trees e.g. tropical hardwood such as teak. Replanting trees e.g. Andrex replants 3 trees for every pack of toilet roll	Reduces rate of deforestation, Allows carbon to be stored in rainforest	Deforestation still happening Replanting takes time – hardwood can take 100 years to regrow
Conservation and education	Educate people on how to use the rainforest in a sustainable manner	Prevents large scale deforestation Helps preserve rainforest for future generations	Takes time and money to set up. Can be difficult to persuade people to change tactics
Ecotourism	Tourists who aim to leave no carbon footprint from their holiday. Attempt to avoid any activities/accommodation that causes damage to the area.	Lowers carbon footprint causing less damage to the environment	Costly Small scale – not many people take part
International agreements about the use of tropical hardwoods	Countries agree to only cut down certain numbers of trees	Reduces rate of deforestation Still allows countries to earn money from deforestation	Requires countries to agree Difficult to enforce – who will punish the countries who do not follow the agreement
Debt reduction	Countries cancel debt for poor countries	Reduces the need for deforestation	Local people may still engage in deforestation to earn a living

Year 10 Term 2 – The Changing Economic World – Page 1 – The Development Gap

Key words Birth rate The number of births in a year per 1000 of the total population. Commonwealth The Commonwealth is a voluntary association (group) of 53 independent and equal sovereign states, which were mostly territories of the former British Empire. Death rate The number of deaths in a year per 1000 of the total population. De-industrialisation The decline of a country's traditional manufacturing industry due to exhaustion (running out) of raw materials, loss of markets and competition from NEEs. Development gap The difference in standards of living and wellbeing between the world's richest and poorest countries (between LICs and LICs). Fairtrade When producers in LICs are given a better price for the goods they produce. Often this is from farm products like cocoa, coffee or cotton. The better price improves income and reduces exploitation (misuse). Globalisation The process which has created a more connected world, with increases in the movements of goods (trade) and people (migration and tourism) worldwide Human Development Index (HDI) A method of measuring development in which GDP per capita, life expectancy and adult literacy are combined to give an overview. Infant mortality The average number of deaths of infants under 1 year of age, per 1000 live births, per year. Information technologies Computer, internet, mobile phone and satellite technologies Intermediate technology The simple, easily learned and maintained technology used in a range of economic activities serving local needs in LICs. International aid Money, goods and services given by the government of one country or a multiple groups such as the World Bank or International Monetary Fund to help the quality of life and economy of another country. Microfinance loans Very small loans which are given to people in the LICs to help them start a small business. North-south divide Economic and cultural differences between Southern England and Northern England Post-industrial economy The economy of many economically developed countries where most employment is now in service industries. Science and business parks Business Parks are purpose built areas of offices and warehouses, often at the edge of a city and on a main road. Science parks are often located near university sites, and high-tech industries are established. Scientific research and commercial (sales) development may be carried out in co-operation with the university.	KPI 1 What is development? Development is the progress of a country in terms of economic growth, the use of technology and human welfare. <i>What are the types of development?</i> Economic Development - This is progress in economic growth through levels of industrialisation and use of technology. Social Development - This is an improvement in people's standard of living. For example, clean water and electricity. Environmental Development - This involves advances in the management and protection of the environment.	KPI3 Variations in the level of development Low Income Countries (LICs) Poorest countries in the world. GNI per capita is low and most citizens have a low standard of living. Newly Emerging Economies (NEEs) These countries are getting richer as their economy is progressing from the primary industry to the secondary industry. Greater exports leads to better wages. High Income Countries (HICs) These countries are wealthy with a high GNI per capita and standards of living. These countries can spend money on services.
	KPI2 Measuring development These are used to compare and understand a country's level of development Economic indicators examples: Employment type The proportion of the population working in primary (extracting raw materials), secondary (manufacturing), tertiary (services) and quaternary (research and design) industries Gross Domestic Product per capita This is the total value of goods and services produced in a country per person, per year. Gross National Income per capita An average of gross national income per person, per year in US dollars Social indicators examples: Infant mortality The number of children who die before reaching 1 per 1000 babies born. Literacy rate The percentage of population over the age of 15 who can read and write. Life expectancy The average lifespan of someone born in that country Mixed indicators: Human Development Index (HDI) A number that uses life expectancy, education level and income per person.	KPI4 - Causes of uneven development Development is globally uneven with most HICs located in Europe, North America and Oceania. Most NEEs are in Asia and South America, whilst most LICs are in Africa. <i>Physical factors affecting uneven development</i> Natural Resources; fuel sources such as oil, minerals and metals for fuel, availability for timber, access to safe water. Natural Hazards; risk of tectonic hazards, benefits from volcanic material, frequent hazards undermines redevelopment. Climate; reliability of rainfall to benefit farming, extreme climates limit industry and affects health, climate can attract tourists Location/Terrain; landlocked countries may find trade difficulties, mountainous terrain makes farming difficult. <i>Human factors affecting uneven development</i> Aid: can help some countries develop key projects for infrastructure faster. Can improve services such as schools, hospitals and roads. Too much reliance might stop other trade links becoming established. Trade: Countries that export more than they import have a trade surplus. This can improve the national economy. Trading goods and services is more profitable than raw materials. Education: Education creates a skilled workforce meaning more goods and services are produced. Educated people earn more money, meaning they also pay more taxes. This money can help develop the country in the future. Health: Lack of clean water and poor healthcare means a large number of people suffer from diseases. People who are ill cannot work so there is little contribution to the economy. More money on healthcare means less spent on development. Politics: Corruption in local and national governments. The stability of the government can affect the country's ability to trade. Ability of the country to invest into services and infrastructure. History: Colonialism has helped Europe develop, but slowed down development in many other countries. Countries that went through industrialisation a while ago, have now develop further.
		KPI 5 Consequences of Uneven Development Levels of development are different in different countries. This uneven development has consequences for countries, especially in wealth, health and migration. Wealth People in more developed countries have higher incomes than less developed countries. Health Better healthcare means that people in more developed countries live longer than those in less developed countries. Migration If nearby countries have higher levels of development or are secure, people will move to seek better opportunities and standard of living.

Year 10 Term 2 – The Changing Economic World – Page 2 – The Development Gap

KPI 6 The Demographic Transition Model

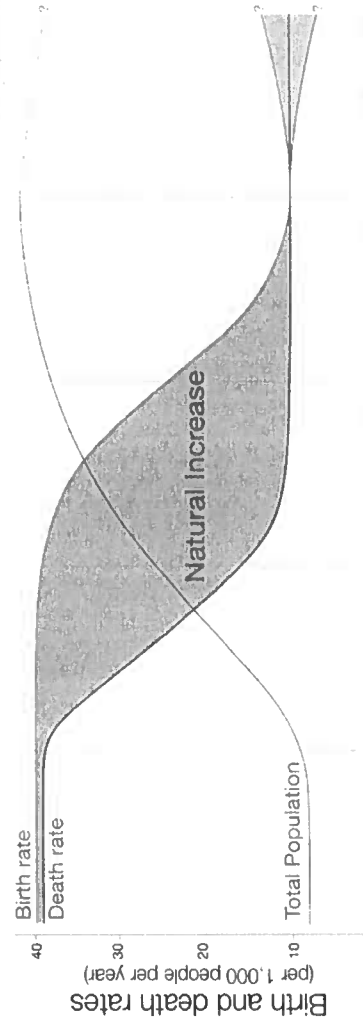
The demographic transition model (DTM) shows population change over time. It studies how birth rate and death rate affect the total population of a country. It can show change over time as a country develops.

Currently the following places fit into each stage of the DTM@

- Stage 1: Amazonian Tribes
- Stage 2: LICs such as Sierra Leone
- Stage 3: NEEs such as India
- Stage 4: HICs such as the UK
- Stage 5: Some HICs such as Japan, Germany

The five stages of the demographic transition

The demographic transition is a model that describes why rapid population growth is a temporary phenomenon.



	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Birth rate	High	High	Falling	Low	Yet to be seen (Possibly falling further, possibly rising again)
Death rate	High	Falls rapidly	Falls more slowly	Low	Low
Natural increase	Stable or slow increase	Rapid increase	Increase slows down	Falling and then stable	Little change
Population Pyramid	Men Women	Men Women	Men Women	Men Women	Men Women

This is a model. It is not a prediction. It is a description of what has happened in the past. It is a model of the past. It is a model of the future. It is a model of the present. It is a model of the past, the present, and the future.

KPI 7 Reducing the Global Development Gap

Microfinance Loans

This involves people in LICs receiving small loans from traditional banks.

- + Loans enable people to begin their own businesses
- Its not clear they can reduce poverty at a large scale.

Foreign-direct investment

This is when one country buys property or infrastructure in another country.

- + Leads to better access to finance, technology & expertise.
- Investment can come with strings attached that country's will need to comply with.

Aid

This is given by one country to another as money or resources.

- + Improve literacy rates, building dams, improving agriculture.
- Can be wasted by corrupt governments or they can become too reliant on aid.

Fair trade

This is a movement where farmers get a fair price for the goods produced.

- + Paid fairly so they can develop schools & health centres.
- Only a tiny proportion of the extra money reaches producers.

Technology

Includes tools, machines and affordable equipment that improve quality of life.

- + Renewable energy is less expensive and polluting.
- Requires initial investment and skills in operating technology

Debt Relief

This is when a country's debt is cancelled or interest rates are lowered.

- + Means more money can be spent on development.
- Locals might not always get a say. Some aid can be tied under condition from donor country.

KPI 8 Case Study: Reducing the Development Gap in through Tourism in The Gambia

Location and Background: Gambia is an LIC located on west coast of Africa. Location makes it an attractive place for visitors to explore the tropical blue seas, skies and palm filled sandy beaches in the winter.

Benefits of Tourism:

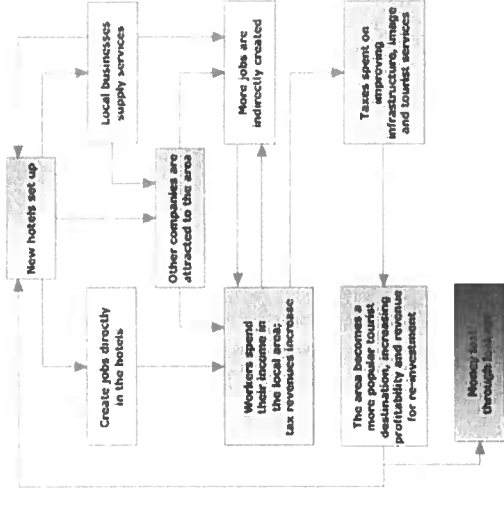
- In 20% of GDP comes from tourism
- Gambia has few natural resource deposits and relies heavily on remittances from workers overseas and tourist receipts
- 150,000 people visit per year

Development Problems:

- Tourists do not always spend much money outside their resorts.
- Ebola and terrorist threats have had a detrimental effect on tourist numbers
- Tourism is seasonal many a winter sun destination

How has tourism created the multiplier effect?

- Jobs from tourism have meant more money has been spent in shops and other businesses.
- Government has invested in infrastructure to support tourism.
- Poverty rates declines from 58% to 48%
- Health improvements



Year 10 Term 1 – The Living World – Page 3 - Hot Deserts

KPI 8 Describe the physical characteristics of hot deserts Climate: - Hot deserts are known for their extreme aridity and high temperatures. - They experience very low rainfall, often less than 250 millimetres per year, and the evaporation rate is high due to intense sunlight and heat. - Daytime temperatures can soar to over 40 degrees Celsius, while nighttime temperatures can drop significantly. Vegetation: - Hot deserts have sparse vegetation. Plants are usually adapted to conserve water, such as cacti, succulents, and other drought-resistant species. - Vegetation is often found in isolated patches or oases where water is available, such as along riverbeds or near underground water sources. Biodiversity: - Tends to be relatively low compared to other ecosystems due to the extreme environmental conditions present. Soils: - Generally dry and lack moisture due to the arid conditions. - The low rainfall and high evaporation rates result in limited water availability for plants and soil processes. - Salinity can be a common issue in desert soils. The high evaporation rates in deserts cause the concentration of salts in the soil to increase over time.	KPI 9 Describe how plants and animals have adapted to living in hot deserts Plants: Succulent Tissues: Many desert plants, such as cacti and succulents, have thick, fleshy stems and leaves that can store water. These water-storing tissues allow them to survive during periods of drought and utilize stored water when necessary. Reduced Leaf Surface: Desert plants often have reduced leaf surface area or modified leaves to minimize water loss through transpiration. Examples include spines in cacti and tiny, waxy leaves in some shrubs. This adaptation helps to conserve water. Deep Root Systems: Some desert plants have long taproots or extensive root systems that can reach deeper soil layers to access groundwater. This allows them to extract water from lower depths and ensures their survival during dry periods. Reduced Growth Periods: Desert plants have adapted to have shorter growth periods to maximize their use of water and nutrients during the limited rainy periods. They may have rapid growth and reproduction when conditions are favourable. Animals: Nocturnal Behaviour: Many desert animals, including reptiles, insects, and rodents, are nocturnal. They are active during the cooler night-time temperatures to avoid extreme heat and reduce water loss through evaporation. Efficient Water Use: Desert animals have adaptations to minimize water loss. For example, kangaroo rats have efficient kidneys that produce highly concentrated urine, allowing them to conserve water. Some insects have impermeable exoskeletons to prevent water loss. Burrowing and Shelters: Some desert animals, such as kangaroo rats and desert foxes, are adapted for digging burrows. Burrows provide shelter from extreme temperatures and reduce water loss by allowing animals to stay underground during the day. Heat Regulation: Desert animals have adaptations for regulating body temperature. These include light-coloured or reflective fur or feathers to reflect sunlight, elongated limbs for heat dissipation, and behavioural adaptations like seeking shade during the hottest hours.	KPI 10 To be able to assess the opportunities for developments in hot deserts using an example Thar Desert – Most densely populated desert, north-west India Opportunities for Development - Mineral Extraction – valuable reserves of gypsum, feldspar used domestically (<i>in the country</i>) and for export (<i>sending goods out of the country</i>). - Tourism – desert safaris on camels exploit the beautiful landscapes. There is an annual Desert Festival. - Energy – includes coal, oil, solar and wind. The Jaisalmer Wind Park is India's largest wind farm. - Farming – subsistence farming and commercial farming of cotton, maize and wheat. - Irrigation (<i>watering crops</i>) –Indira Gandhi Canal has made desert more productive.	KPI 12 Describe and explain desertification and evaluate how countries try to reduce the risk of desertification Desertification is where land is gradually turned into deserts. One region in Northern Africa on the edge of the Sahara Desert is a severe risk of desertification this area is called The Sahel. Causes of Desertification: - Climate Change - Soil erosion - Overgrazing - Salinisation - Over-cultivation - Fuel wood If the amount of natural vegetation decreases then the following will occur: - There will be no plants to intercept the rain, so soil erosion will occur. - The sun bakes the soil so it cracks - When it rains the rainwater runs over the surface rather than soaking in. - Soil is washed away - The soil loses its fertility and structure - No vegetation can grow. Strategies to reduce risk of desertification: <table><tr><th>Strategy</th><th>How it manages water</th><th>How it manages the soil</th></tr><tr><td>Planting Acacia Trees – The Great Green Wall in the Sahel Region stretching 8000km. Ethiopia restored 15 million hectares of degraded land. However, many trees had been planted in areas with few or no inhabitants to care for them. In the early days of reforestation, as many as 80% of trees died within two months of being planted, due to lack of water, protection and appropriate care.</td><td>Tree provides shade to the ground, this reduces evaporation and retains water. Roots absorb water keeping soil moist.</td><td>Trees help bind and stabilise the soil protecting it from the wind and reducing erosion. Decomposing leaves add nutrients to the soil.</td></tr><tr><td>Using Stone Lines – Stone lines act as a barrier to catch soil but let the water run through the stones. This technique is used in Burkina Faso.</td><td>Slows water down and spreads it out across the land. This allows water to seep into the soil and any grasses or crops to use it.</td><td>Helps cause sediment deposition and builds soils in these areas. Traps nutrients carried by water that are then added to the soil.</td></tr></table>	Strategy	How it manages water	How it manages the soil	Planting Acacia Trees – The Great Green Wall in the Sahel Region stretching 8000km. Ethiopia restored 15 million hectares of degraded land. However, many trees had been planted in areas with few or no inhabitants to care for them. In the early days of reforestation, as many as 80% of trees died within two months of being planted, due to lack of water, protection and appropriate care.	Tree provides shade to the ground, this reduces evaporation and retains water. Roots absorb water keeping soil moist.	Trees help bind and stabilise the soil protecting it from the wind and reducing erosion. Decomposing leaves add nutrients to the soil.	Using Stone Lines – Stone lines act as a barrier to catch soil but let the water run through the stones. This technique is used in Burkina Faso.	Slows water down and spreads it out across the land. 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Year 10 Term 2 – The Changing Economic World – Page 3 – The Changing Economy in NEEs and HICs

KPI 9 Location & Importance of an NEE - INDIA - Located in Asia 6th largest economy in the world 1.38 billion people - Bollywood. They produce 1200 movies each year for an international market - Access to Europe through the Suez Canal - A member of the G20 group KPI 10 Impacts of India's development - Economic: Many factory jobs are for unskilled, young women on minimum pay. India's middle class is growing with more managerial and well-paid jobs, e.g. in IT - Social: The quality of life has not improved for all Indians many live in slums. However, life expectancy has improved from 57 years in 1990 to 68 years in 2015. Indian school-age children can expect to stay in school 4.4 years longer than in 1990	KPI 12 The role of TNCs in India Transnational Corporations usually locate in foreign countries in order to take advantage of; tax incentives, access to a wider market, cheap labour and laxer environmental laws. One example of a TNC in India is Coca-Cola. Benefits of Coca Cola in India: - Coca-Cola offer training and education. - Coca-Cola runs some community schemes in Africa and SE Asia. - Coca-Cola employs more than 25,000 people in India. - Indirectly, Coca-Cola has created an estimated 150,000 jobs in related industries. Problems of Coca Cola in India: - Coca-Cola draws around 510,000 litres of water each day from boreholes and open wells leading to water shortages in many areas. - Harvests dropped by 40% because fields not irrigated properly KPI 13 Aid & Debt relief in India Bottom Up Project Biogas Bangalore University found that many families (mainly women and girls) were using most of their time collecting fuel instead of any paid work or education. The solution to this is to use cow dung. Cow dung produces biogas. + Biogas does not produce smoke so less health issues, eat is instant so cooking is quicker. Young girls now have time to go to school and women have the chance to do paid work. Once the biogas has been extracted the leftover dung is now a rich fertiliser so can be used to improve farming. - Project relies on not for profit organisations so if the funding for the project runs out then villages could be left without any help. Not every village has a cattle farm near by so those who don't either have to buy the dung at a cost to them selves or are unable to invest in biogas. Top Down Project Sardar Dam. Indian government built the Sardar super dam. Much of India has seasonal uneven rainfall with some areas getting no rainfall for 5 months of the year. As the population of India rises so to does demand for water. + Dam has provided electricity for over one million homes and businesses, a reliable supply of drinking water for over 25 million people. Farmers can use water to irrigate their land, improving their crops and in turn their diet and income. -234 villages were flooded resulting in 40,000 people being uprooted. The environment has also been disturbed.	KPI 14 The UK Economy Importance: The UK has one of the largest economies in the world. The UK has global transport links i.e. Heathrow and the Eurostar. KPI 15 Causes of Economic Change Primary sector: Raw materials are extracted from the land and sea. These jobs include farmers, miners, fishermen etc. Secondary sector: Making things from raw materials (manufacturing). These jobs include factory workers, steel workers, builders of houses, roads and railways. Tertiary sector: Providing a service to others. Jobs include teachers, doctors, refuse collectors, shop assistants. Quaternary sector: Involves research and development. In this sector people have high levels of expertise and skills such as developing new technology or types of medical treatment. <i>Why has the UK's economy changed?</i> - De-industrialisation (loss of the secondary sector) and the decline of the UK's industrial base. - Globalisation has meant many industries have moved overseas, where labour costs are lower. - Government Policy Government privatisation and decisions to invest in supporting vital businesses KPI 16 Move towards Post-Industrial Economy - The quaternary industry has increased, whilst secondary has decreased. - Numbers in primary and tertiary industry has stayed the steady. - Big increase in professional and technical jobs. KPI 17 Science and Business Parks <i>Cambridge Science Park:</i> A major quaternary industry on the outskirts. Good transport access to the A14 and M11. A good location for sourcing highly educated workers from Cambridge University. Staff benefit from attractive working conditions. Attracts clusters of related high-tech businesses.	KPI 18 Change to a Rural Landscape <i>An area of population growth South Cambridgeshire Cambridge growing - Current population 155,000 but will increase to 175,000 by 2026</i> Social Impacts: Rising house prices have caused tensions in villages. Villages are unpopulated during the day causing loss of identity. Resentment towards poor migrant communities. Economic Impacts: Lack of affordable housing for local first time buyers. Sales of farmland has increased rural unemployment. Influx of poor migrants puts pressures on local services. <i>An area of population decline Outer Hebrides</i> - Despite a small population increase in recent years, there has been an overall decline of more than 50% since 1901 due to outward migration. Social Impacts: School closures, ageing population Economic Impacts: Services are closing, most small farms only provide work for a few days a week. Has been an increase in tourism BUT current infrastructure cant support the scale needed to provide an alternative income. KPI 19 Improvements to Transport - Road improvements: Building of a south west superhighway (A303) by spending £2bn to widen the road. - Railway improvements: London Crossrail costing £16.8bn to improve journey times across London and bring an additional 1.5 million people within 45 minutes of central London. - Airport improvements: Build a new runway at Heathrow airport at a cost of £18.6 bn. Predicted to bring more jobs and money to the UK. Many people are concerned about the noise from a new runway. - Port improvements: Liverpool2 building cost £400 million and has doubled the ports capacity to 1.5 million containers each year. KPI 21 UK North/South Divide Evidence for a North South Divide: - Lower life expectancy in North, e.g. life expectancy in Manchester 2013 = 71.8 (male) and 77.8 (female). Higher life expectancy in South, e.g. male life expectancy in East Dorset 2013 = 83.1, female life expectancy 1 Kensington and Chelsea = 84.7. Solutions: - Businesses such as the BBC have moved their businesses to cities in the North. - Enterprise Zones have been created to encourage new businesses. - The government has proposed improved transport links including a high speed railway link connecting major northern cities.
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Year 10 Term 1 French - DE LA VILLE À LA CAMPAGNE

1	Quand j'étais plus jeune, j'habitais au centre-ville de Bristol.	When I was younger, I used to live in the centre of Bristol.
2	Maintenant, j'habite à Coleford avec ma famille.	Now, I live in Coleford with my family.
3	C'est une assez petite ville dans le sud-ouest de l'Angleterre.	It's a quite small town in the southwest of England.
4	C'est est une région historique et culturelle, à la campagne.	It's an historic and cultural region in the countryside.
5	On peut faire des randonnées, faire du cheval, ou visiter les châteaux.	You can do hiking, do horseriding, or visit the castles.
6	Je trouve que c'est assez joli mais c'est un peu ennuyeux pour les jeunes.	I find that it's quite pretty but it's a bit boring for young people.
7	J'aime bien habiter ici car il y a beaucoup de choses à faire.	I really like living here because there are a lot of things to do.
8	Mais il n'y a pas beaucoup de magasins.	But there are not a lot of shops.
9	Ce weekend je vais aller au cinéma avec mon ami et on regardera un film.	This weekend I am going to go to the cinema with my friend and we will watch a film.

10	Je crois que ça sera vraiment rigolo et j'attends ça avec impatience!	I think that it will be really funny and I'm looking forward to it!
11	J'ai toujours rêvé d'habiter près de la plage	I have always dreamt of living near the beach.
12	Bien sûr il y a des avantages, par exemple il n'y a pas beaucoup de circulation	Of course there are advantages, for example there is not a lot of traffic.
13	et il y a une gare donc on peut voyager sans difficulté	And there is a station so you can travel without difficulty.
14	Récemment je suis allé(e) à Londres avec ma mère	Recently I went to London with my mum.
15	J'ai visité le château et j'ai fait du shopping avec mes sœurs.	I visited the castle and I did (went) shopping with my sisters.
16	C'était vraiment génial.	It was really nice.
17	J'avais toujours rêvé de voir les attractions comme Big Ben.	I have always dreamt of seeing the sites like Big Ben.
18	C'était incroyable mais il y avait trop de gens partout dans les rues	It was incredible but there were too many people in the streets.

Opinions
malgré le fait que-In spite of the fact that je dois avouer que- I must admit that j'attends ça avec impatience- I'm excited for it/that (I await it with impatience) j'en ai marre- I'm tired of it soit...soit...- either...or... je suis mal à l'aise avec- I am uncomfortable with
Subjunctive
bien que je sois (paresseux/se)- even though I am (lazy) il faut que je fasse... - I have to do.. c'est dommage qu'il soit- it's a shame that it's je doute qu'il soit important de + infinitive- I doubt that it's important to...
Si clauses + conditional
si j'avais l'occasion- if I had the opportunity (I would...) si j'étais riche- If I were rich (I would...) si j'avais le temps - If I had the time (I would...) si je pouvais - If I could (I would...)

Past Tense
j'aurais aimé + infinitive- I would have liked (to...) j'avais décidé que- I had decided that j'avais toujours rêvé de + infinitive- I had always dreamed of... je me suis rendu(e) compte que- I realised that j'étais ravi(e) que- I was delighted that... j'étais en train de + infinitive- I was in the middle of (doing...)
Connectives
néanmoins- nevertheless du coup- thus/therefore au lieu de- instead of après avoir fait cela- After having done that...

Year 10 Term 1 Spanish - INTERESES E INFLUENCIAS

1	My parents give me twenty euros each week	Mis padres me dan veinte euros cada semana
2	I spend my pocket money on clothes and make up.	gasto mi paga en ropa y maquillaje.
3	I usually/tend to do sports three times per week after school.	Suelo hacer deportes tres veces por semana después del colegio.
4	Sometimes I do swimming on the weekend.	A veces hago natación los fines de semana.
5	I love pop music because it is quite cool	Me encanta la música pop dado que es bastante guay
6	Last year I went to a concert with my friends to see my favourite singer: Ariana Grande.	El año pasado fui a un concierto con mis amigos para ver mi cantante preferida: Ariana Grande.
7	For me, sport is like a drug – I'm addicted!	Para mi, el deporte es como una droga - iestoy enganchada!
8	I've been playing tennis for three weeks and I do horse riding often.	Juego al tenis desde hace tres semanas y hago equitación a menudo.
9	When I was younger I used to play football and I used to do martial arts.	Cuando era más joven jugaba al fútbol y hacía artes marciales.

10	I no longer have time to play football.	Ya no tengo tiempo para jugar al fútbol.
11	I would say that I am not tele addicted. I watch TV one hour each day.	Diría que no soy teleadicto. Veo la tele una hora cada día.
12	I prefer to watch telly and yesterday I watched a soap opera.	Prefiero ver la tele y ayer vi una telenovela.
13	I love mystery movies because they are so entertaining.	Me molan las pelis de misterio porque son tan entretenidas.
14	I have not watched Emma Watson's last movie	No he visto la nueva película de Emma Watson
15	I prefer to watch a football game at the stadium because it is more exciting.	Prefiero ver un partido de fútbol en el estadio dado que es más emocionante.
16	My role model is Angelina Jolie because she fights for women's rights	Mi modelo a seguir es Angelina Jolie dado que lucha por los derechos de las mujeres

Show off language

Opinions
desde mi punto de vista- from my point of view debo admitir que- I must admit that aunque al mismo tiempo- although at the same time no aguanto hacerlo- I can't stand doing it quiero mucho hacerlo porque- I really want to do it because trato de (+ infinitive)- I try to tengo ganas de (+ infinitive)- I fancy (doing something) he tenido bastante de (+ infinitive)- I have had enough of lo peor de todo- the worst thing of all supongo que- I suppose that
Subjunctive
es necesario que lo haga porque- it's necessary that I do it because ojalá que + subjunctive- I hope that cuando termine mis exámenes- when I finish my exams cuando gane bastante dinero- when I earn enough money cuando sea mayor- when I'm older

Si clauses + conditional
si tuviera tiempo- if I had time (I would...) si fuera rica- If I were rich (I would...) si fuera posible- If it were possible (I would...)
Past Tense
lo que más me gustó fue- what I liked the most was me hubiera gustado (+ infinitive)- I would have liked to
Idiomatic Language
me di cuenta de que- I realised that me quita las ganas- puts me off me saca(n) de quicio- it gets on my nerves a mí me da igual- I don't mind valdrá la pena- it will be worth it al fin y al cabo – at the end of the day

GCSE RE Full Course Paper One – Christianity beliefs and teachings

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

KPI1- To explain some of the qualities of God

Christianity is a monotheistic religion. "We believe in one God."

- All powerful (omnipotent) because he created the world (Genesis). There is nothing God cannot do or achieve. "Nothing is impossible with God."
- All loving – God sent Jesus to die on the cross so man's sins could be forgiven. This encourages Christians to love each other. "God so loved the world that he gave his one and only son."
- Judge – God (Jesus) will judge everyone on Judgement Day
- Eternal – God has no beginning and no end
- All-knowing (omniscient) God knows everything, which has happened, is happening and will happen.

KPI3- To investigate the problem of evil and suffering

Many people question God's benevolence when faced with evil and suffering. Christians believe that a just God treats all people fairly, and they can trust God when things appear wrong. The story of the 'fall' shows Adam and Eve giving into temptation, free will to make a choice- 'the original sin.'

KPI4- To describe the Genesis account of creation. The book of Genesis begins "In the beginning God created the heavens and the earth."
 Day 1-2 Water covered earth Day 3 Dry land and plants
 Day 4 Sun, moon and stars Day 5 Sea and flying creatures
 Day 6 Land animals and Man Day 7 God rested

KPI2- To understand and analyse the concept of the oneness of God and the Trinity

The doctrine of the Trinity is the Christian belief that: There is One God, who is Father, Son, and Holy Spirit.

The Trinity describe that there is only one God, each person of the Trinity is fully God and the persons of the Trinity are not the same.

God the Father: revealed by the Old Testament to be Creator, Lord, Father and Judge.

God the Son: who had lived on earth amongst human beings.

God the Holy Spirit: who filled them with new life and power

KPI4- To explain different Christian beliefs about creation

-Christians believe that God created the earth. One story about the creation of the world is found in **Genesis**.

-Many Christians believe that although it may not be scientifically accurate, this account contains religious truth.

-Some Christians believe that the account should not be read as an accurate account, but as a myth.

-Design argument- teleological William Paley used this argument to explain the existence of God. Anything that has been designed needs a designer. There is evidence that the world has been designed. If the world has been designed then there must be a designer, this must be God.

-The First Cause Argument/ **Cosmological** (Thomas Aquinas) If we look at things in the world, we see that they have a cause. Anything caused to exist must be caused to exist by something else. Everything has to have a beginning. The only possible first cause of the universe is God, therefore God must exist.

Year 10 Paper One – Christianity beliefs and teachings

KPI 6 Incarnation and Crucifixion 	Crucifixion - Jesus travelled to Jerusalem to preach and he was sentenced to death by Pontius Pilate - Jesus was then nailed to a cross where he died. - In his last moments Jesus was able to forgive those who were killing him showing Christians how important forgiveness is - This event is remembered on Good Friday <i>“Forgive them father, they know not what they do”</i> — Luke 23:34	Incarnation - Christians believe that God was incarnated (born) in human form as Jesus Christ - Mary was impregnated by the Holy Spirit and gave birth as a virgin – for Christians this is proof of Jesus’ status as the son of God - Christmas is the festival that celebrates the incarnation <i>“The word became flesh”</i> – John 1:14
KPI 7 Resurrection and Ascension 	Resurrection - After Jesus was dead and buried Christians believe he rose from the dead – this is the resurrection - Early on the Sunday three women visited his tomb expecting to find his body but it was not there - After his resurrection Jesus appeared to his disciples and told them to spread the word of him - This event is celebrated on Easter Sunday <i>“He is risen”</i> – Christians say this to each other on Easter Sunday	Ascension - Forty days after he rose from the dead Jesus ascended (went up) into heaven A belief in resurrection and ascension ... - Shows life after death is real - Assures Christians they will rise again after death and live on in the afterlife - Leads Christians to try and lead a good life
KPI 8 Sin and Salvation 	- Christians believe you are Judged after you die (see Religion and Life) and how well or badly you have lived and treated others decides if you go to heaven or hell - Sin is any action or thought that goes against God’s will, Christians can look in the Bible for advice on what is a sin e.g. murder (you shall not kill) and adultery (cheating, you shall not commit adultery) - God gave humans free will but they should use that freedom to make good choices and not sin - Salvation is the idea that Jesus’s crucifixion saves human beings from eternal damnation - The death of Jesus made up for original sin – the idea that we were all damned by Eve’s choice to disobey God – it allows us to atone for sins and reach eternal life in heaven	
KPI9- Quotes to support	● The Nicene Creed states “Jesus will come again to judge the living and the dead.” ● Genesis 1- “In the beginning God created the heavens and the earth. 2 Now the earth was formless and empty, darkness was over the surface of the deep, and the Spirit of God was hovering over the waters. And God said, “Let there be light,” and there was light. 4 God saw that the light was good, and he separated the light from the darkness. 5 God called the light “day,” and the darkness he called “night.” And there was evening, and there was morning—the first day.” ● Parable of the Rich man and Lazarus – “But Abraham replied, ‘Son, remember that in your lifetime you received your good things, while Lazarus received bad things, but now he is comforted here and you are in agony.’” ● Parable of the sheep and goat- Truly I tell you, whatever you did for one of the least of these brothers and sisters of mine, you did for me. ● 41 “Then he will say to those on his left, ‘Depart from me, you who are cursed, into the eternal fire prepared for the devil and his angels. 42 For I was hungry and you gave me nothing to eat, I was thirsty and you gave me nothing to drink’”	

Year 10 Paper One – Christian worship and practices	
Pilgrimage	A journey made to a holy site for religious reasons.
Christmas	Christian festival celebrating the incarnation of Jesus
Easter	Christian festival commemorating the death and resurrection of Christ
Food banks	The Trussell Trust is a Christian charity that provides emergency food to people in crisis
Street pastors	Christian volunteers who provide free help and support to people, especially those who are out on a Friday or Saturday night.
Mission	A vocation or calling to spread the teachings of Jesus. The Great Commission: Jesus instruction to his followers to go and spread his message "Go and make disciples of many nations"
Evangelism	Spreading the teachings of Jesus
Church growth	Church attendance is falling in the UK, but is increasing rapidly in places like Africa
Reconciliation	The worldwide Church has a mission to heal people's relationship with God and with one another.
Persecution	Christians in places like North Korea and Syria are being persecuted by being attacked, forced to pay extra taxes or forbidden from certain jobs
KPI9: Many Christians are evangelical , meaning they believe it is important to spread the 'good news' of Christianity with others so that they might be saved. Missionary work means an organised effort to spread Christianity. Christians have suffered persecution in the past. Just after Jesus had died, many people began joining the new religion that Jesus had started called Christianity. However, not everyone was happy with this new, rapidly growing religion. One of these people was the Roman Emperor Nero. Under his reign, Christians were persecuted for their beliefs. Many of Jesus' disciples were persecuted and died horrible deaths such as being crucified or boiled alive. Tearfund are a Christian charity. They believe their duty is to follow the example of Jesus and help the poor and needy. They work in over 50 countries and provide short and long term aid.	

KPI6- To describe the role and importance of pilgrimage. •A pilgrimage is a journey made for religious reason. The believer makes a physical journey but it is also a spiritual journey toward God. Pilgrims may visit the Holy Land, particularly Jerusalem, because it is where Jesus lived and died. Christians go on pilgrimage to grow closer to God and seek a cure for an illness. The pilgrimage site of Lourdes is near the Pyrenees mountains in France. Every year, it is visited by millions of pilgrims, particularly Roman Catholics. Iona: Scottish island where Christians of all denominations go to pray, read the Bible and meditate	KPI7: To investigate Christian festivals Christmas is a Christian festival remembering the birth of Jesus. Here are some of the ways it is celebrated: the story of Jesus' birth (the nativity) is re-told by children through nativity plays, church services often including carol singing, Some Christians start Christmas day with a midnight communion service (mass), gifts might be given or received which reminds Christians of the gift of Jesus Easter remembers the crucifixion and resurrection of Jesus. Holy week begins with palm Sunday, on Maundy Thursday, Jesus shared the last supper with his disciples. On good Friday Jesus was crucified by the Romans. The Bible says Jesus was innocent and that his death was a sacrifice for people's sins. Throughout the gospels, Jesus says that he will have to die but that his death will save many. Jesus was resurrected on Easter Sunday. Easter is celebrated by giving eggs which are a symbol of new life, Christians might attend church and share communion.	KPI8: The role of the church in the local community: Food Banks The Trussell Trust: Founded in 1997 it provides emergency food help and support to people in the UK. Based on the parable of the sheep and goats to aim to end poverty and relieve hunger of people. Due to rising prices, cut in benefits, redundancy and other family issues people need help with food to survive. Food is donated by churches, supermarkets, schools and business and care professionals identify people in need and give vouchers so that they can get food to help them in the short term. Street Pastors The parable of the sheep and goats shows how Christians should help others and show agape. Street pastors started in 2003 in London with volunteers to work on the streets to patrol areas to provide a reassuring presence to people at night. The try to focus on responding to anti-social behaviour, drunkenness and fear of crime. They want to help people in practical ways working with the council and the police. They wear blue reflective uniforms to be seen so they can be spotted for people to come to them if they need help. They go out to listen to people, giving advice about where they can go, or to offer flip flops to girls whose shoes have broken or space blankets to help keep people warm. They do not actively go out to preach but work off the basis of the teachings of Jesus to offer help to people who need it.
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Paper One – Christian worship and practices	
Liturgical	Church service that follows a set order and structure.
Non liturgical	A service that doesn't have a set order or structure.
Informal	Type of non-liturgical worship that is spontaneous e.g. Quaker and charismatic Christian worship
Prayer	Speaking to God
Lords Prayer	Set prayer taught by Jesus aka the 'Our Father'
Sacraments	Christian rituals where believers receive God's grace (free gift of love)
Eucharist	Aka Holy Communion. Christian sacrament that uses bread and wine to re-enact the Last Supper and commemorate the death and resurrection of Christ.
Baptism	Baptism: Christian sacrament representing entrance into the Christian faith. Usually involves water
Transubstantiation	The belief that the bread and wine actually become the body and blood of Christ
Memorialism	Christ is not present, the Eucharist is carried out in remembrance of Jesus

KPI1: To understand what is meant by worship and different forms of worship.

- Worship is an act of showing **devotion** to God.
 - This often involves praise, but in Christianity it also covers things such as asking for forgiveness and learning more about God.
 - Worship can be formal or informal, in a group or done individually (private worship).
 - Liturgical worship involves a set format for worship, it can contain **liturgies**.
 - Non liturgical worship is where there is no set structure, or where worship may be spontaneous.
- Informal worship is worship is more relaxed it is sometimes **charismatic**, it can be help at any time.

KPI2: To investigate the nature of prayer and its significance.

- Christians describe prayer as a conversation with God. Prayer can be silent or said out loud. It can use set words, or a person's own words.
- There are many different kinds of prayer, including: adoration - praising God for his greatness - confession - owning up to sin and asking for God's forgiveness thanking - thanking God for his many blessings, petition - asking God for something, - intercession - asking God to help others who need it, Most Christians believe prayer deepens a person's faith. Praying can help the believer come to a greater understanding of God's purpose for their lives.

KPI3: To explore the sacrament of baptism and the different forms amongst the church.

- **Infant Baptism**- In some Christian denominations babies are baptised as a symbol of welcome and belonging to the family of the Church. In this ceremony water is sprinkled on the baby's head as a symbol of new life and of being washed clean from sin. Parents and godparents promise to bring the baby up in the Christian faith following Jesus's example.
- **Adult baptism**- In some denominations people are not baptised until they are old enough to make the promise to follow Jesus Christ for themselves. Christians try to follow Jesus's example. He was baptised as an adult.

KPI5- To apply key religious teachings to the topic of worship

- Prayer: The Lord's prayer:
Matthew 6:9-13 "Give us today our daily bread and forgive us"
- Baptism- The Great Commission:
Matthew 28:19 "Go and make disciples of all nations, baptising them in the name of the Father and of the Son and of the Holy Spirit."
- Eucharist: 1 Corinthians 11:23-26 "This is my body, do this in remembrance of me, this cup is the new covenant, drink it in remembrance of me."

KPI4: To be able to understand the sacrament of Holy Communion and the different ways Christians celebrate communion.

- The **Eucharist**, which is also called the Holy Communion, Mass, the Lord's Supper or the Divine Liturgy, is a sacrament accepted by almost all Christians.
- The Eucharist is a **re-enactment** of the Last Supper, the final meal that Jesus Christ shared with his disciples before his arrest, and eventual crucifixion.
- Although all denominations recognise the importance of the Eucharist, they differ about its meaning. Roman Catholics believe that although the bread and wine physically remain the same, it is transformed beyond human comprehension into the body, blood soul and divinity of Jesus. This is called

Transubstantiation.

In some churches (e.g. Roman Catholic) people come to the front to receive communion from the priest, usually in the form of a wafer and some alcoholic wine from a single cup In other churches (e.g. non-conformist) bread is usually set on a table alongside non-alcoholic wine in small cups and anyone who wishes to can take some.

Art Year 10 - Term 1

<u>Formal Elements</u>	<u>Colour Theory</u>	<u>Tips, Tools & Techniques</u>	<u>Keywords, Concepts & Artists</u>
Line A mark that connects two or more points. These can be straight, curved, short or long. Tone The lightness or darkness or something. For darker tones use a higher grade B pencil. Colour Colour is what you see when light reflects of something. Texture How something looks or feel e.g. fluffy, rough, smooth etc. Visual Texture - implied sense of texture that the artist creates through the use of various artistic elements such as line , shading, and color. Physical Texture - texture you can actually feel with your hand Pattern A symbol, shape or colour that repeats. Man-made patterns are designed by humans, natural patterns are formed by nature. Shape/Form Shape is 2D e.g. rectangles. Form is 3D e.g. cubes, spheres etc.	Primary Colours Colours that can't be mixed/ made from other colours e.g. red, yellow and blue. Secondary Colours Colours that can be made by mixing two primary colours. Red + Blue = Purple Yellow + Blue = Green Yellow + Red = Orange Tertiary Colours Colours that can be made by mixing a primary and secondary colour together e.g. Blue + Green = Turquoise. Complementary Colours Colours that are opposite each other on the colour wheel. Blue & Orange Red & Green Purple & Yellow Analogue/ Harmonious Colours Colours that are next to each other on the colour wheel e.g. Red, red-orange and orange. Tints/ Shades Tint - Adding white to a colour to make it lighter. Shades - Adding black to a colour to make it darker.	Grid-Method A method of drawing to recreate, enlarge or reduce an image ensuring accurate proportions. Mono-Printing A form of printmaking that has lines or images that can only be made once. Shading Techniques Hatching, Cross-Hatching, Stippling and Scumbling. Blender Stick A paper stump that allows you to blend tones. Acrylic Paint A water-soluble paint which can be layered due to quicker drying time without muddying previously applied layers. Thumbnail Designs Small sketches outlining ideas in a simplistic way.	Proportion The size and relation of objects to one another. Using the grid-method is one way of helping you draw using accurate proportions. Composition This is where you place objects on a page. You can explore different layouts such as close up, far away, busy, quiet, off centred, clustered. Mixed Media Artwork in which more than one material has been used. Copy of Work Copying the style and technique of an artist's work to enable you to understand the process of how it has been made. Own Interpretation Developing your own work by applying artist style or technique to your own ideas. Refining Ideas Annotating and evaluating experiments and as a result making decisions to improve work.

Painting Techniques	More Painting Techniques	More Keywords
Impasto Paint is laid on an area of the surface in very thick layers, usually thick enough that the brush or painting-knife strokes are visible. Sgraffito Scratching away paint while it's wet to expose the underpainting. It's especially useful when depicting scratches, hair, grasses and the like. You can use almost any pointed object for this – try rubber shaping tools or the end of a brush Dry Brushing This is a method of applying colour that only partially covers a previously dried layer of paint. Add very little paint to your brush and apply it with very quick, directional strokes. This method tends to work best when applying light paint over dark areas/dried paint and is useful for depicting rock and grass textures.	Adding texture with Salt When salt is sprinkled on a wet wash, it starts to gather the watercolor pigments and makes the coolest texture. The effect will vary depending on the size of the grains of salt and the wetness of the paper Underpainting An underpainting is essentially a monochrome wash that's used for the first layer of the painting. You'll add layers of transparent washes over the underpainting, which gives realistic and luminous effects	Observational Drawing Drawing something from real life in front of you. Primary & Secondary Sources Primary = real objects or your own photos that you have taken yourself Secondary = an image from the internet or books Landscape A piece that depicts a view of some sort e.g. mountains, the sea, fields, woodlands, buildings etc.
Wet-in-Wet Start by brushing water (and only water) onto your paper. Then dip your brush in paint and spread it over the water wash. The paint will feather and diffuse like magic.		Portraiture Drawing/ painting or photograph of someone Still Life A piece that depicts an object or group of objects.

Drama Y10 Blood Brothers

Blood Brothers plot

Russell's BB revolves around twin boys (Mickey and Edward) who are separated at birth and brought up in completely different environments in the city.

The play, set in the 1960s, is divided into two acts, with songs throughout.

Mickey is brought up with his seven older siblings by his struggling single mother, Mrs Johnstone. His twin brother, Edward, however is brought up as the only child of the wealthy Lyons family, who live nearby, after Mrs Lyons persuaded Mrs Johnstone to hand over one of her twins at birth.

Mickey and Edward don't meet each other until they're seven years old, but immediately become best friends and blood brothers. The bond continues when the boys are teenagers and both live in the countryside, despite them both being in love with Mickey's neighbour Linda.

However, as they get older, the huge difference in their backgrounds pulls them apart and eventually leads to their tragic deaths.

Written during a period of huge changes in society and politics, Blood Brothers draws the audience's attention to the detrimental effect that social inequality can have on people's lives.

Useful vocabulary: Contrast Multi-role Dramatic Irony Tragedy Dole Prejudice Manipulates Consequences Vulnerable Foreboding Foreshadow Judgemental Sympathy Stigmatised Monologue Prologue Dialogue Transitions Cyclical Cautionary

Background of the play

Born into a working class family, Russell grew up on a council estate in Liverpool. His father worked very hard in a variety of jobs including mining and other laborious occupations. His mother worked as a nurse. This echoes the situations of Mickey and Linda, struggling to get by during a difficult period. His plays largely focus on the problems faced by working class people. He writes a lot about social divides and how someone's class can affect who they are and the opportunities they are given.

Liverpool depended heavily on traditional industries, so it was badly hit by the industrial decline in the late twentieth century. The city's working-class areas were very poor and things went from bad to worse. Margaret Thatcher was Prime Minister at the time and was arguably to blame for some job losses.

There was a large gap between working and middle class in Britain, even before the industrial decline. The Johnstones and Lyons' are class stereotypes. A lot of working class people struggles financially, even if they were in work or on the dole. The Middle class were largely unaffected by the industrial decline, as they had jobs like teaching or accountancy. There was also a class divide in education, whether you went to a public and private schools often decided your job in the future

Families were expected to have a 'nuclear' structure- a mother, a father and their children. Single-parent families like Mrs Johnstone were less common and were frowned upon by many.

Key Terms

Foreshadowing - Warning or indication of a future event

Pathos - Appeal to emotion

Multi-role- One actor playing a two or more roles

Motif- A repeated idea throughout the story

Dialogue - Conversation between two or more characters

Tension - Dramatically used to build suspense

Humour - Language used for amusing/comic effect

Dramatic Irony - When the audience know something that the characters do not

Songs - Contain lyrics that are set to music to give audience more information

Stage Directions - Instructions indicating how the actor should move/speak

Cyclical Structure - Finishes a similar way to how the text began

Prologue - A separate introduction that reveals some of the plot

Atmospheric - A distinctive mood/feel to the scene

Parallels - Similarities in the text—almost a replication of events

Tragedy - A play dealing with tragic events and having an unhappy ending for main characters.

Acting Style

Epic Theatre is a technique used in theatre created by Bertolt Brecht to remind the audience the were not watching real life.

Narration is a technique used by break to remind the audience what they are watching is just a play and not real life. This is shown throughout Blood Brothers as their is a character called, 'Narrator.'

The Narrator constantly, 'Breaks the Fourth Wall,' another Epic theatre technique. They do this by talking directly to the audience and asking them questions about what is happening in the performance.

A third technique we see used in Blood Brothers is Multi-Rolling. This is a technique where one actor will play more than one character or more than one actor will play the same character. This reminds the audience that these characters are not real and that they are watching something that is not real life.

The final Epic Theatre technique that is used is Songs. Although Blood Brothers is not a musical it does have songs which again remind the audience that what they are watching is not real life.

Billy Elliot plot

Billy Elliot is set in the county town of Durham. It follows the story of a young boy who discovers he has a love for dance, yet he faces a backlash from his family and the community he lives in.

The play is set during the 1980's Miners strike. It is a musical which makes many reference to the conservative government at the time.

The performance starts with the audience being informed that the Miners are going on strike. We then are introduced to the main character and his best friend Michael, who don't seem to understand what is happening around them.

We learn that Billy lives with his Dad, Brother and Grandma, his mam passed away a few years ago.

After arriving late to a boxing class he is forced to stay behind. A ballet class then enters the hall and he takes part. As the show goes on he stop going to boxing and continues to go to the ballet class. The dance teacher, Mrs Wilkenson, convinces Billy to Audition for the Royal Ballet school. However, is firstly denied by his family. Due to the on going circumstances with the strike.

After some time his dad goes against his community and family and supports Billy in his dream. Billy auditions and gets into the Ballet school.

The performance ends with the Miners finding out that they have lost their fight against the government and are forced back to work.

Background of the play

Written by Lee Hall, Billy Elliot is set at a time when English communities were divided by the political landscape at the time. Lee Hall was raised in Newcastle which was an area hit hard by the mining strikes of the time.

Throughout the whole performance the theme of social class is very apparent. There are many instances of the issues faced by working class communities highlighted throughout the performance. An example of this is during the song Solidarity. We see the struggle between Miners and Police officers who are clashing on the picket line. This is combined with a ballet class, showing us the innocence of the children and Billy, while such turmoil is happening around them.

There was a large gap between working and middle class in Britain, even before the industrial decline. The Miners and the police are class stereotypes. A lot of working class people struggles finically, even if they were in work or on the dole. The Middle class were largely unaffected by the industrial decline and strikes at the time. There was also a class divide in education, whether you went to a public and private schools often decided your job in the future. We can see this when Billy goes to audition for the Ballet School.

Families were expected to have a 'nuclear' structure- a mother, a father and their children. Single-parent families like Billy's were very uncommon and he finds a mother like figure in Mrs Wilkenson.

Key Terms

Foreshadowing - Warning or indication of a future event

Pathos - Appeal to emotion

Multi-role- One actor playing a two or more roles

Motif- A repeated idea throughout the story

Dialogue - Conversation between two or more characters

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Tragedy - A play dealing with tragic events and having an unhappy ending for main characters.

Performance Style

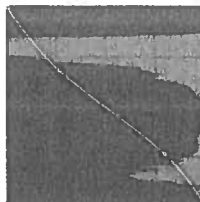
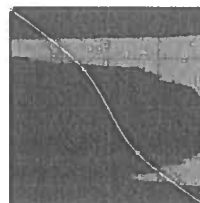
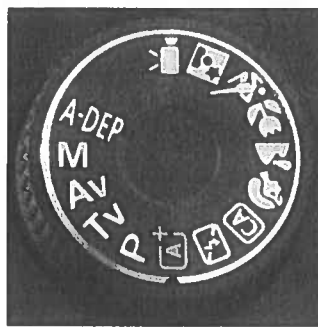
Billy Elliot is a Musical. Meaning it regularly has songs which forward the performance. With most musicals the performance will end on a positive note dispute what has happened in the show.

Epic Theatre is another style used in this performance, it is a theatre style created by Bertolt Brecht to push a political message and highlight issues within society.

Billy Elliot is extremely political, with many references to the conservative government during the 1980's. The audience see the struggle that many people went through. There is also mention of real people, which again makes the performance Epic theatre.

Gestus and Spass is also used in this performance. This can be clearly seen in the song Expressing yourself. Billy and Michael are singing about the importance of people being able to express themselves in any way they want to which is a very serious topic. As they do massive puppets of different types of clothing are seen on stage.

A third technique we see used in Blood Brothers is Multi-Rolling. This is a technique where one actor will play more than one character or more than one actor will play the same character.

AO1- Assessment objective 1 – Develop ideas through investigations, demonstrating critical understanding of sources. Artist Research!! Evidence can include: Artist research, contextual research, analysis of artist artwork, thumbnail sketches showing composition. Grading criteria for level 9: Demonstrate independent critical investigation and in-depth understanding of sources to develop ideas convincingly.	AO2- Refine work by exploring ideas, selecting and experimenting with appropriate media, materials, techniques and processes. Experimenting!! Evidence can include: Photoshoots, investigating different techniques, annotating of your contact sheet, post production editing. Grading criteria for level 9: Effectively apply a wide range of creative and technical skills, experimentation and innovation to develop and refine work	AO3-Record ideas, observations and insights relevant to intentions as work progresses. Annotations!! Evidence can include: Photoshoot plans, thumbnail sketches, storyboards, visual analysis of photography. Grading criteria for level 9: Record and use perceptive insights and observations with well-considered influences on ideas	Ao4-Present a personal and meaningful response that realises intentions and demonstrates understanding of visual language. Final Response!! Evidence can include: A personal and purposeful response to an artist/ context. response should be informed by the study of artists/ techniques. Grading criteria for level 9: Demonstrate advanced use of visual language, technique, media and contexts to realise personal ideas
<u>Photography techniques</u> Negative space Puts the subject in the surroundings in dramatic ways that tell a story using blank space and emptiness. Positive space The object or focus of the photo. Editing contrast using curves in Photoshop Increasing contrast  Decreasing contrast 	<u>Camera settings</u> A-DEP Automatic Depth of Field M Manual AV Aperture – Priority TV Shutter —Priority P Programmed Automatic A+ Scene Intelligent Auto No Flash	 Filming Night Portrait Sports Macro Landscape Portrait Creative Auto	

Aperture:

- How open the lens is.
- To capture close up shots a wider lens is required.
- To capture detail in the distance a smaller lens setting is



Bigger Opening, More Light ← → Smaller Opening, Less Light

Vantage point:

- The position from which the photograph was taken. It is the point of view of the viewer of the photograph.

Frog eye view—ground level



Birds eye view—high angle and a wide view.



Low angle view—looking up at object.



Eye level view—looking straight at object.

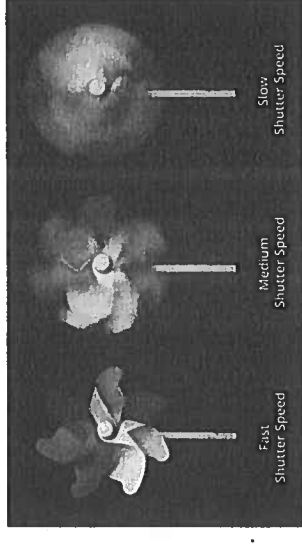


High angle view—looking down at object.



Shutter Speed:

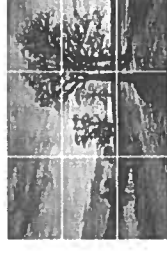
- How quickly the shutter opens and closes.
- Used for action and movement shots.
- The slower the setting the more blurred the photograph.



Composition:

- How objects are arranged in the frame/ photo.

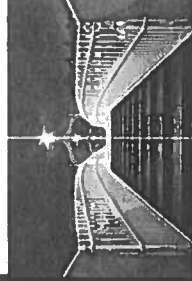
Rule of thirds—Using a grid to off centre the focal point.



Symmetry and Balance—using mirroring or contrasting numerous small object against one bigger object.



Diagonals and Triangles—creating a sense of depth.



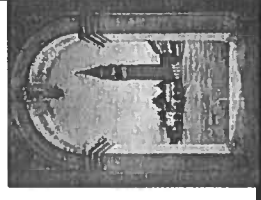
Leading Lines—to guide the viewers eye to the focal point and around the photo.



Negative Space—to frame the focal point.



Minimalism—'Less is more'. Simplistic colours and layout.



Frame within a Frame—creates depth and draws the eye into the photo.

BTEC Music - Year 10 - Component 1: Exploring Musical Products & Styles

Key Terminology

Melody - a sequence of single notes that is musically satisfying; a tune.

Harmony - the combination of simultaneously sounded musical notes to produce a pleasing effect.

Tonality - the character of a piece of music as determined by the key in which it is played.

Rhythm - a strong, regular repeated pattern of movement or sound.

Structure - refers to the arrangement and order of the parts or sections of the music.

Instrumentation - the particular instruments used in a piece of music.

Texture - refers to the effect of the different layers of sound in a piece of music, and the relationship between them.

Timbre - the character or quality of a musical sound.

Production - the process by which music is created, captured, manipulated, and preserved so that it can be distributed and enjoyed.

Musical Styles - Popular

Reggae - a style of popular music which uses syncopation (off-beat rhythms), originating in Jamaica. Reggae became widely known in the 1970s through the work of Bob Marley; its lyrics are much influenced by Rastafarian ideas. Reggae songs were largely based on increasingly politicised lyrics that addressed social and economic injustice - This is due to the Rastafarianism influence which advocated for equal rights and justice. Besides Marley and the Wailers, groups who popularised the fusion of Rastafari and reggae were Big Youth, Black Uhuru, Burning Spear (principally Winston Rodney), and Culture.

Britpop - British pop music of the mid 1990s that was typically influenced by the Beatles and other British groups of the 1960s and perceived as a reaction against American grunge music. Various bands were involved in Britpop such as, Pulp, from Sheffield, which was fronted by veteran rocker Jarvis Cocker and had its biggest hit with the single "Common People", but it was essentially about Oasis and Blur. What the two bands had in common was a belief in the classic guitar-based pop song with a sing-along chorus and a love of fashionable sportswear.

BTEC Music - Year 10 - Musical Products & Styles

Musical Styles - World Music/Jazz & Blues

Delta Blues - a style of blues originating in the Mississippi Delta, typically featuring slide guitar. The form is dominated by fiery slide guitar and passionate vocalising, with the deepest of feelings being applied directly to the music. Its lyrics are passionate as well, and in some instances remain the highest flowering of blues songwriting as stark poetry. The form continues to the present time with new performers working in the older solo artist traditions and style. In its earliest form, the style became the first black guitar-dominated music to make it onto phonograph records back in the late '20s.

Samba Music - The initial birth of samba music took place sometime in the early 19th century, with its roots stemming from African drumming traditions. Enslaved African people brought over to Brazil retained the influence of their own musical elements such as polyrhythms and syncopated patterns. It's now an integral part of Rio De Janeiro's famous yearly Carnival festival, at which many samba schools compete against one another.

Examples of Stylistic Features

Instrumentation: instrumental techniques, type of ensemble, alternative instrumentation, sonic features, electronic sounds.

Texture: solo, duet, homophonic, polyphonic, unison.

Timbre: sonic features, electronic sounds, FX.

Tonality: major scale, minor scales, blues scale, pentatonic scale, modes, ragas, exotic scales.

Scales and modes: major scale, minor scales, blues scale, pentatonic scale, modes, ragas, exotic scales.

Harmony: major and minor triads, power chords, 7th chords, sus chords, extended chords, suspensions, inversions, chord sequences, arpeggios, broken chords.

Rhythmic techniques: metre, tempo/bpm, syncopation, swing, one drop/skanking, polyrhythms, hemiola, phasing.

Structure: verse/ chorus, 12-bar blues, through-composed, bridge, intro, outro, ABACAD.

Melodic techniques: conjunct, disjunct, chromatic, diatonic, phrasing, repetition, sequence, ornamentation, motifs, round/canon, riffs, hooks, head, improvisation.

Production: microphone use, recording styles, sampling, FX, looping, controllerism, turntablism, quantisation, sequencing, automation.

Year 10 Economics Knowledge Organiser - Term 1

3.1.1.1 - ECONOMIC ACTIVITY

Economics is the science of choice. Choices by individuals (you), businesses, societies and governments.

The **central purpose** of economic activity is the production of goods and services to satisfy needs and wants

The **economy** is the system that attempts to solve the **basic economic problem**: that there is more need than there are resources. Therefore, all these wants and demands cannot all be met.

3.1.1.1 - ECONOMIC ACTIVITY

Needs - A need is any good or service that we require or that is necessary for our survival such as food and water.

Wants - A want is any good or service that is desired but is not necessary. For example, we need water to survive but we don't need a particular brand of water to stay fundamentally hydrated.

Scarce resources - not having enough of a resource to satisfy all wants.

3.1.1.1 - ECONOMIC ACTIVITY

The key economic decisions are: **what to produce, how to produce, and who is to benefit** from the goods and services produced

3.1.1.1 - ECONOMIC ACTIVITY Three Economic Groups

Consumer - a person or group that directly uses a good or service.

Producer - a person, company or country that grows, makes or provides a good or a service.

Government - a political authority that decides how a country is run and sets the rules for markets.

3.1.2.2 - ECONOMIC SECTORS

Goods - a tangible product i.e. a product that can be touched e.g. a chocolate bar.

Services - an intangible product i.e. a product that cannot be touched e.g. financial advice.

3.1.1.3 - MAKING CHOICES - Opportunity Cost - the loss of other alternatives when one alternative is chosen i.e. the opportunity cost of building a new school could be not spending that money to build a new hospital instead.

3.1.1.2 - FACTORS OF PRODUCTION

Factors of Production - resources in an economy that can be used to make goods and services.

Capital - human made aides to production e.g. machines and equipment. Reward to capital = **interest**.

Enterprise - the organisation of the other factors of production - involves risk. Reward to enterprise = **profit**.

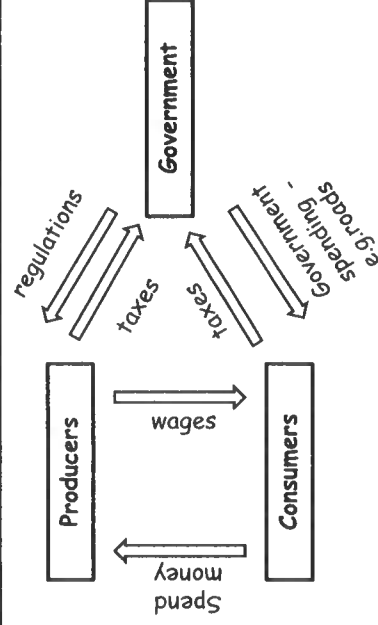
Land - natural resources such as farm land, fish stocks or coal. Reward to land = **rent**.

Labour - the human input (mental & physical) into the production process. Reward to labour = **wages**.

3.1.1.2 - FACTORS OF PRODUCTION

Renewable resources - resources that can be replaced or replenished if not over used.

Non-renewable resources - resources that cannot be replaced once used i.e. finite resources.



3.1.2.2 - ECONOMIC SECTORS

Primary sector - the direct use of natural resources e.g. farming, fishing or mining.

Secondary sector - converting primary resources into finished goods e.g. manufacturing or construction.

Tertiary sector - providing services to consumers e.g. doctors, advertising companies, accountants.

3.1.2.1 - MARKETS & ALLOCATION

Markets - markets are a way for **buyers and sellers** to interact to **establish price**. Can be local, regional or global. Can be physical or online.

Factor market - a market for the factors of production e.g. the labour market.

Product market - a market for finished goods and services.

Market economy - an economy in which resources are allocated via the **market forces of supply and demand**.

3.1.2.2 - ECONOMIC SECTORS - Functions of price:

Rationing - means resources are consumed by those most willing (or able) to afford them.

Signalling - price giving a message to the consumer e.g. quality, scarcity.

Incentive - price telling consumers to consume less (i.e. taxes on soft drinks) or producers to consume more (i.e. large profits).

3.1.1.3 - MAKING CHOICES

Choices - all choices have both **costs and benefits**. These must be understood and weighed to make a rational choice.

Choices will have economic, environment and social costs and benefits.

Economic choice - an option for the use of selected scarce resources.

Economic sustainability - the best use of resources to create growth.

Environmental sustainability - the best use of resources to protect the natural world and the resources within it.

Social sustainability - the best use of resources to improve quality of life for people.

Year 10 Economics Knowledge Organiser - Term 1

3.1.2.3 - SPECIALISATION & TRADE - specialisation means that countries and even individuals can **MAXIMISE** their own output by producing only what they are best at. This means they create the **MAXIMUM AMOUNT OF VALUE** possible for them. This value can be traded to obtain an amount of goods and services they would not reach without specialisation.

3.1.2.3 - SPECIALISATION & TRADE
Division of labour - dividing a complicated task up into smaller jobs in order to create efficiency, for example a F1 pit stop.

Specialisation - workers, firms, regions and countries concentrating on producing what they are best at/most efficient at producing.
Exchange - the act of swapping what we produce for what we want/need. This allows us to benefit from specialisation.
Money - money allows us to 'store' the value of what we produce so that we can exchange it in the future, **money** also allows us to compare the value of goods and services.

3.1.2.3 - SPECIALISATION & TRADE

Benefits of specialisation -

More efficient use of resources - more wants and needs met for less scarce resources used
Higher output - increased total production
Higher productivity - workers become more productive a if they focus on smaller tasks
Higher quality - simplified processes and specialist workers means less mistakes
Less time wasted - less switching between tasks = less time used
Economies of scale - larger output leads to economies of scale (per unit cost savings because producers are bigger)
Increased satisfaction - workers can specialise in what they enjoy most
Increased standard of living - workers are more efficient so can exchange their labour (via money) for more goods and services than they otherwise would i.e. everyone earns more

3.1.3.1 DEMAND

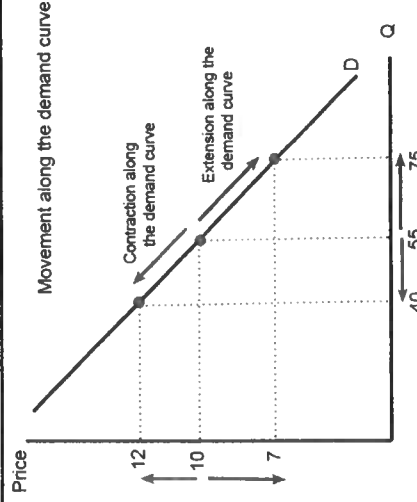
Demand - the quantity of a good or service that consumers are willing (and able) to buy at a given price.

Law of demand - for most products the quantity demanded will vary inversely with price i.e. as price rises demand falls. This is why the demand curve slopes downwards.

Individual demand - the demand for a good/service by an individual consumer.

Market demand - the demand for a good/service by all consumers.

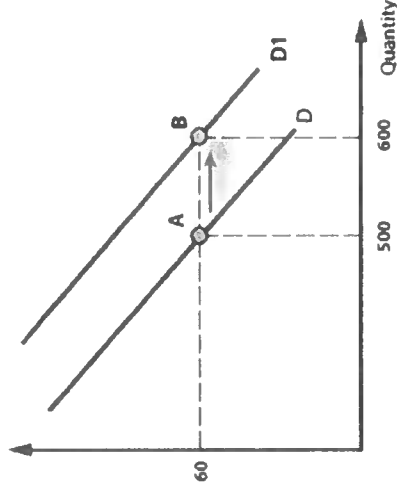
3.1.3.1 DEMAND - Movement along the demand curve - movements along the demand curve only happen when there is a change in price.



3.1.2.3 - SPECIALISATION & TRADE

Costs of specialisation -

Dependency - workers, firms, regions and countries can become dependent on producing one good or service. What happens if demand for that good/service stops?
Failure of exchange - we all become dependant on trade - if it stops for some reason producers lack inputs and consumers lack goods and services
Bored workers - simplified processes can mean bored workers
Deskilling - as we specialise we lose skills and abilities we otherwise would have
Unemployment - specialised workers are dependent on demand for their particular skill or for the good/service they produce. If demand falls we have unemployed workers who may lack the skills to work elsewhere



3.1.3.1 DEMAND - Shifts of the demand curve - moving the demand curve to the right or left means something aside from price has changed demand for the product shown.

3.1.3.1 DEMAND - Changes that cause shifts of the demand curve:

Changes in the price of substitute goods - some goods are very similar to others so can be consumed instead. If the price of Pepsi rises Coca-Cola becomes more desirable. Therefore demand for Coca-Cola at the current prices increases (the Demand curve shifts to the right).

Changes in the price of complimentary goods - some goods are usually consumed alongside other goods. If the price of printers fall ink cartridges becomes more desirable. Therefore demand for ink cartridges at the current prices increases (the Demand curve shifts to the right).

Changes in income - if incomes rises demand increases at any price - the demand curves shifts to the right.

Changes in interest rates - if interest rates decrease consumers and businesses save less and borrow more - demand increases for goods as the demand curve shifts to the right.

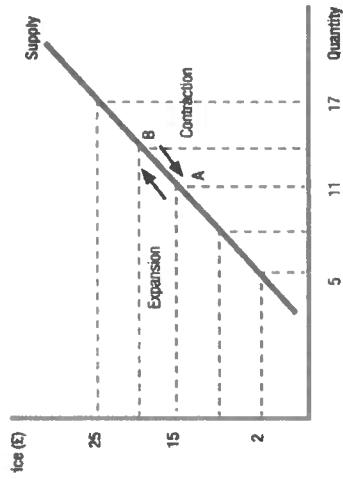
Changes in tastes/preferences - on a hot day demand for ice cream increases even though the price remains the same. If a new advert is released demand also increases at all prices. The demand curve shift to the right.

Population size - if immigration or birth rates increase demand for goods/services is higher. The demand curve shifts to the right.

Year 10 Economics Knowledge Organiser - Term 1

1.3.2 SUPPLY - Supply - the quantity of a good or service at producers are willing (and able) to supply at a given price.
Law of supply - for most products the quantity supplied will vary directly with price i.e. as price rises supply rises. This is why the supply curve slopes upwards.
Individual supply- the supply of a good/service by an individual producer.
Market supply - the supply of a good/service by all producers.

1.3.2 SUPPLY - Movement along the supply curve - movements along the supply curve only happen when there is a change in price and firms react to increase/protect profits.



1.3.2 SUPPLY - Shifts of the supply curve - moving the supply curve to the right or left means something aside from price has changed supply for the product shown.

1.3.2 SUPPLY

Joint supply - some goods are by-products of others, for example beef and leather. If the price of beef rises the supply of beef will rise (law of supply). This will also increase the supply of leather (supply curve shift to the right) even though the price hasn't changed.
Joint supply - some goods are produced using the same factors of production, for example has to choose between growing potatoes or carrots. If the price of carrots falls more farmers will plant potatoes instead of carrots. This will shift the supply curve for potatoes to the right.

3.1.3.2 SUPPLY - Changes that cause shifts of the supply curve: Changes in the cost of production - if costs of inputs (raw materials/labour) decrease then firms have lower costs and will supply more at any price level. The supply curve shifts to the right.

Changes in technology - if new technology (new machines etc.) makes costs lower then firms will supply more at any price level. The supply curve shifts to the right.

Changes in taxes - if taxes are lower costs are lower so firms will supply more at any price level. The supply curve shifts to the right.

Changes in subsidies - subsidies are payments made to firms by government to encourage production. An increase in subsidies means the supply curve shifts to the right.

Weather - some products will be produced in higher quantities if the weather is good. For example if the weather is good more crops will grow and the supply curve shifts to the right.

Number of firms in an industry - if more firms enter a market then more will be supplied at any price. The supply curve shifts to the right.

Prices of other goods - if the price of a product in joint or competitive supply changes this will shift the supply curve.

3.1.3.5 PED - how reactive quantity demanded is to changes in price. PED is shown by the slope of the demand curve.

Elastic demand - when the % change in quantity demanded is bigger than the % change in price i.e. the demand for the product is very sensitive to price changes.

Inelastic demand - when the % change in quantity demanded is smaller than the % change in price i.e. the demand for the product is not very sensitive to price changes.

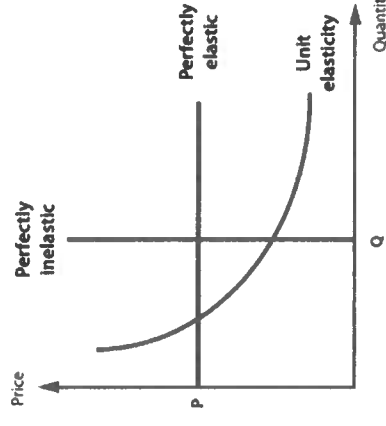
$$PED = \frac{\% \Delta Q}{\% \Delta P}$$

3.1.3.5 PED

PED is calculated by dividing the % change in quantity demanded into the % change in price. %

change is calculated by dividing the change (original amount - new amount) into the original number and multiplying by 100.

Remember - in a busy nightclub you need to Q before you P.



3.1.3.5 PED - Factors impacting on PED:

Substitutes - are there substitutes for the product or is it unique? Products easily substituted are price elastic.

% of income - is the product very cheap or very expensive? Products that are a very low % of income are less sensitive to changes in price i.e. if the price of a penny sweet changes you don't really care/notice.

Necessity/Luxury - if you cannot do without a product (e.g. petrol) you will not be able to demand less if the price goes up. A luxury can be cut back on so will be more price elastic.

Addiction/habit - addictive products (i.e. tobacco) are price inelastic.

Time - products are more inelastic in the short term, it takes time to change demand.

3.1.3.5 PED - PED and revenue - if a producer knows that their product is price inelastic then they can increase price without getting a large decrease in quantity sold. This would mean an increase in total revenue. If the producer knows that their product is price elastic they could decrease their price and receive a larger increase in quantity demanded. This could also mean an increase in total revenue.

PED less than 1 - the product is price inelastic, the closer to zero means more inelastic.

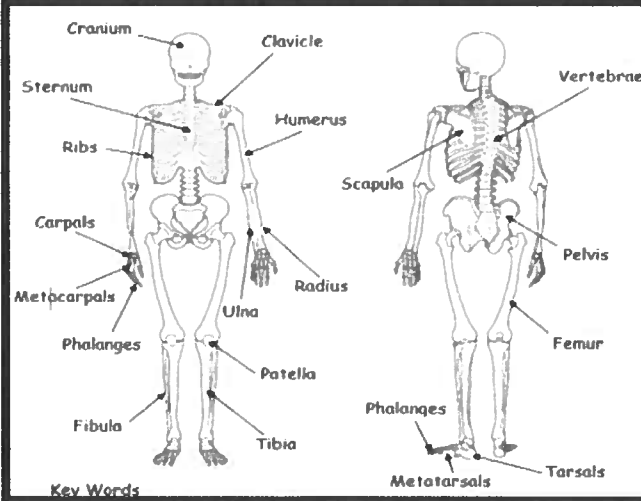
PED more than 1 - the product is price elastic.

PED is 1 - the product is unitary price elastic, changes in price result in the same % change in quantity demanded.

PED is 0 - the product is perfectly price inelastic, i.e. no price change will change demand.

The structure and function of the skeletal system.

know the name and location of the following bones in the human body:



Understand and be able to apply examples of how the skeleton provides or allows:

- support - gives shape and support
- posture - shape and support allows for posture
- protection- protects internal organs such as heart, lungs spinal cord and brain. Cranium protects brain.
- movement- provides areas for muscle attachment
- blood cell production- produces red and white blood cells
- storage of minerals- such as phosphorus, calcium, potassium and iron etc.

Know the definition of a synovial joint- A Synovial Joint is a freely movable joint in which the bones surfaces are covered by cartilage, called **Articular Cartilage**, and connected by a **fibrous connective tissue capsule** lined with **Synovial Fluid**

Know the following hinge joints:

- knee – articulating bones – femur, tibia
- elbow – articulating bones – humerus, radius, ulna

Articulating bones are the bones that move within a joint.

Hinge joints allows movement in one plane only, just like a door hinge moves (uniaxial). An example of an activity that uses the knee joint is sprinting- example for elbow joint- bicep curl.

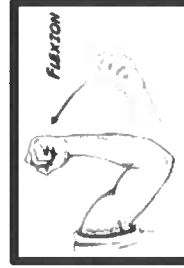
Know the following ball and socket joints:

- shoulder – articulating bones – humerus, scapula
- hip – articulating bones – pelvis, femur

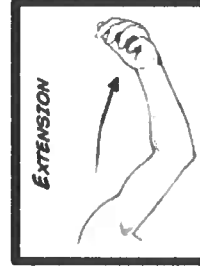
Ball and socket joints allow a wide range of movement and occurs when a round head of a bone fits into a cup shaped depression. An example of a physical activity that uses the shoulder joint- Javelin. Example for hip joint- sit-up training exercise.

know the types of movement at hinge joints and be able to apply them to examples from physical activity/sport:

- flexion - is a decrease in the angle around a joint. When a badminton player prepares to hit a overhead clear, the arm shows flexion at the elbow



- extension- is when the angle of the bones that are moving (articulating bones) is increased. When making a basketball set shot the bent arm moves to a straight arm as you release the ball.



know the types of movement at ball and socket joints and be able to apply them to examples from physical activity/sport:

- flexion - is a decrease in the angle around a joint
- extension - is when the angle of the bones that are moving (articulating bones) is increased.
- rotation - is when the bone turns about its longitudinal axis within the joint. *Example in sport- tennis player uses external rotation at the shoulder joint during the backswing of a serve.*



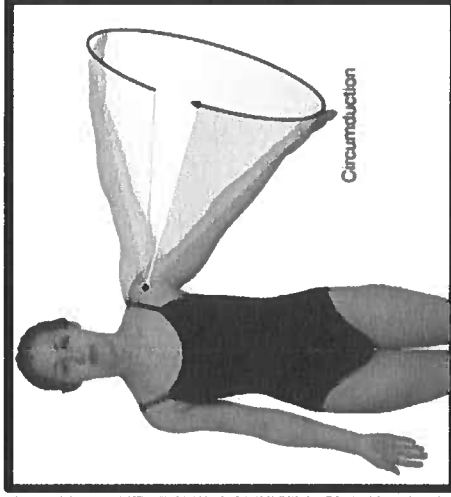
- abduction- is the movement of the body away from the middle or midline of the body. *Example in sport- gymnast with their leg lifted to the side shows abduction at the hip.*



- adduction- is the opposite of abduction and is the movement towards the midline of the body. *Example in sport- a rugby player tackling another player will hold onto the player by adducting their arms at the shoulder joint as they tackle*



- circumduction- is a combination of abduction, adduction, extension or flexion and rotation. *Example in sport- a gymnast on the beam takes her back leg back off the beam and moves it out and round to place her foot ahead of her front foot.*



know the roles of:

- ligament - found between bones and attach bone to bone. *Function- the role of the ligaments is to help join bones together and keep the joints stable during movement.*

- cartilage- soft connective tissue. *Function- the role of cartilage is to reduce friction and act as a shock absorber at the joint*

Basic types of cartilage

- Yellow elastic cartilage

- Hyaline or blue articular cartilage

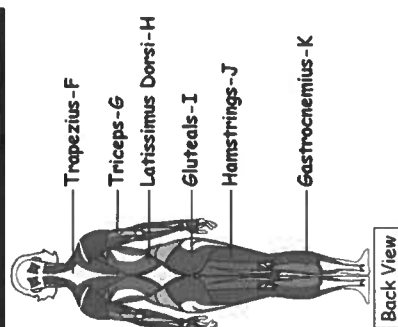
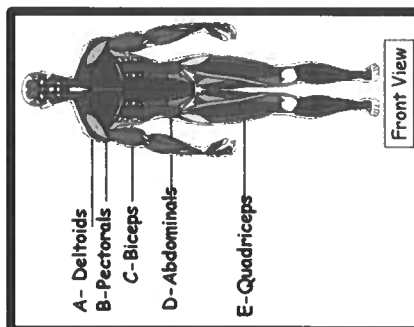
- White fibro-cartilage.

- tendons- muscles are attached to bones via tendons. These are strong and can be a little flexible. *Function- as well as their attachment role, they help to transmit the power needed to move bones. When a muscle shortens, it pulls on the tendons: this pulls on the tendons: this pulls on the bones to which the tendons are attached and causes movement.*

The structure and function of the muscular system

Location of major muscle groups

Know the name and location of the following muscle groups in the human body and be able to apply their use to examples from physical activity/sport:



	Function
Deltoid	Lifting the arm at the shoulder (the deltoid muscle has different parts which flex, extend and abduct the shoulder joint)
Trapezius	Shoulder horizontal extension (moving the arms backwards at shoulder level)
Pectorals	Adduction of the shoulder (moving the arm towards the body); Shoulder horizontal flexion (moving the arms forwards in front of the body)
Triceps	Extension of the elbow (straightening the arm)
Biceps	Flexion of the elbow (bending the arm)

The roles of muscle in movement

know the definitions and roles of the following and be able to apply them to examples from physical activity/sport.

- **agonist**- this is the working muscle that produces or controls the desired joint movement. Also known as the prime mover
- **antagonist**- for movement to be coordinated muscles work in pairs so that control is maintained. The movement caused by the agonist is countered by the action of the opposing muscle, called the agonist.
- **fixator**- this is a muscle that works with others to stabilise the origin of the prime mover e.g the trapezius contracts to stabilise the origin of the biceps.

Pairs of muscles-

There is a vast range of movements that can be made by the human body. To produce these movements, muscles either shorten, lengthen or remain the same length when they contract. Muscles work in pairs: as one muscle contracts, the other relaxes. Muscles that work together like this are called **antagonistic pairs**. This type of action enables the body to move with stability and control.

Antagonistic Muscle Pairs

The following groups of muscles are antagonistic pairs:

Joint	Antagonistic pair	Movements produced	Sport example
Elbow	Biceps; triceps	Flexion; extension	Chest pass in netball; badminton smash
Knee	Hamstrings; quadriceps	Flexion; extension	Jumping to block in volleyball; tuck jump in trampolining
Shoulder	Latissimus dorsi; deltoid	Adduction; abduction	Golf swing; breaststroke arms

Level Systems

Know the three classes of lever and their use in physical activity and sport:

Bones and muscles act together to form levers. A lever is a rigid structure, a length of bone that turns about a pivot: the joint. Levers are used to make a small amount of force into a bigger force- this is gaining a **mechanical advantage**.

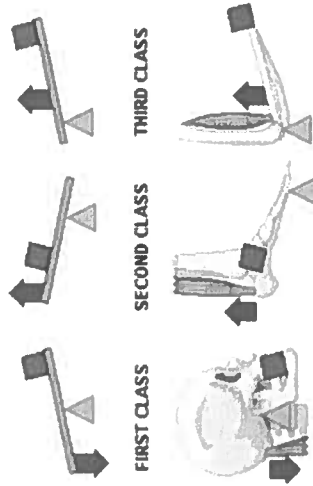
Four parts to a lever:

Lever arm- bones acts as lever arms

Pivot- Joints act as a pivot

Effort- muscles provide the effort to move loads

Load- load forces are often the weight of the body parts that are moved or forces needed to lift, push or pull things.



First class lever- the fulcrum (sometimes called pivot) is located between the effort force and the load force on the lever arm. *Example- at the neck- heading the ball.*

Second class lever- this is when the load or resistance is between the fulcrums and the effort. *Example- raising your toes or plantar flex at the ankle.*

Third class lever- this is when the effort is between the fulcrum and the load or resistance. *Example- at the knee the action of the hamstrings and the quadriceps at the knee joint causing flexion and extension, such as leaping up to catch a basketball.*

Know the definition of mechanical advantage- The relative efficiency of each of the lever systems is called the 'mechanical advantage'.

Some levers (first and second class) provide mechanical advantage. This means that they allow you to move a large output load with a smaller effort.

$$\text{MECHANICAL ADVANTAGE} = \frac{\text{LOAD}}{\text{EFFORT}}$$

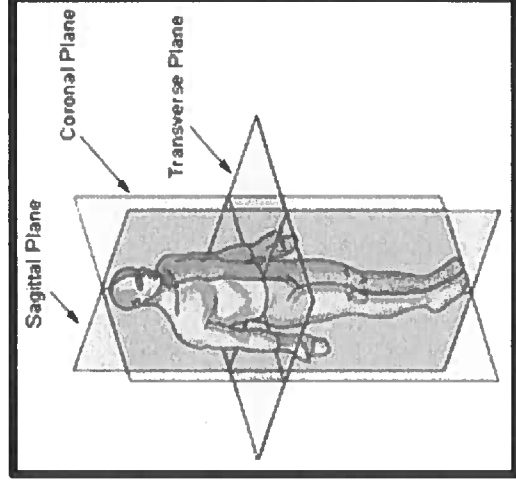
Where the load = 500N and the effort=100N

The mechanical advantage would be

500N divided by 100N = 5

Planes of movement and axes of rotation

Know the location of the planes of movement in the body and their application to physical activity and sport:

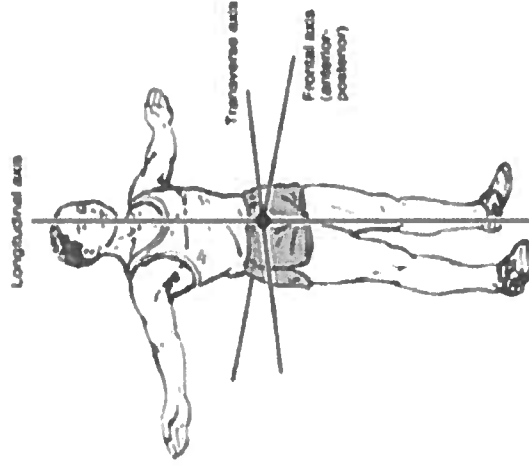


Frontal Plane- Runs vertically and divides the body in sections between front (anterior) and back (posterior). Movements in this plane are sideways movements of abduction and adduction. *Example- arm abduction and adduction of the legs at the hip joint- jumping jack.*

Transverse Plane- Runs horizontally and divides the body into upper (superior) and lower (inferior) sections. Movements in this plane are rotational. *Example- arm action (circumduction) when bowling in cricket with rotation at the shoulder joint.*

Sagittal Plane- Splits the body vertically into left and right sides. Movements in this plane are the up and down movements of flexion and extension. *Example- leg action in running takes place in the sagittal plane.*

Know the location of the axes of rotation in the body and their application to physical activity and sport:

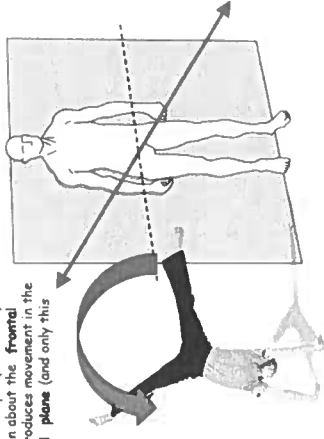


There are 3 axes of rotation:

- Frontal axis
- Transverse axis
- Longitudinal axis

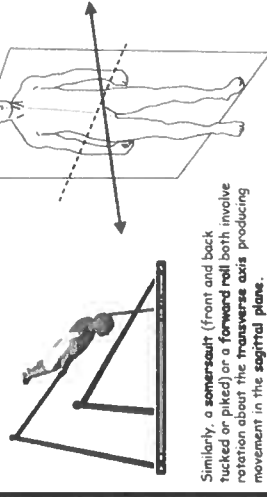
Rotation About The Frontal Axis

In this example (cartwheel) rotation about the **frontal axis** produces movement in the **frontal plane** (and only this plane).



Rotation About The Transverse Axis (1)

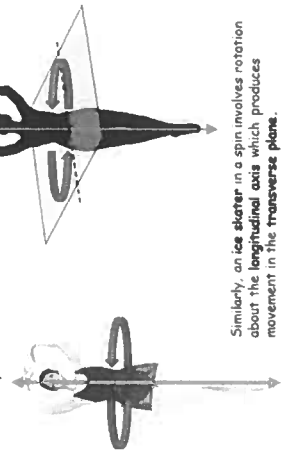
In this example rotation about the **transverse axis** produces movement in the **sagittal plane** (and only this plane).



Similarly, a **somersault** (front and back tucked or piked) or a **forward roll** both involve rotation about the **transverse axis** producing movement in the **sagittal plane**.

Rotation About The Longitudinal Axis (1)

In this example the baller dancer rotates about the **longitudinal axis** producing movement in the **transverse plane**.



Similarly, an **ice skater** in a spin involves rotation about the **longitudinal axis** which produces movement in the **transverse plane**.

Key Vocabulary

Business – an organisation that seeks to satisfy the needs and wants and wants of consumers through the production of goods and services

Dynamic – continual change

Consumer – the end user of the product or service

Obsolete – outdated; a product that has declining sales or come to an end

Entrepreneur – an individual who comes up with a business idea and is willing to take a risk to develop it

Core Knowledge

The world changes constantly, and therefore so do consumer needs, and so businesses must therefore be dynamic to respond to these changes, or they risk failure.

Business ideas come about because of:

1. Changes in technology
2. Changes in what consumers want
3. Products and services becoming obsolete

Business ideas come about because

1. An entrepreneur has a completely original idea – this is invention
2. Adapting an existing idea – this is innovation

Adaptions to products can be:

- New flavours
- Different colours / pack sizes
- Online access to a product or service
- Offering personalisation

Don't be a "man on the street"

- Innovation and inventions are not the same thing
- Avoid statements like "ALL customer have..."; "NOBODY uses...."
- Don't assume that all products that have declining sales will become totally obsolete – some see revivals, e.g. vinyl records
- Don't assume that all ideas will be successful – unfortunately a lot do not succeed



Wider Business World

Apple – great example of business that continually adapts products

Iceland – changed from frozen only foods to non-frozen and non-food goods because this is what consumers want when they shop



Synoptic Links

Marketing – the product life cycle states that all products eventually need to be removed from sale

Technology – changes in technology have led to obsolete products and changes in consumer tastes

Role of enterprise – entrepreneurs are the individuals who develop new ideas

Key Vocabulary

Risk – something bad / negative that could happen

Reward – something good / a positive effect

Financial – related to money

Non-financial – non-money related

Profit – what a business has left from its income after paying all of its costs

Core Knowledge

Starting and running a business are risky activities. A large percentage of start-up businesses fail in the first five years.

Risks are things that can go wrong. These include:

- Business failure
- Financial loss
- Lack of security due to not having a regular income

Business can fail because:

- An entrepreneur does not know the market well
- Not having enough capital to start the business
- Poor decision making
- Competition from other businesses
- Not meeting the needs of customers

Rewards are what can be achieved through business success. These include:

- Profit
- Personal independence

Don't be a "man on the street"

- Although risks can cause a business to fail, careful planning and research can reduce risks
- Don't confuse the term 'security'. It is not about prevention from theft, but about regular income



Wider Business World

Thomas Cook, BHS – businesses that have failed. Find out why

Richard Branson – an entrepreneur worth billions, but he still takes risks when starting new ventures. Why would this be?



Synoptic Links

Role of enterprise – entrepreneurs are the individuals who take risks

Ownership – different types of ownership have different levels of risk for the owner

Customer needs – knowing what these are helps to reduce risk

Market research – doing this helps to reduce risk

Key Vocabulary

Goods – physical items that a business can produce or sell

Services – non-physical products; things that you can experience, e.g. a haircut

Needs – the essential products that consumers need to survive: food, water, shelter, clothing, warmth

Wants – anything that is not a basic need. Often referred to as luxuries

Customer – the person who buys the product

Consumer – the person who is the eventual user of the product

Adding value – adapting a product so that the selling price is higher than the cost of creating the product

USP – Unique Selling Point

Factors of production – resources needed to produce goods and service: land, labour, capital, enterprise

Core Knowledge

A business will produce goods or services

Goods or services must meet the customer needs, or they will not sell

The entrepreneur is the uses and organises the four factors of production in order to produce goods or services.

A business can sell its product at a higher price than the cost of the manufacturing by adding value. This can be through:

- **Branding** – creating an image for a product that sets it apart, e.g. Apple logo
- **Quality** – for example using better cuts of meat in a pie
- **Design** – unique features and designs can lead to consumers paying higher prices
- **Convenience** – when something saves a customer time, this can lead to them paying a higher price, e.g. pre-prepared vegetables
- **USPs** – a characteristic or feature of a product that can not be replicated by an alternative

A business will be likely to use a combination of the above

Don't be a "man on the street"

- Not all businesses produce goods; some produce services
- WiFi is not a need
- Don't confuse the terms consumer and customer
- Customers will not always want the cheapest product
- Adding value does not meet making the price higher



Wider Business World

Gap, Nike, Gucci – examples of brands that cost a lot more than the actual cost of the materials

McCain – produce a lot of ready-meals and pre-prepared items that cost more than the ingredients



Synoptic Links

Customer needs – knowing what these are helps to ensure that that the business is satisfying them

Risk and reward – the entrepreneur takes risks, in order to achieve rewards

Marketing – the use of branding and USPs

Key Vocabulary

Customer needs – the specific things that a buyer wants about goods and services

Customer reviews – feedback from customers, which can be online

Word of mouth – when a customer tells another person about a business

Repeat purchase – when a customer returns to the same business

Core Knowledge

Customer needs are the specific wants or needs that buyers have when purchasing goods

Different customers have different needs

If a business knows and understands its customers' needs it is in a better position to produce the products that customers want, in the way that they want them, leading to increasing sales, and so contributing to long term survival

Customer needs are:

- **Price** that reflects the quality of the product, and is low enough to match consumer incomes
- **Quality** – usually more important for those with higher income levels
- **Choice** – consumers like to select from a range of options, e.g. different flavours, colours or packet sizes
- **Convenience** – making life easier for customers
- **Efficient and reliable service** – such as having enough stock, or longevity of a product
- **Design** – how good a product looks

Don't be a "man on the street"



- Don't assume consumers always go for the cheapest option – they have other needs that may override price depending on the circumstances

Wider Business World

Aldi & Lidl versus Tesco – meet different need though the price level and choice available

Banks – a variety of ways to access your funds is convenience

Takeaways – offer convenience so we pay more than the cost of the ingredients



Synoptic Links



Market research – this is how a business finds out customer needs

Market segmentation – how we divide up customers into smaller groups with similar needs

Added value – meeting customer needs can allow a business to charge higher prices, i.e. add value to a product

BUSINESS: Creating informed, discerning employees, consumers and future leaders

Topic 1.2.2 Market research

Key Vocabulary

Market research – the process of gathering, processing and interpreting information about consumers' behaviour

Secondary research – using research that has already been carried out for another purpose

Primary research – collecting new information

Qualitative data – research into opinions and views

Quantitative data – data that is numerical

Focus group – a small number of consumers who have a discussion

Market trends – an overall pattern related to products

Market gap – where demand is not being met by the existing products available

Bias – a one-sided view

Sample-size – the number of consumers that are involved in market research

Core Knowledge

The purpose of market research is:

- To identify and understand customer needs
- Identify market gaps
- Reduce risk
- Inform business decisions

Methods of research are:

- **Primary** – collecting brand new data to meet the specific needs of the business
- **Secondary** – using research that has already been gathered

	Benefits	Limitations
Primary	• Up-to-date information • Information secret from competitors	• Can be expensive • Can be time consuming • Results may be inaccurate
Secondary	• Easy to find • Cheap or free to obtain • Good overview of whole market	• May be inaccurate • Can be out-of-date • Likely to be unrelated to business needs

Social media has made it easier to collect data using comments, reviews, surveys, and online focus groups

Trends can be identified from tracking hashtags

Wider Business World

Innocent Smoothies – conducted initial market research at a festival using two bins – Yes or No to launching their business

Survey monkey – a free online survey platform making it easier to conduct research



Synoptic Links

Market segmentation – how we divide up customers into smaller groups with similar needs

Customer needs – market research aims to find out what these are, if they are being met, and what else is wanted

Risk and reward – market research can reduce the risk



Don't be a "man on the street"

- Don't assume that a market gap will guarantee success
- Remember that research can be unreliable if the sample size is too small, the wrong target market are questioned or the sample is biased

Key Vocabulary

Market segmentation – splitting up all consumers into different groups that have similar needs or characteristics

Target market – the specific market segment a business aims to sell to

Demographics – customers based on statistical data relating to the population, e.g. resident or marital status

Market map – a diagram that positions all products within a market using two features, e.g. price and quality

Socio-economic group – a method of segmenting that uses income and class / occupation to classify people

Core Knowledge

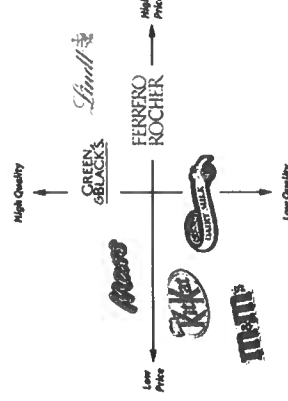
Markets can be segmented by

- **Location**, i.e. where you live
- **Demographics**, e.g. targeting families rather than single people; home owners rather than renters
- **Lifestyle**, i.e. the choices made about how to spend free time and hobbies consumers have
- **Income**, i.e. by how much you earn, the job you do or your social class
- **Age**, i.e. by how old you are

A market map can be used to position and compare products in a market

Allows a business to identify the competition the business faces and any potential gaps in the market

BUT....this may be simplistic and is based on subjective opinion so may not be reliable



Don't be a "man on the street"



- Don't assume that a gap on a market map indicates a gap to be filled – it could be there because there is no demand for that type of product
- Be careful not to say ALL or WILL – adapt to MOST, MORE LIKELY, e.g. *Most* women are *more likely* to buy make-up than men

Wider Business World

Hotel market – consider the target market of the Savoy compared to a Premier Inn

Ford cars – products lots of products to target different segments

Taylor Wimpey – a house builder. They produce lots of varieties of new homes to target different groups in terms of income, location and family size



Synoptic Links



Market research – information gathered can help a business to identify which segments to target

Marketing mix – the elements of marketing. These will be different for different target markets

Key Vocabulary

Market – the potential buyers for one product; where goods and services are exchanged

Competition – where there is more than one business attempting to attract the same customers

Monopoly – a market where there is only one business

Oligopoly market – a market where there are a few firms that dominate the market

Competitive market – where there are lots of small firms offering very similar products

Differentiation – strategies and techniques that a business uses to make their product stand out

Market share – the percentage of sales within the market that one business has

Competitive advantage – where one business has 'the edge' over the others in a market

Core Knowledge

A business will need to compete in different ways depending on how competitive the market is. Some firms will choose to use differentiation to stand out from the others, e.g. through the use of branding or offering a USP.

Ways to compete:

- **Price** – offering lower prices can increase demand, but reduces profit margins, and can increase costs. Other businesses may do the same and result in a price war
- **Quality** – improving the quality of raw materials or ingredients, but this increases costs, although customers may be willing to pay higher prices
- **Location** – can attract customers if it is easy to access, has parking, or has a lot of passing trade. However, good premises cost more
- **Product range** – offering lots of choice to the consumer or specialising to provide a better service
- **Customer service** – through great staff, although this costs to train them, or excellent after-sales service

A business may be able to gain a competitive advantage through one of these methods to order to encourage repeat custom and great reviews

Don't be a "man on the street"



- Don't confuse the term 'market' in a business sense with an actual street market
- Don't assume that a new business can simply compete by offering lower prices – larger firms can negotiate better prices from suppliers
- Remember that improving quality will increase costs

Wider Business World

Holiday market – very few firms now, especially following the collapse of Thomas Cook. An example of an oligopoly

London Underground – a monopoly market because there is only one tube firm

Hairdressers – very competitive market



Synoptic Links

Customer needs – many of the ways businesses compete are the same as customer needs

Marketing mix – this will need to be adapted depending on the level of competition

Market mapping – what are your competitors offering? Knowing this can help a business decide on how to compete

GCSE Computer Science - -Y10 Term 1 Python Programming

Comment – Text within the code that is ignored by the computer. A Python comment is preceded by a #.

This is an example of a comment

Output – Processed information that is sent out from a computer

Python	Pseudocode
print("Hello World!")	OUTPUT "Hello World"
Hello World!	
print("Hello", "World!")	
Hello World!	
print("Hello"+"World!")	
HelloWorld!	
print("Hello\nWorld!")	
Hello	
World!	

Input – Data sent to a computer to be processed

print("Enter name")	OUTPUT "Enter name"
name=input()	name ← USERINPUT
print("Hello", name)	OUTPUT "Hello", name
print("Enter age")	OUTPUT "Enter age"
age=int(input())	age ← USERINPUT

Assignment - The allocation/setting apart and distributing of data values to variables/(numbers that change/things that change), constants, arrays/rows and other data structures so that the values can be stored.

- **Variable**– Value that can change during the running of a program. By convention we use lower case to identify variables (eg a=12)
- **Constant** – Value that remains unchanged for the duration of the program. By convention we use upper case letters to identify constants. (e.g. PI=3.141)

Data Types

Integer – Whole number	age = 12	age ← 12
Float (real) number – A number with a decimal point	height = 1.52	height ← 12
Character – A single letter, symbol or number	a = 'a'	a ← 'a'
String – multiple characters	name = "Bart"	name ← "Bart"
Boolean – Has two values: true or false.	a = True b = False	a ← True b ← False

Arithmetic Operators

Add	7 + 2 = 9	7 + 2
Subtract	7 - 2 = 5	7 - 2
Multiply	7 * 2 = 14	7 * 2
Divide	4 / 2 = 2	4 / 2
power	2 ** 3 = 8	2 ** 3
Integer division	7 // 2 = 3	7 DIV 2
Modulus (remainder)	7 % 2 = 1	7 MOD 2

Relational Operators – Allows the Comparison of values

Less than	<	<	7 < 2	-> False
Greater than	>	<	7 > 2	-> True
Equal to	==	==	7 == 2	-> False
Not equal to	!=	≠ or <>	7 != 2	-> True
Less than or equal to	<=	≤	7 <= 2	-> False
Greater than or equal to	>=	≥	7 >= 2	-> True

Boolean Operators

AND	and	7 < 2 and 1 < 2	-> False
OR	or	7 < 2 or 1 < 2	-> False
NOT	not	not 7 < 2	-> True

Sequencing (putting in correct order) represents a set of steps. Each line of code will have some operation and these operations will be carried out in order line-by-line

Using + operator for adding	
a = 1	a ← 1
b = 2	b ← 2
c = a + b	c ← a + b
print(c) -> 3	OUTPUT c
Using + operator for concatenation	
a = 'Hello '	a ← 'Hello '
b = 'World'	b ← 'World'
c = a + b	c ← a + b
print(c) -> Hello World	OUTPUT c

Random number

Random integer	import random random.randint(0,9)	RANDOM_INT(0,9)
Choice	random.choice('a','b','c')	
Random value from 0 to 1	random.random()	

Selection represents a decision in the code according to some condition. The condition is met then the block of code is executed/ ran/run otherwise it is not. Often alternative/ other choice blocks of code are executed according to some condition.

<pre>x=RANDOM_INT() IF x < 10 THEN y=1 ELSE y=0 ENDIF</pre>	
<pre>graph TD Start([Let x = Random]) --> Decision{Is x < 10?} Decision -- YES --> YesBlock[Let y = 1] Decision -- NO --> NoBlock[Let y = 0]</pre>	

IF ...	IF i > 2 THEN j ← 10 ENDIF	if i > 2: j=10
IF ... ELSE ...	IF i > 2 THEN j ← 10 ELSE j ← 3 ENDIF	if i > 2: j=10 else: j=3
IF ... ELSE IF ... ELSE	IF i ==2 THEN j ← 10 ELSE IF i==3 j ← 3 ELSE j ← 1 ENDIF	if i ==2: j=10 elif i==3: j=3 else: j=1

Iteration/ Cycle - Sometimes we wish the code to repeat a set of instructions WHILE loops are used when we do not know beforehand/ ahead of time the number of iterations/ cycles needed and this varies /differs/changes according to some condition.

<pre>x = 0 while (x < 10): x = x + 1</pre>	
<pre>graph TD Start([Start]) --> Init[Let x = 0] Init --> Decision{Is x < 10?} Decision -- YES --> Inc[Let x = x + 1] Inc --> Decision Decision -- NO --> Stop([Stop])</pre>	

while True: print("Hello World")	WHILE TRUE OUTPUT "Hello World" ENDWHILE
a=0 while a<4: print(a) a=a+3	a ← 0 WHILE a < 4 OUTPUT a a ← a + 3 ENDWHILE

FOR loops are used when we know beforehand the number of iterations / cycles we wish to make.

for a in range(3): print(a)	FOR a ← 0 TO 3 OUTPUT a ENDFOR
--------------------------------	--------------------------------------

Nested structures - Use constructs (e.g. WHILE, FOR, IF) inside another.

use a nested FOR loop to print out a grid	for i in range (10): for i in range (10): print ("x",end="") print()
Use a nested while and if to print out only even numbers	i=0 while i<51: if (%2==0): print(i) i=i+1

Lists

Create a list	shapes=["square","circle"]
Access element by index pos	shapes[1] -> circle
Append item to list	shapes.append("triangle")
Remove item from list	shapes.remove("circle")
Remove item from list by index	shapes.pop(1)
Insert item into list	shapes.insert(2,"rectangle")
Number of elements in a list	len(shapes)
Get index pos of item in list	shapes.index("triangle")

Concatenating lists	shapesGroup1["square","circle"] shapesGroup2=["triangle"] shapes=shapesGroup1+shapesGroup2
Loop through list	for i in range(len(shapes)): print(shapes[i])
Reverse elements in a list	shapes.reverse()
Order elements in a list	shapes.sort()

2D lists - A list if lists

Create a 2D list	d = [[23, 14, 17], [12, 18, 37], [16, 67, 83]]
Another way to create a 2D list	a = [23, 14, 17] b = [12, 18, 37] c = [16, 67, 83] d = [a,b,c]
Access element by index position	d[1][2] -> 37

Strings

Get length of a string	len("Hello")	LEN("Hello")
Character to character code	ord("a") -> 97	ORD("a")
Character code to character	chr(101) -> 'e'	CHR(101)
String to integer	a=int("12")	a=INT("12")
String to float	a=float("12.3")	a=FLOAT("12.3")
integer to string	a=str(12)	a=STR(12)
real to string	a=str(12.3)	a=STR(12.3)

Concatenation -merge multiple strings together	a="hello " b="world" c=a+b print(c) -> hello world
Return the position of a character if there is more than 1 of the same character the position of the first character is returned.	student = "Hermione" student.index('i')

Find the character at a specified position	student = "Hermione" print(student[2]) -> r
--	--

sub strings - select parts of a string

Example	student="Harry Potter"
Output the first two characters	print(student[0:2]) Ha
Output the first three characters	print(student[:3]) Har
Output characters 2-4	print(student[2:5]) Rry
Output the last 3 characters	print(student[-3:]) Ter
Output a middle set of characters	print(student[4:-3]) y Pot

*A negative value is taken from the end of the string.

Subroutines are a way of managing and organising programs in a structured way. This allows us to break up programs into smaller chunks.

- Can make the code more modular and more easy to read as each function performs / (does/completes) a specific / particular task / job.
- Functions can be reused within the code without having to write the code multiple times.

- Procedures** are subroutines that do not return values
- Functions** are subroutines that have both input and output

Procedure: No input parameters or return	SUB greeting() OUTPUT "hello" ENDSUB	def greeting(): print("hello") call: greeting()
Procedure: One input parameter, no return	SUB greeting(name) OUTPUT "Hello",name ENDSUB	def greeting(name): print("Hello",name) greeting("grey")
Function: 1 input parameter, and 1 return value	SUB add(n) a ← 0 FOR a ← 0 TO n a ← a + n ENDFOR RETURN a ENDSUB	def add(n): a=0 for a in range(n+1): a=a+n return a

Function: Two input parameters, and 1 return value	SUB (num1,num2) sum=num1+num2 return sum	def add(num1,num2): sum=num1+num2 return sum
		greeting(1,2)

The **scope / extent of the range** of a variable / (number or thing that changes) determines / decides/figures out which parts of a program can access and use that variable / (number or thing that changes).

A **global variable / worldwide (number or thing that changes)** is a variable that can be used anywhere in a program. The issue with global variables / worldwide (numbers that change/things that change) is that one part of the code may inadvertently / accidentally and carelessly change / modify the value because global variables / worldwide (numbers that change/things that change) are hard to track.

A **local variable / (number or thing that changes)** is a variable that can only be accessed within a certain block of code typically / usually within a function. Local variables are not recognized outside a function unless they are returned. There is no way of modifying or changing the behaviour of a local variable outside its scope / its range.

Global variables / Worldwide (numbers that change/things that change) need to be defined throughout the running of the whole program. This is an inefficient use of memory resources / useful things/valuable supplies.. Local variables are defined only when they are needed and so have less demand on memory. Local variables only exist within the subroutine.

Reading and writing files

Open file Whatever we are doing to a file whether we are reading, writing or adding to or modifying / changing a file we first need to open it using:

open(filename,access_mode)

There are a range of access mode depending on what we want to do to the file, the principal ones are given below:

Access Mode	Description
r	Opens a file for reading only
w	Opens a file for writing only. Create a new file if one does not exist. Overwrites file if it already exists.
a	Append / Add (to the end) to the end of a file. Create a new file if one does not exist.

Reading text files

read – Reads in the whole file into a single string	<pre>f=open("file.txt","r") print(f.read()) f.close()</pre>
readline – Reads in each line one at a time	<pre>f=open("file.txt","r") print(f.readline()) print(f.readline()) print(f.readline()) f.close()</pre>
readlines – Reads in the whole file into a list	<pre>f=open("file.txt","r") print(f.readlines()) f.close()</pre>

Writing text files

Write in single lines at a time	<pre>file=open("days.txt","w") file.write("Monday\n") file.write("Tuesday\n") file.write("Wednesday\n") file.close()</pre>
Write in a list	<pre>say=["How\n","are\n","you\n"] file=open("say.txt","w") file.writelines(say) file.close()</pre>

Data Validation Routines

Check if an entered string has a minimum length	<pre>OUTPUT "Enter String" s ← USERINPUT IF LEN(s) > 5 THEN OUTPUT "STRING OK" ELSE OUTPUT "TOO SHORT" ENDIF</pre>
Check if a string is empty	<pre>OUTPUT "Enter String" s ← USERINPUT IF LEN(s) == 0 THEN OUTPUT "EMPTY STRING" ENDIF</pre>
Check if data entered lies within a given range	<pre>OUTPUT "Enter number" s num ← USERINPUT IF num > 1 AND num < 10 OUTPUT "Within range" ENDIF</pre>

Authentication Routine

```
OUTPUT "Enter Username"
username ← USERINPUT
OUTPUT "Enter Password"
password ← USERINPUT

WHILE username != "bart" OR password != "abc"

OUTPUT "Login failed"
OUTPUT "Enter Username"
username ← USERINPUT
OUTPUT "Enter Password"
password ← USERINPUT

ENDWHILE

OUTPUT "Login Successful"
```

Debugging / (finding and correcting mistakes in)

Syntax / (the set of rules for forming language) errors – Errors in the code that mean the program will not even run at all. Normally / (usually/ in a common and regular way) this is things like missing brackets, spelling mistakes and other typos.

Runtime errors – Errors during the running of the program. This might be because the program is writing to a memory location that does not exist for instance. eg. An array index value that does not exist.

Logical errors - The program runs to termination/ end/ending/firing, but the output is not what is expected. Often these are arithmetic/ math errors.

Test data

Code needs to be tested with a range of different input data to ensure / to make sure that it works as expected under all situations. Data entered need to be checked to ensure / to make sure that the input values are:

- within a certain range
- in correct format
- the correct length
- The correct data type (eg float, integer, string)

The program is tested using normal/ (usual/ commonly and regular/ healthy), erroneous / wrong or boundary / edge-related data.

Normal data - Data that we would normally expect to be entered. For example for the age of secondary school pupils we would expect integer values ranging from 11 to 19.

Erroneous data - Data that are input that are clearly wrong. For instance, if some entered 40 for the age of a school pupil. The program should identify this as invalid data but at the same time should be able to handle this sensibly which returns a sensible message and the program does not crash.

Boundary data - Data that are on the edge of what we might expect. For instance if someone entered their age as 10, 11, 19 or 20.