

KNOWLEDGE ORGANISER



Seahaven Academy

The best in everyone™

Part of United Learning

YEAR 10:

Terms 3 and 4

2023 - 2024

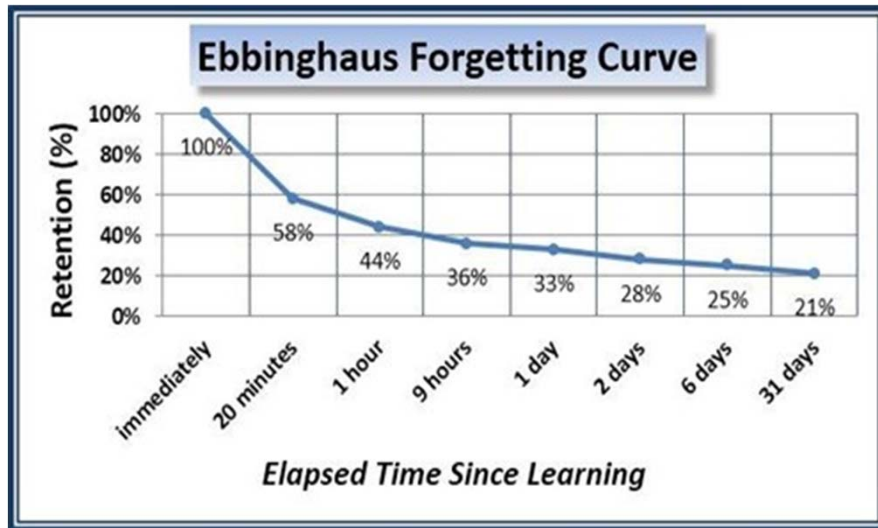
**Foundation
Subjects**



Name: _____

Tutor Group: _____

Knowledge Organisers and The Forgetting Curve



Why are knowledge organisers important?

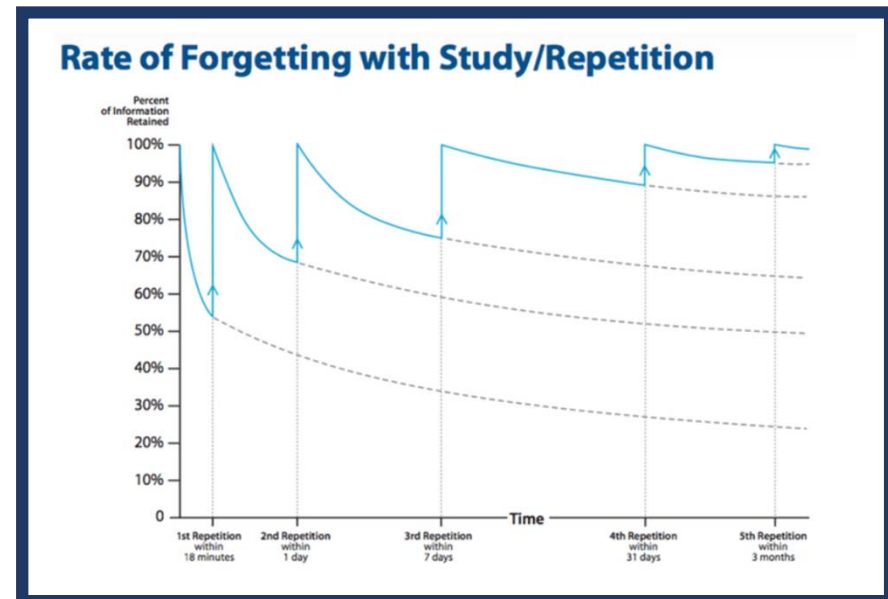
- Almost as soon as we have learnt something we begin to forget it
- In fact, it is surprising how quickly we begin to forget and within a few hours we usually only remember a fraction of what we have learnt, the graph (left) is an example of how this happens

What can knowledge organisers be used for?

- The speed and amount of forgetting can be reduced by using knowledge organisers to practice recalling what you know
- By retrieving something back into our working memory we slow the rate of forgetting (see the second graph, below)

How will we be using our knowledge organisers?

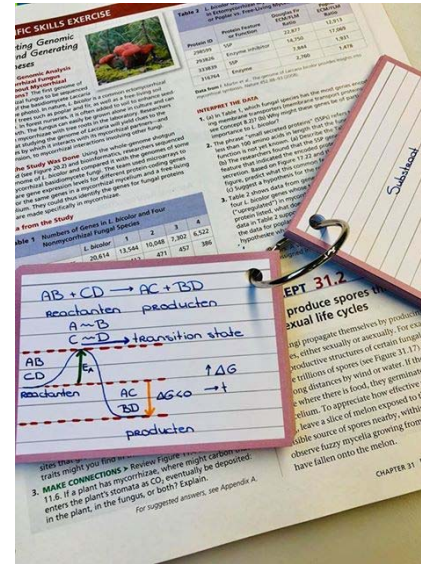
- You need to bring these to school each day in your bag, they may be used in lessons
- You will be set homework activities that use them
- You should use them to practice recall – there are tips on ways to do this in the next few pages
- You will use them to prepare for end of unit tests, including the 'Haven Hundred', set in drop-down tutor time during the penultimate week of each term



How To Use Your Knowledge Organiser

Make Flashcards

- A flashcard is a piece of card that has a cue or hint on the front side, and the answer on the back side.
- The cue can be a question, an image, or just one word that prompts or triggers a response
- Flashcards are one of the best ways to remember new information because they involve you in active learning, repetition, and reflection of your answers
- Use them to play memory test, pairing games, self quizzing or others quizzing you.
- They are very effective when used with the Leitner technique (see below)



Leitner Technique

When you've written the flashcards, they're sorted into three different boxes: 1, 2 and 3.

You start with all the cards in Box 1.

You learn these every day

You know a card from Box 1? Then it goes to Box 2.

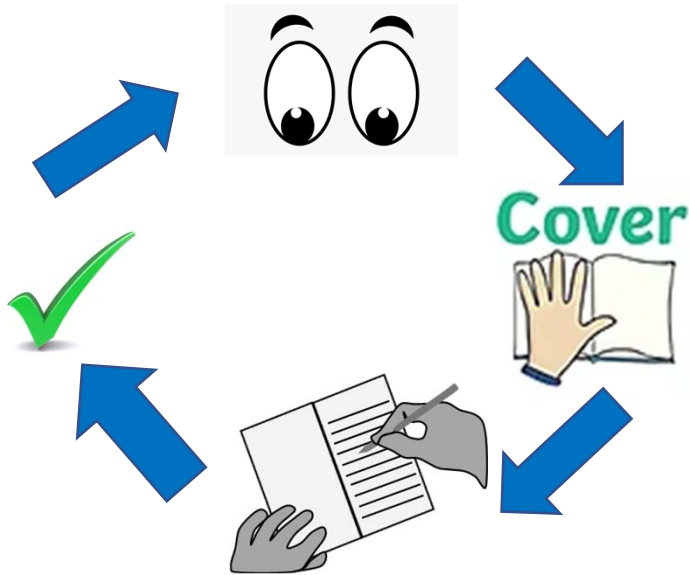
You learn these every three days

You know a card from Box 2? Then it goes to Box 3

You learn these 3 every five days

If you get a card wrong, it goes back to Box 1

How To Use Your Knowledge Organiser



Read – Cover – Write – Check – Repeat

Read – a small section of your knowledge organiser

Cover – Cover the information so you are unable to read it

Write – out what you have remembered

Check – the knowledge organiser to see if you are right and add in any missing points in a different colour pen

Repeat this process the next day then a few days later

Help From Others

Parents/Carers /Siblings/ Friends

Where possible involve others in your review and recall practice. They can:

- Use your Knowledge Organiser to ask you questions or set you a quiz
- Play memory games with your flashcards – pairs or snap (with diagrams and specialist terms, specialist terms and definitions)
- Check your notes with you after read – cover – write
- Watch the videos and read the attached articles with you



Useful Links

Flashcards and Leitner Method

Read

<https://study-stuff.com/how-to-study-flashcards-with-the-leitner-method/>
<https://e-student.org/leitner-system/>

Watch

<https://www.youtube.com/watch?v=d9u3KxGCio8>
<https://www.youtube.com/watch?v=C20EvKtdJwQ>

Different Methods of Revision – Created by Staff at Seahaven

<https://www.seahavenacademy.org.uk/parents/key-stage-information-evening/key-stage-4-information>

Homework Sites We Use That Assist with Recall

<https://senecalearning.com/en-GB/>
<https://hegartymaths.com/>
<https://www.languagenut.com/en-gb/>

Small Scale Ecosystems

Ecosystems – A natural system where living and non-living things interact.

Biotic – Living things. E.g. plants and animals.

Abiotic – Non living things e.g. rocks, water, soil.

Food chains/webs – the transfer of energy throughout an ecosystem.

Producers make their own energy from the sun.

Consumers eat producers. Energy is lost through movement.

Decomposers break down dead material and return nutrients to soil.

Nutrients in an ecosystem are recycled. This is called the **Nutrient Cycle**.

The number of species in an ecosystem is the **biodiversity**.

The Living World – Knowledge Organiser

How does change affect ecosystems? - Small scale ecosystems such as Seahaven Pond can be affected by natural and human changes.

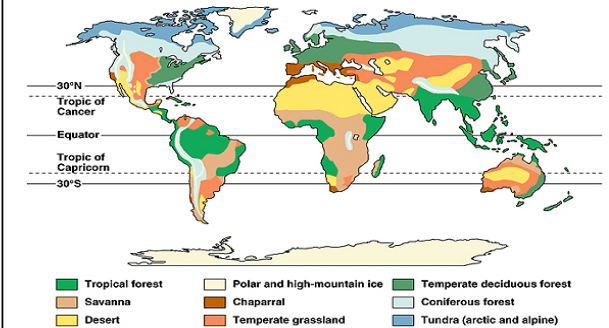
Change	Impact
Drought (natural)	The water level could drop harming fish. Plants could dry up and die meaning less food for primary consumers affecting the food chain.
Chopping down trees (human)	Destroys habitats for birds. Removes leaves from pond meaning less food for insects such as midge larvae affecting the food chain.
Pollution from fertilisers (human)	Eutrophication can occur which is the growth of algae. Less sunlight and oxygen in the pond meaning species such as fish can die affecting the food chain.

Biomes – Global/large scale ecosystems:

Tropical rainforest – Hot, wet areas due to low pressure at the equator causing high rainfall. 0-15° latitude.

Hot deserts – Hot dry areas near the tropics due to high pressure zones. 15-35° latitude.

Deciduous forests – Temperate in mid latitudes. Seasonal.

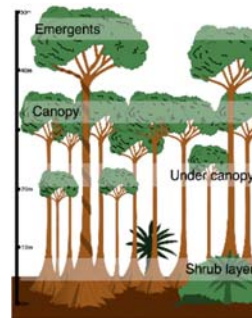


Tropical Rainforest Characteristics

Rainforest climate: The temperature remains fairly constant all year, at around 27-30°C. This is because the **sun is always overhead**. Rainfall is high throughout the year, with around **350mm of rain** falling in March due to convectional rainfall caused by the sun heating the air and causing it to rise.

Soils (Latosols) – Surprisingly infertile and acidic as most nutrients are stored in the plants. Most nutrients are stored in the top layer of the soils.

Biodiversity – contain up to 50% of the plants and animals on earth. Most live in the canopy as it is light and contains fruit for food.



Hot Desert Characteristics

- Deserts are places of extremes. They have a huge **diurnal range**, which means a big difference between night and day time temperatures. During the day it is possible for desert temperatures to reach 50 °C. However, at night this temperature can drop to freezing due to the lack of clouds.
- The **ground** in the desert has little fertility due to the lack of rotting vegetation. Together with the lack of rainfall, makes it difficult for vegetation to grow.
- Despite the difficult conditions deserts have a surprisingly high biodiversity and are an important habitat to many plants and animals.

Hot Desert Adaptations

Animal Adaptations

- A camel has a hump that stores fat. This can be converted to water during long dry spells.
- Camels have large feet. This stops them from sinking into the sand making walking easier.
- Many animals in the desert are **nocturnal**, which means they only come out at night, to avoid the hot day time temperatures.

Plant Adaptations

Climate adaptations

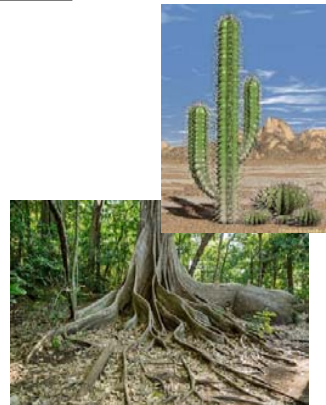
- Plants have small leaves or spines to reduce surface area and prevent water loss due to evaporation.
- A cactus has a pleated stem. This means it can expand when it rains and soak up water.





Soil adaptations

- Plants have deep **tap roots** to get to water far underground (up to 10 m).
- Some plants have horizontal root systems just below the surface to absorb rain before it evaporates.

Tropical Rainforest Adaptations – How species cope in the conditions

- Trees have **buttress roots**, these wide roots give the trees stability and allow them to become emergents. Also they allow the trees to take the **nutrients** from the surface layer of the forest floor.
- Trees have **drip tips**, these allow the rain to run off the leaves, stopping the trees from becoming too heavy and falling.
- Plants in the shrub layer have huge leaves to catch any sunlight and maximise photosynthesis.
- Lianas** grow up other trees to try and get to the canopy and the sunlight.
- Epiphytes** grow on other trees. Stealing nutrients to escape the dark forest floor.

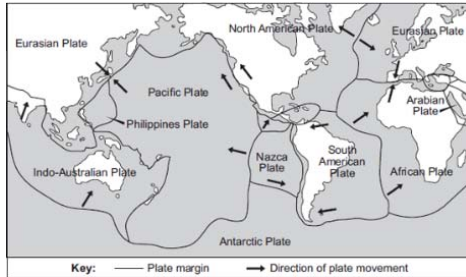


<p style="text-align: center;">Tropical Rainforest – Amazon</p> <ul style="list-style-type: none"> • Located in South America. Amazonia is the largest area of tropical rainforest in the world covering 8 million km². • Stretches across 9 countries in South America. Brazil has the largest area of the Amazon. 		<p style="text-align: center;">Hot Desert – Thar Desert</p> <ul style="list-style-type: none"> • Located in NW India on the border with Pakistan. • The most densely populated hot desert in the world. • Jaipur is a city located near the Thar Desert. It is a popular tourist destination. 	
<p style="text-align: center;"><u>Causes of Deforestation</u></p> <ul style="list-style-type: none"> • Cattle ranching is the main cause. Brazil is the largest exporter of beef in the world. This causes 65-70% of all deforestation. • Small scale subsistence farming is responsible for 20-25% of deforestation. Farmers often use slash and burn to clear areas of forest and grow crops. • Large scale commercial farms grow crops such as soy and sugar cane on huge plantations. This causes 5-10% of deforestation. • Logging causes 2-3% of deforestation. This has declined in recent years in the Amazon. However lots of logging in the Amazon is illegal. • Mining causes 1-2% of deforestation but has huge impacts as harmful chemicals are used in the extraction of minerals such as gold. Drilling for oil is also harmful. • Population growth causes migration to the Amazon as the Brazilian Government offer land in the rainforest to poor people in overcrowded cities such as Rio. 		<p style="text-align: center;"><u>Opportunities in the Desert</u></p> <ul style="list-style-type: none"> • Farming – Crops such as wheat can be grown in the Thar Desert. Large commercial farming is possible due to irrigation from the Indira Gandhi Canal. • Subsistence farming is small scale farmers that grow crops and sell in the local markets. This is difficult due to the extreme climate. • Mining – minerals such as Gypsum are extracted and sold. Gypsum is used to make cement. This is difficult due to the lack of roads to transport material. • Tourism – Jaipur Fort is a popular tourist location. Local people can earn money by taking tourists on Camel Safaris in the desert. This is only small scale as it is hard to feed and transport large groups of people. 	
<p style="text-align: center;"><u>Effects of deforestation</u></p> <p><u>Environmental</u></p> <ul style="list-style-type: none"> • The Amazon absorbs carbon dioxide from the atmosphere and stores it as it is a Carbon Sink. It is estimated that 100 billion tonnes of carbon is stored. Deforestation will release some of this causing the enhanced greenhouse effect. • Chopping trees down means that the soil is vulnerable to erosion. An estimated 55 million tonnes of topsoil is lost in Brazil each year. The nutrients are also washed out by rain called leaching. • Deforestation damages or destroys habitats for animals. This can endanger species or even lead to extinctions. <p><u>Economic</u></p> <ul style="list-style-type: none"> • Activities such as, mining and logging bring huge amounts of money to countries like Brazil and are important for development. They also provide jobs for locals. • Farming makes a lot of money for rainforest countries. Brazil is the largest exporter of beef and the second largest in soy beans. • Environmental damage can put off tourists, therefore damaging potential tourism industry. <p><u>Social</u></p> <ul style="list-style-type: none"> • Indigenous tribes can lose their land. This can lead to a loss of culture. • Soil erosion can lead to landslides which can destroy peoples' homes. 		<p style="text-align: center;"><u>Challenges</u></p> <ul style="list-style-type: none"> • Extreme temperatures – Temperatures can reach over 50°C in the daytime. This makes working outside such as farming difficult and potentially dangerous. It also makes it difficult for farmers to keep plants and animals alive. • Water Supply – Water shortages are common due to droughts and population increase leading to more demand. Water is sourced from rivers, wells and underground aquifers (although this can be salty). The Indira Gandhi Canal was built in 1958 to provide more water in the desert and makes commercial farming possible as well as providing drinking water. • Accessibility – There are few roads in the desert and these can melt or be covered in sand due to the winds. This makes transport very difficult and often impossible without camels. • Desertification is the process of deserts growing in size. This is a huge challenge in the Thar Desert. <p style="text-align: center;"><u>Causes of desertification</u></p> <ul style="list-style-type: none"> • Chopping down trees – People use the wood for building and fuel. As the population is rising people are using more wood. Without trees soil is loose and can be eroded by the wind and rain. • Overgrazing is when too many animals are put on the land. They destroy the vegetation and erode the soil by trampling. This makes areas barren and turns them to desert. • Over cultivation is when farming takes the nutrients out of the soil leaving areas barren and infertile. Plants die and it becomes desert. • Salinisation occurs when farmers over water their crops. The water evaporates in the hot sun and leaves behind salt. This kills plants and leaves soils infertile turning them into desert. 	
<p style="text-align: center;"><u>Managing rainforests Sustainably</u></p> <ul style="list-style-type: none"> • Selective logging can be used which is more environmentally friendly than clear felling. This is because only certain trees are picked for felling giving people income but not destroying big areas. • Replanting programmes can restore areas of forest if done using the correct species. • Ecotourism makes money from small groups of tourists. This provides jobs and income but keeps the forest alive and healthy. Tourists are also educated on the importance of conservation. • National Parks can be created where deforestation is illegal. This can help protect areas. 		<p style="text-align: center;"><u>Sustainable management</u></p> <ul style="list-style-type: none"> • Replanting programmes can restore areas of forest on the fringe of hot deserts. The Prosopis Cineraria Tree is a species that can survive hot and dry conditions. It has many benefits including providing shade for crops and animals, wood for fuel, food for animals and reduces soil erosion. • National Parks can be created to protect areas from harmful activities. The Thar Desert National Park was created in 1992 and protects 3000km² from desertification. • Appropriate technology – simple methods suitable for poor countries to use. Magic Stones are walls made by piling stones up which traps moisture and reduces soil erosion helping plants grow. 	

Tectonic Hazards

Distribution of Earthquakes and Volcanoes

- The earth's crust is split into sections called tectonic plates. Where these plates meet are called plate boundaries.
- Earthquakes and volcanoes occur due to tectonic activity at these plate boundaries.
- There are a huge number of tectonic hazards around the Pacific Ocean. This is known as the 'Ring of Fire'.



Challenge of Natural Hazards – Knowledge Organiser

Tectonic Processes

- The earth is made up of layers. The crust is only a thin layer of rock above thousands of miles of magma.
- Huge convection currents in the mantle occur due to heat from the core. These cause the tectonic plates to move on top.
- This movement has shifted the land masses over millions of years and is called Continental Drift.
- There are two types of crust. Continental Crust contains the land masses and Oceanic Crust is under the ocean. Oceanic is denser and can be destroyed.

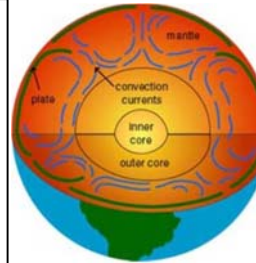


Plate boundaries

	<p>Constructive Occurs when two plates are moving apart. Magma rises in the gap forming shield volcanoes. Gentle earthquakes occur. Examples include Iceland on the Mid-Atlantic Ridge.</p>
	<p>Destructive occurs when an oceanic and continental plate are forced together. The denser oceanic subducts and melts in the mantle. Composite volcanoes and strong earthquakes occur. E.g. Chile, South America.</p>
	<p>Conservative occurs when two plates move side by side. Friction builds up until the plates jerk causing severe earthquakes such as Haiti and NZ.</p>
	<p>Collision is a type of destructive margin when two continental plates collide. This creates fold mountains such as the Alps and Himalayas. Earthquakes occur such as Nepal.</p>

Christchurch, NZ 2011 – Earthquake in a HIC

Causes

- A conservative boundary, Pacific and Indo Australian Plate moving together.
- 6.3 on the Richter Scale, however it had a shallow focus. Also a 7.1 Earthquake hit Christchurch the previous year weakening buildings.

Effects (Primary and Secondary)

- 2000 people were injured from falling buildings and debris, the famous Christchurch Cathedral's spire collapsed. (P)
- 181 dead – mainly from collapsed buildings. half were killed in the Canterbury Television Building. (S)
- NZ\$16.5 billion to repair damaged roads and buildings. (S)
- 10,000 homes needed to be rebuilt while locals lived in temporary accommodation. (S)
- Christchurch missed out on hosting the Rugby World Cup therefore missing out on the huge economic gain from tourism. (S)

Responses

- The Australian police joined forces with New Zealand police to help with **search and rescue** and prevent looting.
- The **New Zealand Defence Force** provided equipment such as **food and water aid to 1000 homeless** people.
- Electricity was restored to 95% of households within 2 weeks.
- The 'Farmy Army' (farmers from all over the country) brought their machinery to Christchurch to help clear debris.

Haiti 2010 – Earthquake in a LIC

Causes

- A conservative boundary, North American and Caribbean Plate moving together. Pressure building for 200 years.
- 7.0 on the Richter Scale. Epicentre only 16km from Port-au-Prince with a shallow focus.

Effects (Primary and Secondary)

- 250,000 houses and 30,000 commercial buildings destroyed due to poor quality construction. (P)
- Most of the capital city Port-au-Prince was destroyed. (P) An estimated **\$8 billion** of damage. **120% of Haiti's GNI**. (S)
- Roads, ports and airports damaged. (P) Meaning supplies couldn't easily get to people in need. (S)
- 230,000 people killed and 1 million people made homeless and forced to live in tent cities or slums e.g. **Canaan**. (S)
- Water supplies were contaminated causing cholera to spread. Over 7000 deaths from the disease. (S)

Responses

- USA Army sent in to assist with clear up and search and rescue.
- Large scale emergency aid, Red Cross raised \$7 million in 24 hours.
- People forced to set up temporary homes. This led to squatter settlements such as Canaan forming where people lived in poor conditions causing disease such as cholera.
- Haitian Government gradually rebuilt houses, people lived in temporary accommodation for years.

Living with tectonic hazards

- Millions of people live in hazardous regions around the world. There are many reasons why:
 - People trust monitoring and prediction methods.
 - People feel safe because often hazards haven't occurred for many years.
 - People in poverty may not be able to afford to move.
 - Volcanoes can bring benefits such as fertile soil and geothermal energy which can benefit people.
 - Better buildings in countries such as Japan make people feel safe.

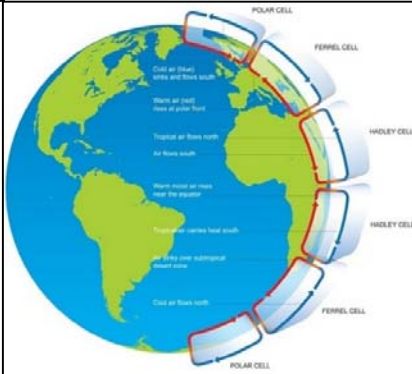
Reducing the impacts of hazards

<p>Monitoring - Using scientific equipment to detect warning signs.</p>	<p>Volcanoes can be monitored by tiltmeters which will set off an alarm if the volcano bulges. Seismometers detect any vibrations underground which can be magma moving or signs of quakes.</p>
<p>Prediction – Using historic records.</p>	<p>Very difficult to do, however by looking at past events scientists predict at risk areas.</p>
<p>Protection – Designing structures to keep people safe</p>	<p>Buildings can be designed to withstand strong earthquakes e.g. flexible foundations. Embankments can help divert lava from towns.</p>
<p>Planning – Identifying and avoiding dangerous areas.</p>	<p>Hazard maps can be made to plan evacuations. High value land uses such as hospitals can be built on low risk areas.</p>

Weather Hazards

Global Atmospheric Circulation

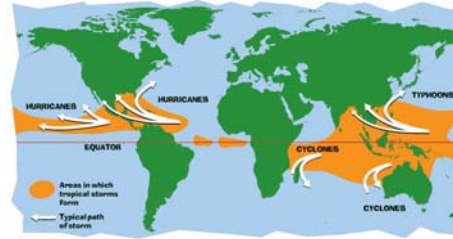
- Warm, moist air rises at equator = low pressure.
- Low pressure creates rain.
- Air sinks at tropics = high pressure.
- High pressure creates anticyclones = dry conditions.
- Air sinks at poles = high pressure.
- Air mixes at mid latitudes, warm air rises creating low pressure.



Challenge of Natural Hazards – Knowledge Organiser

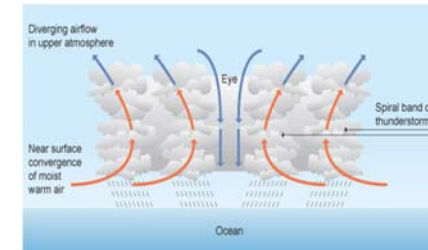
Where and how are tropical storms formed?

- Develop in the tropics over warm seas above 27°C.
- Called different names depending on the ocean.
- 5°-15° latitude. Do not occur on equator as there is not enough spin from the rotation of the earth.
- Rising air over warm oceans causes low pressure, the **Coriolis effect** from earth's spin causes rotation.
- Tropical storms die out over land. Warm water is their fuel.



Structure and features of tropical storms

- The central eye of the storm is calm with light winds and clear skies.
- The eye wall surrounds the eye. This has the highest winds.
- Torrential rain, lightning and hail are other weather conditions.
- Tropical storms can be huge. Up to 300 miles in diameter.
- Climate change is causing storms to occur in new places.



Saffir-Simpson Scale

Category	Wind Speed mph
1	74-95
2	96-110
3	111-129
4	130-156
5	157+

Typhoon Haiyan 2013 – Tropical Storm Case Study

Causes

- Low pressure and warm ocean temperatures in the Pacific created a 'Super Typhoon'. This category 5 storm hit the Philippines in November 2013.

Effects (Primary and Secondary)

- Winds up to 170mph destroyed buildings. 90% of the city of Tacloban was destroyed. (P)
- 6300 people were killed. Most from drowning by the 5m wall of water created by the low pressure causing the sea to rise. This is a storm surge. (P)
- Around 600,000 people were made homeless. (S)
- 30,000 fishing boats were destroyed leaving people without work and causing food shortages. (S)
- Flooding caused landslides and blocked roads meaning aid couldn't get to remote areas. (S)

Responses (Short Term and Long Term)

- International Governments and aid agencies sent food and water aid. (ST)
- US Navy sent helicopters and troops to help with search and rescue and aid delivery. (ST)
- UK Government send shelter kits to provide shelter for families. (ST)
- 'Cash for work' programmes employed local people to assist with clean up and help rebuild Tacloban. (LT)
- Oxfam supported the replacement of fishing boats. Essential to provide people with a source of income. (LT)
- More cyclone shelters were built. (LT)

Somerset Levels 2014 – Extreme weather in UK

Causes

- Heavy rain – 2014 was the wettest January since records began.
- 20 years of no dredging meant rivers could hold less water.

Effects (Social, Economic and Environmental)

- Over 600 houses were flooded, people left homeless. (S)
- Villages such as Moorland were completely cut off. (S)
- Over £10 million worth of damage. (Ec)
- Large areas of agricultural land flooded. Farming is a main part of the economy in Somerset. (Ec)
- Flood waters were heavily contaminated with sewage and pollutants damaging habitats. The Levels are home to important species such as otters and Kingfishers. (En)
- Stagnant water became deoxygenated killing fish and affecting the food chain. (En)

Responses – Short Term and Long Term

- Boats used for transport in cut off villages. E.g. for pupils to get to school and to get supplies to people (ST).
- Homeless people housed in temporary accommodation (ST).
- Huge pumps hired from a company in Holland to help drain land.
- £20 million spend on a Flood Action Plan (LT) which included:
 1. 8km of the rivers Tone and Parratt were dredged to increase river capacity.
 2. Road levels raised to ensure flooding doesn't disrupt transport.
 3. Flood defences such as levees built.
 4. Pumping stations built to increase speed in which water can be pumped back into rivers.

Reducing effects of tropical storms

Monitoring and Prediction - forecasting

Technological developments have made it possible to predict the path of tropical storms. Hurricane warnings are then issued based on forecasts.

Protection – Designing structures to keep people safe

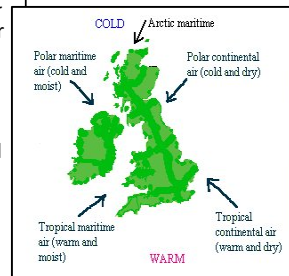
Buildings can be reinforced to keep people safe from tropical storms. E.g. Cyclone shelters have been a huge success in lowering the death toll in Bangladesh. Sea walls can be built to help protect against storm surges.

Planning – Raising awareness

Getting people to plan and prepare for storms. E.g. stockpiling food and water supplies. In the USA there is a National Hurricane Preparedness Week. Warnings are issued on television, radio and social media.

Extreme weather in the UK

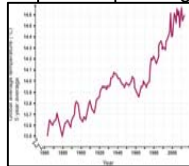
- Hazardous weather events that cause damage and even danger to lives.
- Thunderstorms, droughts, heavy and prolonged rainfall, heavy snow and cold spells and strong winds are examples.
- The UK in in mid latitudes, it is a meeting place from air from the arctic and tropics, therefore weather can be unpredictable and changeable.



Climate Change

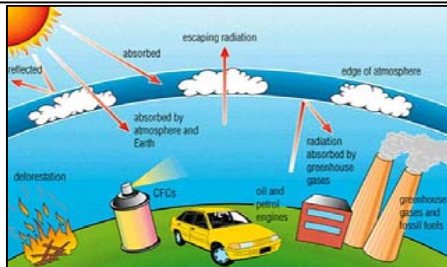
Evidence of climate change

1. Temperature records show that average temperatures have risen. **Since 1880** the world's climate has increased by **0.8 degrees** and 16 of the 17 warmest years have occurred since 2001, with the exception of 1998.
2. Other evidence is that since the 1980's the **Arctic Sea Ice has been in decline**. Again this has fluctuated, with the lowest Sq km recorded in 2012. Glaciers around the world are also retreating and some may disappear completely.
3. Global sea levels are rising. This can be measured by satellite. In the past 100 years seas have risen by 10-20cm.
4. Ice core samples can measure the CO2 trapped in Antarctic ice from thousands of years ago. This can give us information about how the climate has changed.



Human causes of climate change

- **The enhanced greenhouse effect** is leading the the Earth's atmosphere becoming thicker. This absorbs more heat from the sun raising global temperatures. The main Greenhouse gases are:
 - **CO2** – 60% of the greenhouse effect. Released by burning fossil fuels for energy production, industry and transport.
 - **Methane** – 20% of the greenhouse effect. Released by agriculture from fertiliser and livestock such as cows.
 - **Nitrous Oxides** – Small amounts can be very powerful greenhouse gases. Released by power stations and cars.
- **Deforestation** is the destruction of rainforests around the world. Areas of forests act as Carbon Sinks and absorb some of the CO2 in our atmosphere. By removing the forests and often burning the wood we are releasing the CO2 back into the atmosphere.



Challenge of Natural Hazards – Knowledge Organiser

Natural causes of climate change

- **The Earth's Orbit changes** around the sun in several ways which affects the climate. The following orbital changes are known as the Milankovitch Cycles:
 - **Eccentricity** – the orbit changes from circular to egg shaped roughly every 100 thousand years. This matches glacials and interglacials from climate records.
 - **Axial tilt** – The world becomes more tilted on its axis. This affects climate roughly every 41,000 years.
 - **Precession** – The earth wobbles on its axis roughly every 26,000 years.
- **Sunspots** are extreme solar energy. Periods with lots of sunspots are warmer than average. Periods with low sunspots are cooler than average. For example between 1645-1715 the 'Little Ice Age' caused the Thames to freeze in London.
- **Volcanic eruptions** release ash and smoke which can block the sun's energy. This can lower temperatures. For example the Mount Tambora eruption in 1815 lowered temperatures around the world and caused 1816 to become known as 'the year without a summer.'



Managing Climate Change – Mitigation

Mitigation is trying to prevent climate change happening.

Carbon Capture (CCS) – This is technology that allows power stations to capture CO2 emissions from burning fossil fuels. It is then compressed and injected as a liquid into underground reservoirs such as depleted oil and gas fields. It is possible to capture 90% of CO2 produced by power stations.
Pros – reduces CO2 emissions, can continue to burn fossil fuels.
Cons – Expensive, raises price of electricity, can the CO2 escape?

International agreements – A global problem like climate change needs global action. These agreements aim to get nations working together towards set targets to lower carbon emissions. The Paris Agreement in 2015 saw 195 countries sign up and agree to keep global temperature increase below 2 celsius.

Pros – reduces CO2 emissions, help for LIC countries from HICs.
Cons – Some countries didn't sign up or pulled out. The USA who are the biggest CO2 producer, pulled out in 2017.

Tree planting – Forests act as Carbon Sinks. Absorbing CO2 from the atmosphere and storing it as carbon. Trees also produce water vapour which produces more clouds and lowers temperatures.

Pros – Absorbs CO2, helps create clouds.
Cons – None. But this isn't enough on its own.

Managing Climate Change – Adaptation

Adaptation is changing our behaviour to be able to cope with the effects of climate change.

Agricultural Changes – This ensures that we will be able to grow enough food despite the climate changing. Drought resistant crops are being developed which can cope with higher temperatures and lower rainfall. Using water saving farming methods such as drip irrigation is important if rainfall decreases.

Managing water supply – Many places are suffering from less water and unreliable rainfall. Ensuring people use less water is important. In HICs water metres and water saving goods such as washing machines can be used.

Reducing risk from rising sea levels – As sea levels rise there are increases in flooding, erosion and damage from storm surges. Places need protecting from this by using hard engineering (sea walls) and other strategies. In some places people will have to move away from the coast to higher areas. The Maldives are very at risk and may be uninhabitable by 2030.

Artificial Glaciers in the Indian Himalayas are an example of managing water supply. Water is collected in the winter through canals and frozen into a pyramid shape. This slowly melts providing water for farmers through the dry spring months.



Enquiry 1: Why was there no medical progress in medieval Britain?



The medieval period c1250-c1500: The medieval period was a tough time to live. Most people had to work in the fields, growing and harvesting crops for the land-owners. Sickness was frequently caused by famine and malnutrition and it wasn't any better in the towns where dirty, crowded streets and no proper sewage meant that disease spread quickly.

The Catholic Church was incredibly powerful during this period as most people were devoutly religious and the Church was their only source of education. This meant most people thought sickness and disease was God's punishment so there was very little scientific enquiry during this period. The Church chose to promote the work of ancient physicians Hippocrates and Galen but no new ideas about medicine came out of this period.

1. Thinking around causes of illness in Medieval period

Religion	The Catholic Church taught that illness was a punishment from God or a test of faith.
Miasma	A belief that disease was caused by foul smelling or 'bad' air
Four Humours	An ancient Greek doctor, Hippocrates , created a theory that the body contained four fluids; blood, phlegm, yellow bile, & black bile, and all 4 must be in balance to be healthy. This theory was developed further by the Roman doctor, Galen .
Astrology	A belief that that the alignment of the planets and stars could cause illness.

2. Treatments in the Medieval Period

Religious	Praying, pilgrimages, fasting, self-flagellation
Miasma	Herbs burnt and fires lit to ward-off bad smells Keeping clean (regimen sanitatis)
Humoral	Bloodletting - leeches, cupping & cutting the veins Purging – make the patient vomit or use a laxative to make them go to the toilet Remedies and bathing – herbal remedies, steam baths
Astrological	Star charts consulted before treating. Treatments depended on alignment of the planets Herbs, bleeding, purging, cutting hair and nails at right time
Barber surgeon	Barbers who carried out simple operations. Teeth pulling and amputations. Had no formal training.

3. Prevention of illness

Hospitals	30% of hospitals were owned by the Church. Run by monks & nuns Other hospitals funded by charitable donations. Mainly places to rest and recover. No treatment other than prayers Most care was provided by women at home.
Physicians	Diagnosed illness, recommended treatment. Diagnosis based on the work of Galen and Hippocrates Studied at university for 7 years. Did not treat patients.
Apothecaries	Mixed herbal remedies. Had no formal training, mainly apprenticeships.

4. Case study: The Black Death, 1348

Symptoms included buboes in the armpit, fever and chills, headaches, vomiting	Prevention methods included praying and fasting, clearing up rubbish in the streets, carrying herbs and spices.
Causes included God, the position of the planets, miasma, an imbalance in the Four Humours.	Treatments included praying, cutting open buboes to drain the pus, eating cool food and cold baths.

Enquiry 1 keywords:

Apothecary mixed and sold herbal remedies and poisons.	Factors Something that can affect change	Progress Positive change
Barber surgeons someone who provided haircuts and carried out some medical treatments	Four Humours Theory about balance of the four liquids within the body	Purging Getting rid of any food left in the patient's system through vomiting and laxatives
Bloodletting Drawing blood out of the body to balance the humours	Miasma Bad air that could transmit disease	Quarantine Separating the sick from the healthy to stop the spread of disease.
Bubonic plague The disease that caused the Black Death	Physician Diagnosed illness and recommended a treatment	Surgeon Performs surgical treatments
Diagnosis Physician's suggestion of what a patient is suffering	Posy A bunch of flowers or herbs	Trend When there is a number of similar and related changes

What changed?

Overall, this was a period of **continuity** with no new thinking or understanding across causes, treatment or prevention of illness and disease because of this there is no need to consider pace or extent of change but instead understand why things failed to change.

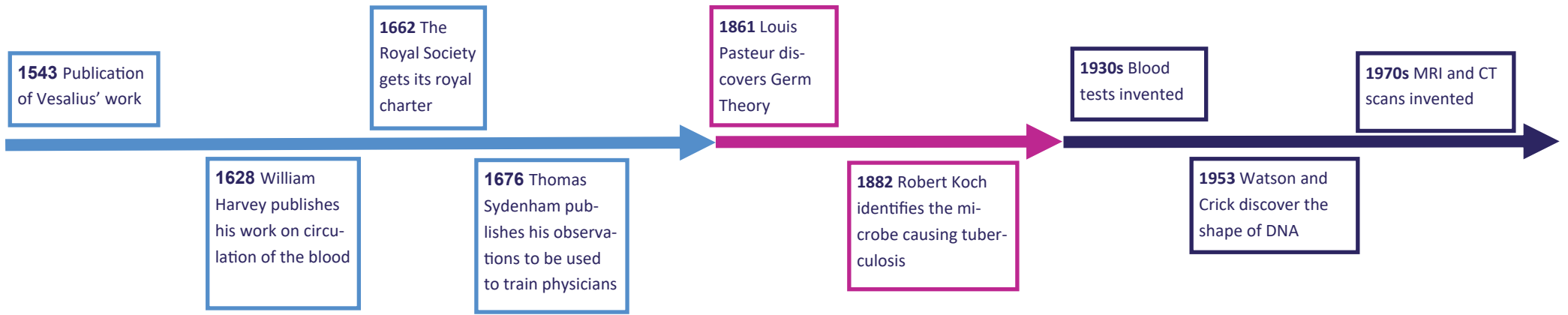
Organisations	The Church controlled most aspects of society including medicine and the Church was very interested in maintaining the status quo (<i>keeping things the same</i>) and holding on to its power and influence. The Church controlled medical learning and chose which books were copied and distributed The Church liked the Theory of Four Humours because it fitted with their teachings, so it promoted the theory and strongly discouraged any criticism. Local authorities and government stepped up to take some action during the Black Death but did not yet shape how disease was treated or prevented.
Individuals	Hippocrates and Galen were important individuals even though they had lived and died many years before. Galen in particular was popular with the Church, which meant his work was widely promoted.
Science and technology	There were no scientific innovations in this period. A lack of scientific understanding meant that new knowledge was limited. However, there was one important piece of technology invented in the later part of this period, and that was the printing press in 1440. This allowed for faster and easier sharing of medical texts rather than relying on monks selecting and hand copying them. However, the impact of the printing press was not really felt in this period.
Attitudes in society	People were devoutly religious and in general were not educated outside of the Church. People who might have thought differently, did not dare criticise the Church and risk going to hell. This also meant that doctors who did not practise the Four Humours, were not hired, even though the ideas of Hippocrates and Galen were outdated. It was not until the Black Death in 1348 that people started to look for answers beyond the teachings of the Church and question its authority



Have you mastered the medieval period? Make sure you can answer the questions below:

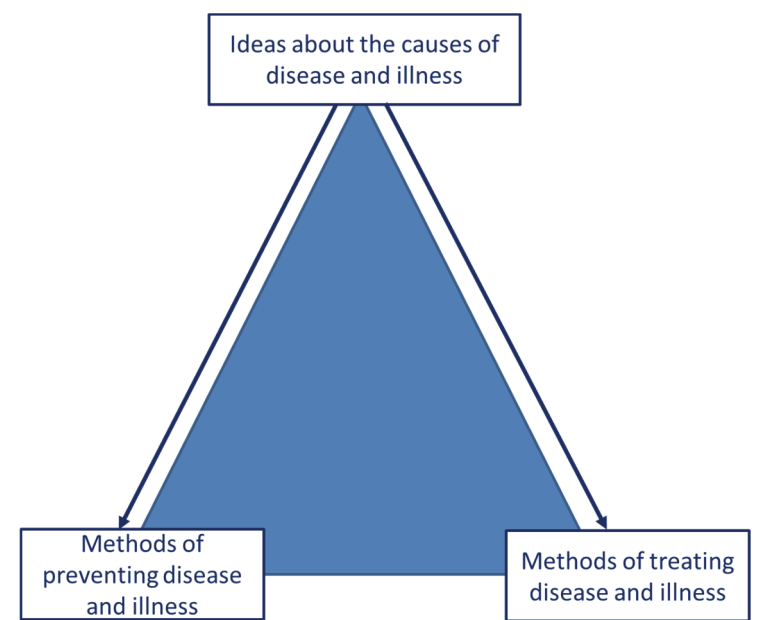
1. Is change the same as progress?	11. Why did medieval people use sweet smelling herbs to prevent the spread of disease?
2. What is a turning point?	12. What was a phlebotomy chart used for?
3. How do you define continuity?	13. What were two humoral cures for disease?
4. Where did the Theory of Four Humours come from?	14. What was the Regimen Sanitatis?
5. What were the four humours?	15. What was the main role of a physician?
6. Why was Galen so popular in the medieval period?	16. In what ways did women care for the sick at home?
7. What is miasma	17. How were hospitals used in the medieval period?
8. How did astrology cause disease?	18. What did local authorities do to try and chase the plague away?
9. Who controlled medieval attitudes about sickness and disease?	19. Why were there so few treatments for the plague?
10. What were three ways you could appease God if you wanted to cure your sickness?	20. What did the government put in place to prevent the plague from spreading?

Enquiry 2: How quickly did ideas about what caused disease change?



Thinking around the causes of disease: The key to this enquiry is 'how quickly' did change happen. So be aware, not just of what changed, but at what **pace** and the extent of change within each period. Ideas about the causes of disease are important because they determine how disease is treated and methods of prevention. That's why 'ideas about causes of illness and disease' is at the top of the triangle—arguably it is the most important aspect of the practice of medicine. If you understand why change occurred in the thinking around causes of disease and how they changed you will understand why and how treatment and prevention changed.

This enquiry begins in the **Renaissance period**, c1500. In this period, while the practice of medicine did not change much at all, ideas were starting to change. The Reformation had ended the dominance of the Church and scientific thinking was beginning to emerge. By the end of the 17th century very few doctors believed in the Four Humours. By the **industrial period** between c1700 and c1900, the Church had lost its authority over everyday life and medicine. The great medical breakthrough was germ theory, so although the period begins with apothecaries, herbal remedies and bleeding and purging still happening, by 1900 germs had been discovered. However, people were not quite ready for germ theory and it took scientific proof of its effectiveness for it to become accepted. By the **modern period**, beginning in 1900, change was moving rapidly with major advances in science and technology. Scientists discovered how DNA worked and that led to an understanding of genetic causes of disease. Lifestyle factors were also investigated as another potential cause of disease.



1. Thinking around causes of illness c1500-present day	
Religion	The Catholic Church taught that illness was a punishment from God or a test of faith.
Miasma	A belief that disease was caused by foul smelling or 'bad' air
Four Humours	An ancient Greek doctor, Hippocrates , created a theory that the body contained four fluids; blood, phlegm, yellow bile, & black bile, and all 4 must be in balance to be healthy. This theory was developed further by the Roman doctor, Galen .
Astrology	A belief that that the alignment of the planets and stars could cause illness.
Spontaneous generation	A theory that claimed rotting matter created microbes that spread through miasma.
Germ theory	Louis Pasteur's theory that stated there were microbes in the air and that these microbes caused decay. Robert Koch went onto prove that microbes caused specific diseases.
Genetics	By 1900, it was clear the microbes did not cause all diseases. The discovery of the structure of DNA and the mapping of the human genome led doctors to be able to identify mistakes or mismatches in DNA leading to diseases being inherited by children from their parents.
Lifestyle	In the 20th century a better understanding was gained as to the impact of lifestyle choices in causing disease, such as smoking, alcohol consumption and unhealthy diets. These could be causes of disease like cancer, which became a major problem in the modern period.
New technology	From 1900 onwards, there was rapid development in diagnostic technology that helped doctors to understand why a patient was unwell. These included X-rays, blood tests, MRI and CT scans, ultrasounds and ECGs.

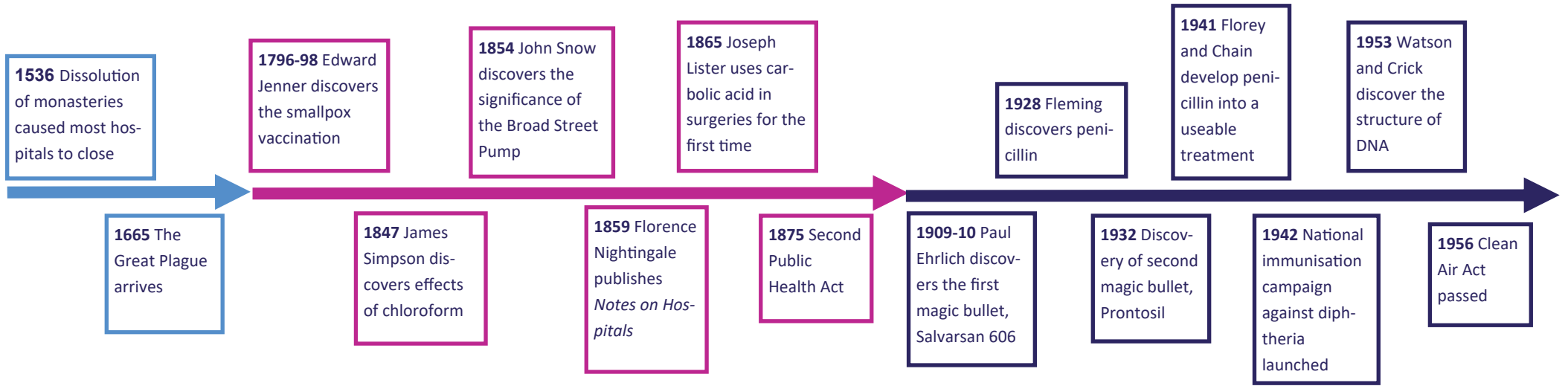
Enquiry 2 keywords:		
Anatomy Knowledge of the structure of the body and how it works, inside and out	Enlightenment an intellectual movement from the 17th and 18th centuries emphasizing reason and science rather than tradition	Humanism A belief in the importance of science to help understand how the world works
Dissection Cutting up a dead body in order to study how it works	Gene A selection of your DNA containing information inherited from your parents	Microbe Any living organism too small to see without a microscope
DNA Carries genetic information and decides characteristics like eye colour	Genome The complete set of DNA containing all the information to build a particular organism.	Microscope An instrument used for viewing very small objects like microbes
Empiricism The concept of using observation and experience	Hereditary When genes (including those that lead to disease)	Organic Something that is living or has once been alive



What changed?			
	The Renaissance Period c1500-c1700	The industrial period c1700-c1900	The modern period c1900-present day
Organisations	The reformation meant the Church was no longer so dominant especially within scientific circles. Scientists were turning to humanism, not religion.	The Church lost all influence in medicine but the government was beginning to get more involved, less so in the thinking around causes of disease.	The government established the NHS in 1948 and this led to free access to care—people could access high tech diagnostic machinery.
Individuals	<p>Andreas Vesalius used anatomy to change understanding of the human body, identifying 300 of Galen's mistakes.</p> <p>Thomas Sydenham championed observation of a patient's specific symptoms moving on from treating humours.</p> <p>William Harvey discovered that the heart pumped blood around the body.</p>	<p>Louis Pasteur discovered Germ Theory. Understanding of what caused disease moved on from humours to germs.</p> <p>Robert Koch used germ theory to identify disease causing microbes, which would lead to vaccines and better treatments.</p>	Watson and Crick discovered the shape of DNA and took us closer to understanding how genetics could cause disease, as well as germs.
Science and technology	<p>The Royal Society made it possible for physicians and scientists to access and study each others' research. It was therefore, very important in the development of new medical ideas.</p> <p>A more powerful microscope was invented in 1683 that allowed for the observation of 'animalcules' This was important for discoveries to come.</p>	<p>This period was the second wave of the Scientific Revolution. Scientists shared their work and read each others' ideas. Germ Theory inspired a number of other important developments.</p> <p>The microscope was still the most important piece of technology as higher magnification made it possible to see microbes.</p>	<p>High-tech diagnostic machinery and equipment meant that understanding why someone might be ill became a lot easier. It has made the practice of medicine unrecognisable from earlier periods.</p> <p>A better understanding of DNA has helped scientists to recognise genetic disorders, which could in the future lead to treatment.</p>
Attitudes in society	In this period there was a fight between traditional attitudes and change. But for ordinary people tradition won out. New ideas were not yet accepted and traditional ideas were clung too, despite them seeming outdated and ineffective.	People were more determined to discover what caused illness and disease, they were horrified by the sights they saw on the street and the impact of bad health on the poor. However, people were reluctant to open their minds to new ideas which slowed the spread of germ theory.	In general, with the advent of WWI and WWI public attitudes about the rapid developments in diagnosing medicine were positive. People felt more informed and could make better choices or access more appropriate treatment. This means changes can have an immediate impact.
Extent of change	No real change in the practice of medicine but a better understanding of the human body emerged because of the practice of anatomy.	Important progress made that would effect future health.	Significant change is made in this period. However genetic medicine has not resulted in any new treatments.
Pace of change	Very gradual. It might seem that in the practice of medicine there was almost continuity with the medieval period but change was happening that would bear results in the future.	There was definitely progress from the 19th century but this did not start to have effects until the end of the century.	Rapid. Change continues today at an astounding rate, with new ideas and discoveries made all the time.

Have you mastered ideas about what caused disease? Make sure you can answer the questions below:	
1. How did the education of doctor's change with the decline in authority of the Church?	11. Why did spontaneous generation turn out to be incorrect?
2. which medieval invention allowed for new ideas to spread quickly across Europe?	12. Who published the idea of Germ Theory?
3. What was humanism?	13. How did Koch prove the usefulness of Germ Theory?
4. Why was Thomas Sydenham known as the English Hippocrates?	14. What technology enabled Koch to make his discovery?
5. What was the scientific journal published by the Royal Society?	15. Who identified the shape of DNA?
6. Who discovered 'animalcules'?	16. What did the Huma Genome Project identify?
7. What were two errors made by Galen as identified by Vesalius?	17. Why are the discoveries about DNA so important for the development of medicine?
8. How did Vesalius make his discoveries?	18. Can you identify three lifestyle factors that can cause disease?
9. What did William Harvey discover about the heart?	19. Can you identify three high-tech pieces of diagnostic equipment?
10. What did William Harvey discoveries correct Galen's ideas?	20. How have public attitudes shifted from c1500 to the present day?

Enquiry 3: Why did ideas about prevention and treatment change over time?



Treatment and prevention of disease: The pattern of change and continuity in treatment followed that of ideas about the causes of illness and disease. But treatments did not always immediately change after those discoveries. There is a similar time lag with prevention methods

This enquiry begins in the **Renaissance period**, c1500. The discoveries of Vesalius and Harvey did not equate to new treatments and prevention was avoiding miasma. In the **industrial period** from 1700, surgeries improved with the use of chloroform as an anaesthetic and carbolic acid as an antiseptic. Inoculation and government involvement in public health moved prevention methods forward as germ theory led to a better understanding. By the **modern period** chemical cures such as antibiotics and penicillin were used for illness and there were great improvement in surgery allowing for more complicated surgeries. High tech methods of treatment like radiation and chemotherapy were pioneered. The government founded the NHS to provide all of the public with free access to medical care. The government also became more involved in prevention by passing legislation and with lifestyle campaigns.

1. Treatments c1500-present day

Religious	Praying, pilgrimages, fasting, self-flagellation
Miasma	Herbs burnt and fires lit to ward-off bad smells Keeping your body clean (regimen sanitatis) and keeping the streets clean.
Humoral	Bloodletting - leeches, cupping & cutting the veins Purging – make the patient vomit or use a laxative to make them go to the toilet Remedies and bathing – herbal remedies, steam baths
Transference	The belief that you could transfer an illness from the patient to something else.
Physicians, apothecaries and barber surgeons	Improved training from 1500. Physicians attended university and were now learnt about anatomy through dissection. Surgeons completed basic operations and were cheap, it was now necessary to hold a licence. Apothecaries had an improved medical education and had to hold a licence.
Hospitals	Hospitals in 1500 were treating sick people and used less by travellers and pilgrims, they were now run by physicians. Pest Houses also appeared for those suffering with infectious diseases. In the 19th century Florence Nightingale introduced the Pavilion Style to hospital and improved the training of nurses. She also ensured hospitals became cleaner places.
Anaesthetics	James Simpson discovered chloroform could be used as an effective anaesthetic in 1847.
Antiseptics	Joseph Lister began using carbolic acid during surgeries to kill infections from 1865. Eventually all surgical instruments were steam cleaned before surgeries leading to aseptic surgery.
Magic bullets and penicillin	In the 20th century chemical cures were discovered to kill germs. The first magic bullet was Salvarsan 606. This work led to Fleming's discovery of Penicillin and its development into a useable treatment by Florey and Chain.
High-tech medical equipment	Radiotherapy and chemotherapy became common treatment in the modern period to treat and shrink tumours. Robotics led to better prosthetic limbs and computer controlled surgeries. Machines became smaller and cheaper impacting processes like dialysis.

2. Prevention of illness c1500-present day

Quarantine	During the Great Plague the government tried to quarantine the infected within their home
Inoculation and vaccination	Initially smallpox was treated by inoculation. Edward Jenner invented a vaccine for smallpox which led to its eradication. Louis Pasteur created vaccinations for different diseases. In the modern period, the government made vaccinations for preventable diseases compulsory.
Aseptic surgery	Surgical instruments were sterilised with steam, operating theatres were scrubbed spotless, rubber gloves and surgical gowns were introduced and surgeons used face masks.
Public Health	The government became more involved in preventing disease from the 19th century once it was understood what caused it. The government stepped in to improve living conditions through legislation.
Lifestyle campaigns	In the 20th century, lifestyle factors were identified as causing certain diseases and the government launched campaigns to persuade people to live healthier lives in order to prevent getting these diseases.

3. Case study: The Great Plague, 1665

Treatments included transference, herbal remedies and quack doctors.	Prevention methods included quarantining anyone who had the plague, large public meetings were banned, prayer and repentance, carrying a pomander, cleaning streets
Most people now recognised that the plague was spread from person to person.	The local government in London took a lot more action than in previous outbreaks.

4. Case study: Cholera and Public Health

Government policy	In the early 1800s believed in a 'laissez-faire' approach. Which meant they did not intervene in people's health. This changed during the 1800s to try and solve cholera epidemics
John Snow	In 1854 he proved that cholera was caused by dirty water (however he could not explain the science until Germ Theory was developed) Snow made his discovery by studying infections around the Broad Street water pump
Public Health Acts	1848 The first act encouraged clean water supplies 1875 The second act forced councils to provide clean water, sewage and monitor disease outbreaks

5. Case Study: Penicillin

Alexander Fleming	Researched infections in wounded soldiers during WW1 In 1928 he discovered that a mould (penicillin) could kill bacteria. He did not develop this into a usable medication
Florey and Chain	In 1939 these 2 men used Fleming's research to produce penicillin to successfully treat blood infections but they struggled to produce enough of medication
Factors that helped development	US government helped fund mass production of penicillin during WW2 By end of the war 2.3 million doses had been produced.

6. Case Study: Lung Cancer

Diagnosis	Lung cancer 2nd most common cancer in the UK Scans allow for early detection
Treatment	Lung transplants Radiotherapy and chemotherapy can limit growth of cancerous cells
Preventions	Raised awareness of symptoms Stop smoking adverts Laws on the sale of tobacco products

Enquiry 3 keywords:		
Anaesthetic A substance taken before surgery to prevent a patient feeling pain	Hypodermic needle Used to inject medicine directly into the bloodstream	Pest house A type of hospital for people suffering from plague or pox
Aseptic surgery Surgery where germs are prevented from getting into a wound in the first place	Inoculation Deliberately infecting yourself with a disease, in order to avoid a more severe case later	Pomander A large locket containing perfumed substances
Antibodies Proteins created by the immune system to fight a specific bacteria	Laissez-faire means 'leave be' and describes governments that do not get involved in the lives of the people they govern	Quack Doctor Somebody who did not have any medical qualifications
Antibiotics Any treatment that destroys or limits the growth of bacteria in the human body	Legislation A law that has been passed by the government	Radiation A type of energy that can damage the body's cells if a person is exposed to it too much.
Antiseptic surgery Using substances that kill germs to dress wounds after surgery or to kill them during	Magic bullet describe a chemical cure that would target and attack the disease causing microbes in the body, while leaving	Smallpox A disease causing fever, vomiting and blisters on the skin.
Campaign Organised activities for a specific purpose	Medical chemistry Using science to find chemical cures for diseases	Transference A belief that illness could be transferred from a person to an object
Contaminated When something is added to a clean substance making it dirty	NHS National Health Service	Tumour A lump made up of abnormal cells
Fasting Not taking any food or drink	Pavilion style A hospital designed with large windows for ventilation, easy clean surfaces, larger rooms and separate	Vaccination A weakened form of a disease put into a health person to give them immunity

What changed?

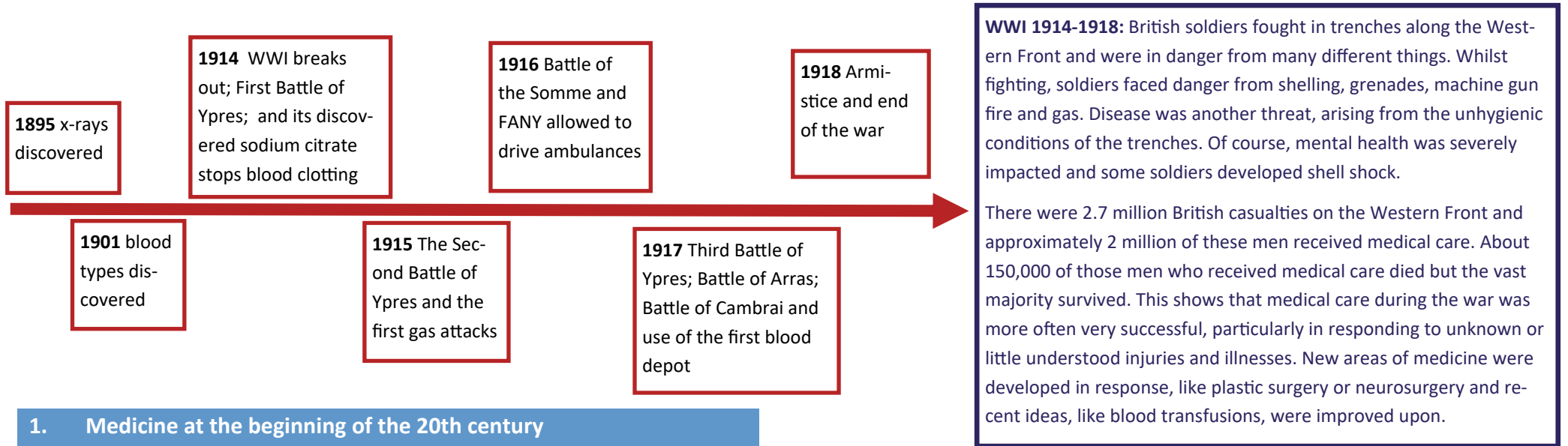
	The Renaissance Period c1500-c1700	The industrial period c1700-c1900	The modern period c1900-present day
Organisations	The government pioneered quarantine during the Great Plague and fined individuals who didn't clean the street outside their home.	The government changed its laissez-faire policy on public health and passed two Public Health Acts making cities cleaner and safer.	The government established the NHS in 1948. The government continued public health duties with lifestyle campaigns and compulsory vaccinations.
Individuals	Andreas Vesalius and William Harvey would impact how scientists and doctors looked at and understood the human body in the industrial period.	John Snow discovered the link between dirty water and cholera leading to changed in public health. Edward Jenner discovered vaccinations which led to infectious disease becoming preventable. Joseph Lister and James Simpson overcame two of the big three problems of surgery making it safer. Florence Nightingale made hospitals cleaner and safer and improved nursing.	Fleming discovered penicillin and Florey and Chain developed it into a useable treatment for infectious diseases.
Science and technology	Barometers and thermostats began to be used as people saw that understanding the weather might help to prevent illness. Scientific investigation focused on how the body worked rather than treatment.	Germ Theory led to scientists working to identify different microbes. It also led to improvements in surgical treatments because of anaesthetics and antiseptic surgery.	Scientists worked to develop new chemical medicines and to map the human genome with the Human Genome Project. Technology continued to exponentially improve leading to high-tech surgical and medical treatments.
Attitudes in society	There was more interest in science leading to a 'medical renaissance'. People still practiced	By the end of this period people believed that germs spread disease and were open to new types of treatments and pre-	With science and technology advancing every aspect of life, people continued to accept innovation in medicine.
Extent of change	Physicians continued to bleed and purge. Some new herbal remedies emerged from the New	Public health emerged as a key tool in preventing disease. Hospital care and treatment greatly improved.	Revolutionary changes to treatment and prevention means people live longer and have better quality of life.
Pace of change	Very gradual. Physician training improved but no new treatments or ideas about prevention	Quicker. Surgery was now safer and hospitals were cleaner and more effective by the end of this period.	Rapid. Change in modern medicine happens almost continuously.



Have you mastered ideas about how disease was treated and prevented? Make sure you can answer the questions below:

1. How did hospitals change from 1500?	15. What did pavilion plan hospitals look like?
2. what was the King's Touch?	16. What impact did Florence Nightingale have on the nursing profession?
3. How did training for physicians change in the Renaissance period?	17. How did the discovery of chloroform improve surgery in the 19th century?
4. What actions did the government take to prevent the spread of the Great Plague?	18. How did Joseph Lister's discovery change how surgery was practiced?
5. Why were government orders so hard to enforce?	19. Which of surgeries big 3 problems remained unresolved at the end of the 19th century?
6. How did people attempt to protect themselves from Smallpox?	20. Who did the NHS provide free care to that had previously been excluded?
7. Which groups opposed the vaccination and why?	21. Why did the NHS not have an immediate impact with its founding in 1948?
8. When was compulsory vaccination enforced?	22. How did the NHS change where sick people were treated?
9. Where did John Snow track the 1854 cholera outbreak to?	23. Can you list 3 compulsory vaccination programmes and when they were implemented?
10. How did scientists and government respond to Snow's findings in the short term?	24. Can you name 3 ways the government sought to prevent disease in the 20th century?
11. What approach did the government take to public health before the 19th century?	25. Who invented the first magic bullet and what was it called?
12. Can you list 3 things the government had to provide under the Public Health Act 1875?	26. How did antibiotics change the way infectious disease was treated?
13. How did Pasteur advance vaccinations in 1878?	27. How did Florey and Chain ensure penicillin was developed into a useable treatment?
14. Can you identify 3 issues with hospitals at the beginning of the industrial period?	28. Can you name at least 3 ways the government has sought to prevent lung cancer?

Enquiry: What impact did the Western Front have on medical developments?



1. Medicine at the beginning of the 20th century

X-rays	Invented by William Roentgen in 1895. These were large, fragile and slow and the health risks were not yet fully understood.
Aseptic surgery	The steam sterilisation of surgical instruments and all doctors and nurses washing hands, arms and faces as well as wearing masks and rubber gloves. The air was also sterilised in operating theatres to kill germs.
Blood transfusions	Blood transfusions were successful but blood could not yet be stored and blood clotted as soon as it left the body. Blood groups were discovered in 1901 which meant transfusions were less likely to fail because the donor's blood was rejected by the patient.

2. Trenches and key battles

Trenches	Dug to a depth of about 2.5 m and were easier to defend than attack. Made up of a frontline, support trench, the reserve trench and the communications trench. Protected by machine guns and barbed wire. The soldiers stood on a duckboard to avoid the mud, behind the parapet.
The First Battle of Ypres	The British blew up Hill-60 by tunnelling underneath it and reclaimed the high ground from the Germans. The British held onto control of the English Channel ports, so that supplies and reinforcements could reach them.
The Second Battle of Ypres	The Germans used chlorine gas on the Western Front, the first use of gas in the war.
Battle of the Somme	The first use of tanks in warfare, however there were many technical problems and they were not very successful. Huge number of British casualties, around 400,000.
Battle of Arras	The British dug tunnels, linking existing caves and quarries to act as shelters against German attacks. The tunnels contained a light railway system and a fully functioning hospital.
The Third Battle of Ypres	Rain caused the terrain to become waterlogged. Men fell in shell holes and drowned.
Battle of Cambrai	The first use of stored blood to treat wounded soldiers. The first large-scale use of tanks which were now able to move easily across the terrain and barbed wire.

3. Conditions requiring medical treatment

Wounds	High explosive shells and shrapnel were responsible for 58% of wounds. Bullets were responsible for 39% of wounds. Head wounds were very common on the Western Front and were mostly caused by shrapnel.
Wound infection	The soil on the Western Front contained all sorts of bacteria. From late 1914, tetanus injections were given but there was nothing to prevent gas gangrene.
Illness	Caused by lice, Trench fever produced flu like symptom which could last for months and kept reoccurring. Trench foot was caused by standing in waterlogged trenches. It could lead to gangrene and was treated with amputation
Mental health	Shell shock was thought to be caused by heavy exposure to constant bombardment, but it was little understood and sufferers were sometimes accused of cowardice.
Gas attacks	These were greatly feared but not a major cause of death.

4. New techniques in medical care

Carrel-Dakin method	Washing the wound out with a sterilised salt solution and using a system of tubes to keep the solution flowing through the wound to fight infection.
Thomas splint	Pulled the leg lengthways and kept it rigid, stopping the bones from grinding against one another and so greatly reduced blood loss
Storage of blood	Before the Battle of Cambrai in 1917, 22 units of type O donor blood was stored in glass bottles. During the battle, 20 Canadian soldiers were treated with the blood which was collected 26 days earlier, these men were not expected to survive, in fact 11 of the 20 wounded men did survive .
Mobile x-rays	There were six mobile x-ray units operating in the British sector of the Western Front. The x-ray machine was inside a van and linked to its engine.
Brain surgery	Harvey Cushing , an American neurosurgeon, developed new techniques on the Western Front. He used magnets to remove metal fragments from the brain. He also used a local anaesthetic when operating .The survival rate was 71% up from 50%.
Plastic surgery	Head injuries that did not kill, could cause severe disfigurement and this led the doctor Harold Gillies to become interested in facial reconstruction.. He devised new operations to deal with problems as he saw them .

5. Stages of treatment

RAMC	All medical officers were members of the Royal Army Medical Corps
FANY	Female volunteers, driving ambulances from 1916
RAP	Took care of the walking wounded, 200m from the frontline
Dressing Stations	Treated men too seriously injured for the RAP, 400 m from the frontline
CCS	Staffed by trained doctors and nurses, located further from frontline for protection from attack. Triaged the wounded and carried out life-saving operations.
Base Hospital	Based on the French and Belgian coast and accessed by rail. Had more resources, including laboratories and x-ray departments.

Enquiry 4 keywords:

Amputate To cut off a body part	Lice Small insects that lived on the body and in clothes, feeding on blood and creating itchy bites	Shrapnel Bits of metal from explosions
Blood transfusion Blood taken from a healthy person and given to someone who has lost a lot of blood	Neurosurgery surgery carried out on the nervous system, in particular the brain and spine	Splint Used to stop an injured limb moving
Disfigurement A wound that changes how a body looks	RAMC Royal Army Medical Corps, the branch of the army responsible for medical care. All medical officers belonged to the RAMC	The Ypres Salient An area of the battlefield that extends into enemy territory and is surrounded on three sides by the enemy
FANY First Aid Nursing Yeomanry	Shelling Firing large artillery shells through the air towards the enemy	Triage To split the wounded into groups according to who needed the most urgent care
Gangrene When body tissue is full of bacteria and starts to rot	Shock When the body starts to shut down from loss of blood	Universal Blood Group A blood group that can be used in a transfusion to a recipient with any other blood type.

Sources that can be used to follow up information from other sources:	
Type of source	What can be learnt from this source?
National Army records for individual soldiers	Dates of service; where soldiers fought; record of wounds; treatments and hospitals admitted to; discharge record, record of death.
National newspaper reports	Battles and number of injuries and deaths, etc; eye-witness reports; government statistics; propaganda recorded as fact (be careful but remember censorship relaxed during the war as well).
Government reports on aspects of the war	Statistics and details on spending on munitions, numbers of casualties, problems with transportation.
Medical journals/articles by doctors and nurses who took part in the war e.g. British Medical Journal	Journals are produced for medical practitioners and experts but provide insight into treatment of soldiers and new techniques developed—there were articles on head wounds and trench fever. Includes personal recollection of treatment on soldiers; details on chain of evacuation and treatment carried out at different stages; and new medical technology.
Personal accounts by doctors or other medical practitioners about conditions and treatments including diaries or personal letters	Detail thoughts, feelings and emotions as well as facts, highly personal. Only provide one person's point of view, often without broader context provided.
Photographs	An image of what was happening at one specific moment without any context or often, explanation. The photograph could be taken by an official government photographer, or someone working for a paper or it could be a personal photograph. Depending on who took it, the photograph could be staged and not necessarily typical.
Hospital/RAMC records	Date of admittance; record of injuries and care given; discharge notes; record of death; new techniques attempted.
Army statistics	Numbers fighting in each battle; number of casualties; number of deaths.

How to evaluate the utility of a source:	
Nature (provenance)	The form a source takes, such as a photograph, letter, official record or diary entry.
Origin (provenance)	The person who wrote or created the source, where and when they did it (normally found in the caption).
Purpose (provenance)	The reason a source was created, such as to inform, to persuade, or to entertain.
Provenance	The background details of the source (NOP as above).
Objectivity	How far does the perspective and purpose of the author of the source affect the view it gives on the enquiry?
Reliability	How far can the author of the source be trusted to tell us about the enquiry?
Typicality	How far does the nature of the source give us a representative view of the enquiry topic?
Authoritative	How far does the person who wrote this source have the knowledge, or experience, to tell us about the enquiry?
Limitations	What doesn't the source tell you? What information is missing? Is the information unreliable?
Utility/usefulness	The ways in which a historian could make use of this source for a particular enquiry.
Context	What do you know about the provenance and/or the content of the source from your own knowledge? How does this affect the strength of the source? Can you support or challenge the source based on what you know?
<p>Remember: It is unlikely you will be able to discuss all these elements in the exam, as you will run out of time. Read/look at the source thoroughly and decide what would be the most suitable aspects to evaluate. For example, if you have a lot of own knowledge, you may want to discuss the limitations of the source, its typicality and objectivity. If the source looks like it may be propaganda or in some way unreliable, look at the purpose and then evaluate the reliability and objectivity of the author and the content.</p>	

Have you mastered illness and injury on the Western Front? Make sure you can answer the questions below:	
1. Can you name 3 problems with the x-ray?	11. What caused trench foot?
2. How was rejection of donor blood overcome before the war?	12. Why was wound infection a major problem on the Western Front?
3. Which of the 3 major problems in surgery did aseptic surgery overcome?	13. How did x-ray units help prevent infection?
4. What were the main features of a trench?	14. Where and when was stored blood first used in blood transfusions?
5. What were the downsides to motorised ambulances?	15. Who developed new neurosurgical techniques during the war?
6. How did the conditions of the trenches and No Man's Land affect the work of stretcher bearers??	16. Who pioneered plastic surgery to treat facial disfigurement?
7. What weapon was first used by the Germans at the Second Battle of Ypres?	17. What was the order of the chain of evacuation?
8. What was the reserve trench used for?	18. Where did men who needed immediate surgical care go to be treated?
9. How was trench fever prevented?	19. How many men could a Dressing Station treat at a time?
10. Why were soldiers given tetanus injections?	20. What was the main purpose of the FANY?

CHRISTIAN BELIEFS



1. NATURE OF GOD

Belief	Meaning	Teaching
Omni-benevolent	All-loving	God sent Jesus to die on the cross for us
Omniscient	All-knowing	<i>"Even the very hairs on your head are numbered."</i>
Omnipotent	All-powerful	God created world <i>'ex nihilo'</i> (from nothing)
The Trinity	Father, son and Holy Spirit	<i>"If you have seen me, you have seen the Father"</i>
THE PROBLEM OF EVIL		
Epicurus	"If God is omnipotent and omnibenevolent, why does evil and suffering exist?"	
CHRISTIAN RESPONSES		
Original Sin	Ate from the Tree of Knowledge of Good and Evil. Caused sin to enter into the world. Evil= human fault.	
Story of Job	Life is a test. God allowed Satan to test Job by killing his cattle etc, Job stayed faithful.	

2. SOURCES OF WISDOM

Source	Facts	Important for...
Bible	66 books revealing God's nature to humans Split into Old & New Testaments	All Christians
Conscience	They believe it is the <i>"small, still voice of God"</i>	Quakers
Jesus' Life (Bible)	Taught agape love towards others Lived the perfect human life	All Christians
Magisterium	The official teachings of Catholic Church (e.g. Pope, Aquinas) Papal infallibility =Pope never wrong on moral issues	Catholics only

3. CREATION

GENESIS 1		
Ex Nihilo	Out of nothing	'God said <i>"Let there be light"</i>
Creation	6 days of creation	<i>'and on the 7th day, God rested.'</i>
Imago Dei	Image of God	<i>"he created them in His image."</i>
GENESIS 2		
Adam is created	Made from dust, given a soul (<i>"breath of life"</i>)	
Eve is created	Made from Adam's rib, made as a 'helper' for Adam	
GENESIS 3		
Original Sin	Adam and Eve eat from the Tree of Knowledge of Good and Evil. Caused original sin to pass down into the world.	
ROLE AND NATURE OF HUMANS OF HUMANS		
Nature	<ul style="list-style-type: none"> Nature of humans = made in the image of God (Imago Dei) Sinful by nature- original sin. 	
Role	<i>To procreate & rule over nature ("fill the earth and subdue it")</i>	
Trinity	<ul style="list-style-type: none"> Father= The Creator, overseer of all creation and humans 'The Word'= Jesus, "In the beginning was the Word" Spirit= Holy Spirit e.g. "breath of life" 	

4. INTERPRETATIONS OF CREATION

MODERN PROGRESSIVE		
Belief	Meaning	Teaching
Genesis = ancient creation story (myth)	God did not make the universe in exactly 7 days.	<i>"yom"</i> = Hebrew word for 'period of time.'
Evolution	God started evolution 4.5 billion years ago and guides it.	Theistic-Guided Evolution
The Big Bang	God caused the Big Bang.	<i>Ex nihilo</i> (God made the world from nothing)
FUNDAMENTALIST		
Creationism	The Genesis story is 100% accurate.	<i>'Scripture is God-breathed'</i> (word for word true)
Young Earth	The world is 10,000 years old.	Biblical family tree traced back to Adam is approx. 10,000 years
No Evolution	Reject the idea of evolution as a myth or a lie.	Genesis happens over 6 actual days.

5. LIFE OF JESUS

ISAIAH'S PROPHECIES			
Isaiah	<ul style="list-style-type: none"> Old Testament prophet. Made predictions about the 'messiah'. 		
<i>"will be born of a virgin"</i>	Jesus born to Mary who was a virgin		
<i>"He will be pierced for our transgressions"</i>	Roman soldiers pierced Jesus' side with a spear to check he had died/prove he was human.		
LIFE OF JESUS			
Belief	Meaning	Key Facts	Teaching
Incarnation	God in human form	<ul style="list-style-type: none"> Gabriel told Mary she would have a baby Born in a stable 	<i>"If you have seen me, you have seen the Father"</i>
Crucifixion	Jesus' death on a cross	<ul style="list-style-type: none"> Carried his own cross Crown of thorns Pierced with spear by Romans Died to forgive human sins 	<i>"Forgive them Father for they know not what they do"</i>
Resurrection	When Jesus rose from the dead	<ul style="list-style-type: none"> Rose 3 days after death Empty tomb found by two women Appeared to many people 	<i>"He appeared to more than 500 brothers and sisters"</i>
Ascension	When Jesus taken back up to Heaven	<ul style="list-style-type: none"> Went back to Heaven 40 days after resurrection Ascended from hill <u>in Bethany</u> 	<i>"I will be with you always"</i>
TRINITY IN CREATION			
Trinity present at creation	<ul style="list-style-type: none"> Father= God who spoke the words of creation Holy Spirit= Shown by 'breath' of life into Adam Jesus (word)= <i>"In the beginning was the word"</i> 		

6. SALVATION

Sin	Humans and the world are tainted with Original Sin.	
Salvation	Humans and world need saving from this evil.	
Denomination	How to get saved	Teaching
Catholic	Follow sacraments	Jesus set the perfect example (e.g. baptised in River Jordan)
Quaker	Help others (as Jesus did)	Parable of the sheep and the goats
Protestant (Church of England)	Believe in Jesus (faith)	<i>"Whoever believes in me shall never die"</i>
GRACE AND HOLY SPIRIT		
Grace	The Holy Spirit carries God's grace (mercy) and helps people get saved.	

7. ESCHATOLOGY (AFTERLIFE)

Bodily resurrection	We will be raised with immortal bodies	<i>"The body is sown perishable and raised imperishable"</i>
Jesus as the Judge	Jesus will save those who have helped others.	Parable of Sheep and Goats (<i>"When I was hungry you fed me"</i>)
	Traditional View: Physical	Contemporary view: Spiritual
Heaven	<ul style="list-style-type: none"> Rapture- Christians believe physically ascend to Heaven (as Jesus did) God created the "Heavens and the Earth" God's dwelling, angels, a new "tree of life." 	<ul style="list-style-type: none"> <i>"Heaven is within you"</i> A feeling of closeness to God and comfort Universalism- All souls will eventually experience Heaven.
Hell	<ul style="list-style-type: none"> An eternal place of torture- darkness and fire. <i>"Weeping and gnashing of teeth"</i> 	<ul style="list-style-type: none"> Sinners will simply not be resurrected. <i>"Sinners will not reach eternal life"</i>

KEY WORDS

Atonement	The belief that Jesus' death and resurrection healed the rift between God and Humanity	Resurrection	Rising from the dead e.g. Jesus rose three days after dying on the cross	Evangelism	Sharing faith with the intention of converting others
Sacrament	An action that gives an inner blessing from God	Incarnation	God in human form e.g. Jesus is the incarnation	Eschatology	Life after death

- A01 Develop** Develop ideas through investigations, demonstrating critical understanding of sources.
- A02 Refine** Refine work by exploring ideas, selecting & experimenting with appropriate media, materials, techniques & processes.
- A03 Record** Record ideas, observations & insights relevant to intentions as work progresses.
- A04 Present** Present personal & meaningful responses that realise intentions & demonstrate understanding of visual language.



Key Artists/Designers

Karl Blossfeldt



Ernst Haeckel



Barbara Hepworth



Angie Lewin



Key Words

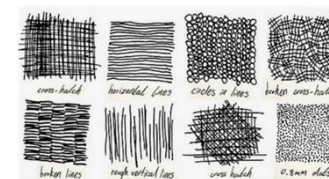
Pattern, contrast, nature, texture, form, imprint, negative, positive, space, shape, tactile, casting, carving, pressing, impression, surface, line.

Key Materials + Processes

Aluminium + Copper



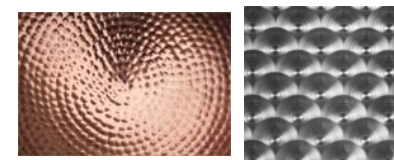
Mark making



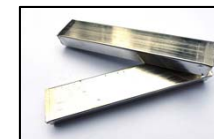
Working with air dry clay



Working with sheet metals



Pewter



Casting



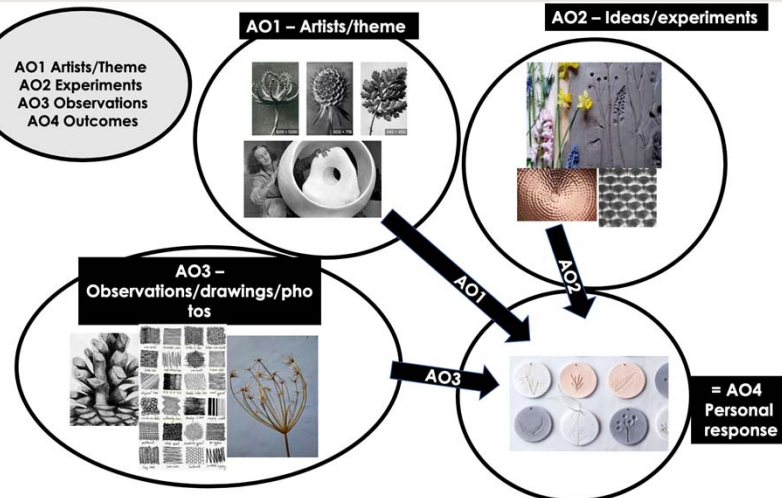
Kiln fired Clay



Soap/Plaster



Carving



Henry Moore



Analysing and Evaluating your work and work of others.

Year 10/11 GCSE 3D Design Unit 1 Portfolio – Line, shape + Colour KO

- A01 Develop** Develop ideas through investigations, demonstrating critical understanding of sources.
- A02 Refine** Refine work by exploring ideas, selecting & experimenting with appropriate media, materials, techniques & processes.
- A03 Record** Record ideas, observations & insights relevant to intentions as work progresses.
- A04 Present** Present personal & meaningful responses that realise intentions & demonstrate understanding of visual language.



Key Designers and styles

Camilla Walala Design and architecture

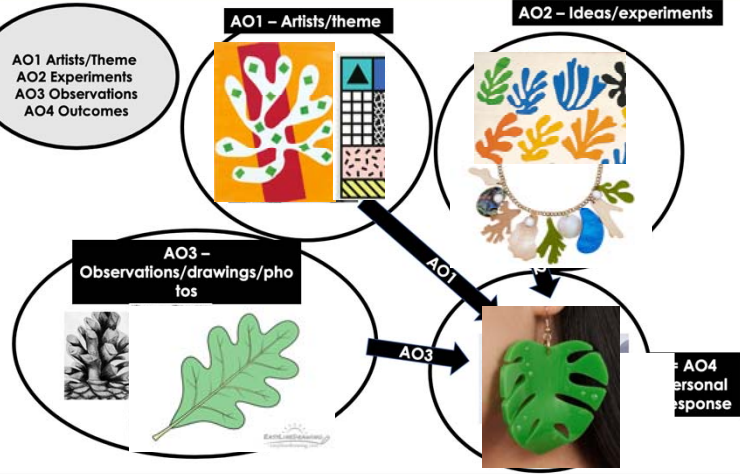


Tatty Devine Jewellery



Key Words

LINE – a basic element of design in which any two points are connected	
SHAPE - is when a two dimensional line encloses an area.	
COLOUR - can be used as background, or highlight other elements in your design. Colour is also a great tool for creating mood or association	



Henry Matisse paper cuts

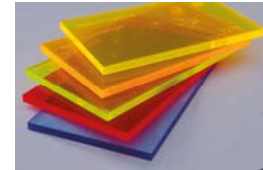


Key Materials + Processes

Coloured Paper



Acrylic



Craft Knife



Cutting Mat



Enamelled Copper



CAD/CAM + Laser cutting

Analysing and Evaluating your work and work of others.



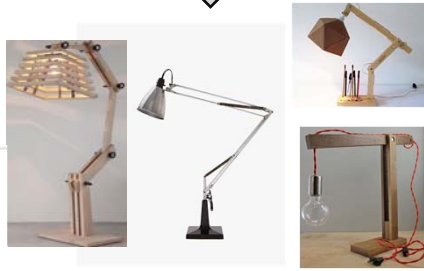
- A01 Develop** ARTISTS
Develop ideas through investigations, demonstrating critical understanding of sources.
- A02 Refine** EXPERIMENTS
Refine work by exploring ideas, selecting & experimenting with appropriate media, materials, techniques & processes.
- A03 Record** OBSERVATIONS
Record ideas, observations & insights relevant to intentions as work progresses.
- A04 Present** OUTCOMES
Present personal & meaningful responses that realise intentions & demonstrate understanding of visual language.



Key Designers and styles

The Anglepoise Lamp

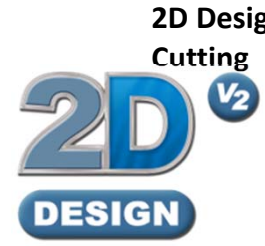
The Anglepoise lamp is a balanced arm lamp designed in 1932 by British designer George Carwardine.



Key Words

Contrast, negative, positive, space, movement, angle, joining, slot, function, articulate, layers, light, dark, tones, form, shape, collage, reflection, direction.

Key Materials + Processes



2D Design + Laser Cutting

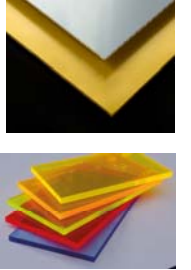
Hardwood/Softwood



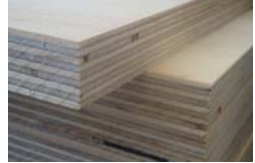
Coloured Paper



Thermoplastics



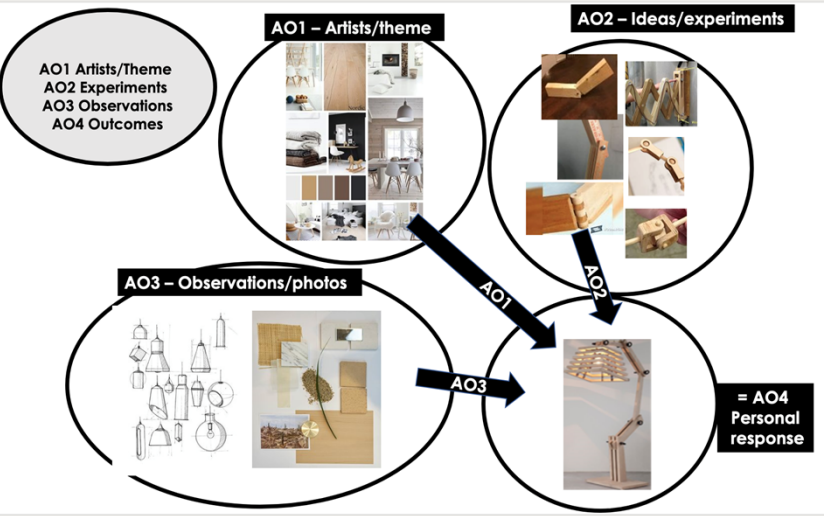
Plywood



Scandinavian design



Rob Ryan paper cuts



Paper lanterns



Analysing and Evaluating your work and work of others.



Year 11 only GCSE 3D Design Unit 2 Externally Set Assignment KO

A01 Develop	Develop ideas through investigations, demonstrating critical understanding of sources.	ARTISTS
A02 Refine	Refine work by exploring ideas, selecting & experimenting with appropriate media, materials, techniques & processes.	EXPERIMENTS
A03 Record	Record ideas, observations & insights relevant to intentions as work progresses.	OBSERVATIONS
A04 Present	Present personal & meaningful responses that realise intentions & demonstrate understanding of visual language.	OUTCOMES



EXAM PROJECT
 Independent preparatory period on the exam board set theme followed by 10 hours of supervised time.
 All assessed against AO1, AO2, AO3 + AO4
 • 96 marks
 • 40% of GCSE



Analysing and Evaluating your work and work of others.

<https://www.aqa.org.uk/>

AO1 ARTISTS & CONTEXT

DEVELOP Develop ideas through investigations, demonstrating critical understanding of sources.

Aims
 The aim of **Sheet AO1** is to explain to the examiners the theme and the area you have chosen, why you have chosen it and to show what artists you are going to use as an influence for your work.
 You will be expected to show your thinking and thought process through a **mind map** and **statement of intent**. It is also very important that you show exactly what artists are being used as an influence and that you clearly understand their techniques, styles and working methods. This will be done through copies, samples of their style and notes.

Tasks

- Title – Hand drawn or typed
- ‘Mind map’ as many ideas as possible
- Statement of Intent – clearly explain what you are going to do and how you intend to do it.
- Choose two artists related to your project and find examples of their work
- Stick on 2 or 3 examples of their work and make 2 or 3 copies/samples of ‘sections’ of their work or style in colour
- Evaluate - refer mainly to the style and how you intend to use ideas from this work to help you.

Checklist

- Printed images of artists’ work
- Your own reproductions of sections of the artists’ work
- Notes on the artists’ style, techniques, and influences
- Sample work of your own in their style

Example

AO2 EXPERIMENTATION

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

Aims
 The aim of **Sheet 2** is to your **experiment** with ideas and techniques for your final piece. You should be developing key ideas that you have researched in Sheet AO1 (artists and context) and Sheet AO3 (recording observations and primary research on your theme/ideas). Your ideas **MUST** clearly link together.
 You will be expected to **experiment** with a range of **different techniques, materials and processes** and include both 2D and 3D ways of working. You should include a variety of experimentation **samples and models** if appropriate working towards a 3D outcome.
 Your work should show that you can make successful decisions about what is going to be included in your final piece of work.

Tasks

- Use clay, wood, man-made board, sculpture, collage, drawings (ink, charcoal, pastels, chalk etc), metalworking techniques, plastics, model making, mixed media or any other ideas that show a development from your previous work.
- Produce 3-4 high quality experimental pieces/samples linked to your chosen artist using a variety of material & processes.
- Evaluation- Comment on your processes and explain how your ideas are developing connecting your experiment to the theme and artists.

Checklist

- Evidence of a variety of processes via photograph and physical samples
- Close ups
- Mark making
- Notes on your processes
- Keywords linking your theme to images and ideas

Example

AO3 OBSERVATION

RECORD Record ideas, observations & insights relevant to intentions as work progresses.

Aims
 The aim of **Sheet AO3** is to start considering the subject matter that you intend to include in your own final piece of work. This must be directly linked to what your artist has done in **Sheet AO1**.
 You will need to collect as much **visual research** as is possible and you will be expected to show that you can research visual ideas from both **primary** and **secondary** sources. In addition, you will need to show that you can ‘draw’ and ‘observe’ to a high standard.

Tasks

- Collect as many photographs, images etc... as possible. These must be related to your ideas and what you intend to do. These MUST include your own photos, but can include magazine cuttings or images from the internet.
- Produce 3-4 detailed, high quality drawings/sculptures in different materials, try zooming in to investigate close up sections of pattern/texture.
- Use clay, soft sculpture, collage, drawings (ink, charcoal, pastels, chalk etc) polypropylene, matchsticks, casting, mixed media.
- Evaluation- Explaining your ideas, and what you observed.

Checklist

- Photographs
- Sketches
- Close ups
- Mark making
- Notes on what you observed
- Colour swatches
- Keywords linking your theme to images and ideas

Example

AO4 OUTCOMES

PRESENT Present personal & meaningful responses that realise intentions & demonstrate understanding of visual language.

Aims
 The aim of **Sheet AO4** is to finalise all your ideas and come up with a clear plan for your final piece of work. Examiners will want to see 2 or 3 **proposed plans** and then a **development of your final, chosen design**. You can use models, sketches & CAD to communicate the plan for your final piece and make sure it is CLEAR how all your ideas now link. **Sheet AO1, AO2 and AO3 are now used to link together to create your design.** You will also need to **explain** your ideas and add a **final evaluation**.

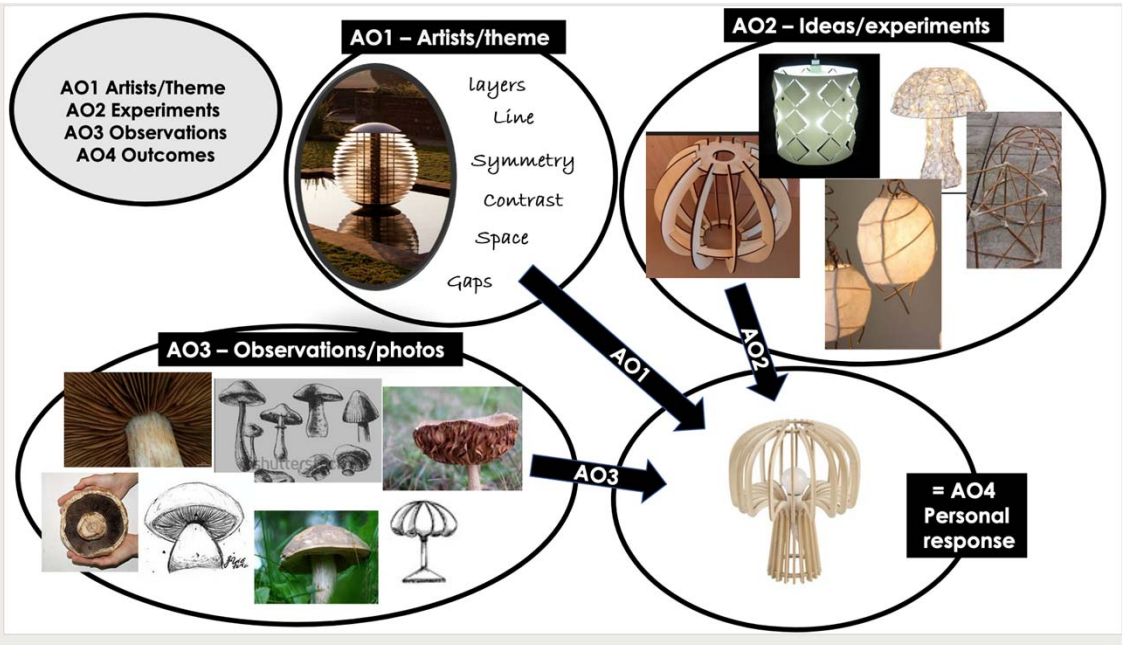
Tasks

- From all your research, produce 3 possible versions of your final proposal.
- Annotate each idea explaining the key features and/or form problems.
- Choose the **most successful idea** and develop a clear plan and show **improvement** on the original idea.
- Add any more experiments if you feel they will solve any problems.
- Add a **final evaluation** once the whole project is complete.

Checklist

- Photographs
- Sketches
- 3 versions of your final design
- Notes explaining your ideas.
- Notes on key features, possible problems and improvements to designs
- LINK all your research, observations & ideas HERE

Example



AO1 Artists/Theme
 AO2 Experiments
 AO3 Observations
 AO4 Outcomes

AO1

ARTISTS & CONTEXT

DEVELOP Develop ideas through investigations, demonstrating critical understanding of sources.

Aims

The aim of **Sheet AO1** is to explain to the examiners the theme and the area you have chosen, why you have chosen it and to show what artists you are going to use as an influence for your work.

You will be expected to show your thinking and thought process through a **mind map** and **statement of intent**. It is also very important that you show exactly what artists are being used as an influence and that you clearly understand their techniques, styles and working methods. This will be done through copies, samples of their style and notes.

Tasks

- **Title** – Hand drawn or typed
- **'Mind map'** as many ideas as possible
- **Statement of Intent** – clearly explain what you are going to do and how you intend to do it.
- Choose **two artists** related to your project and find examples of their work
- Stick on **2 or 3 examples** of their work and **make 2 or 3 copies/samples** of 'sections' of their work or style in colour
- **Evaluate** - refer mainly to the style and how you intend to use ideas from this work to help you.

Checklist

- Printed images of artists' work
- Your own reproductions of sections of the artists' work
- Notes on the artists' style, techniques, and influences
- Sample work of your own in their style

Example



Keywords

AO1:

researched
selected
chose
reviewed
compared
contrasted
a range of
decided
responded
appreciated
imagined
wondered
considered

AO2:

experimented
played with
explored
developed skills in...
formal elements
refined
revised
thought
selected
modelled
processes
techniques

AO2

EXPERIMENTATION

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

Aims

The aim of **Sheet 2** is to your **experiment** with ideas and techniques for your final piece. You should be developing key ideas that you have researched in Sheet AO1 (artists and context) and Sheet AO3 **recording** observations and primary research on your theme/ **ideas**. Your ideas **MUST** clearly link together.

You will be expected to **experiment** with a range of **different techniques, materials and processes** and include both 2D and 3D ways of working. You should include a variety of experimentation **samples and models** if appropriate working towards a 3D outcome.

Your work should show that you can make successful decisions about what is going to be included in your final piece of work.

Tasks

- Use clay, wood, man-made board, sculpture, collage, drawings (ink, charcoal, pastels, chalk etc), metalworking techniques, plastics, model **making**, mixed media or any other ideas that show a development from your previous work.
- **Produce 3-4 high quality experimental pieces/samples linked to your chosen artist using a variety of material & processes.**
- **Evaluation**– Comment on your processes and explain how your ideas are developing connecting your experiment to the theme and artists.

Checklist

- Evidence of a variety of processes via photograph and physical samples
- Close ups
- Mark making
- Notes on your processes
- Keywords linking your theme to images and ideas

Example



Scan here for more advice on AO1



<https://www.aqa.org.uk/>

Scan here for more advice on AO2



[Oak Academy LINKING TO A THEME](#)

AO3

OBSERVATION

RECORD Record ideas, observations & insights relevant to intentions as work progresses.

Aims

The aim of **Sheet AO3** is to start considering the subject matter that you intend to include in your own final piece of work. This must be directly linked to what your artist has done in **Sheet AO1**

You will need to collect as much **visual research** as is possible and you will be expected to show that you can research visual ideas from both **primary** and **secondary** sources. In addition, you will need to show that you can **'draw'** and **'observe'** to a high standard.

Tasks

- Collect as many photographs, images etc...as possible. These must be related to your ideas and what you intend to do. These MUST include your own photos, but can include magazine cuttings or images from the internet.
- Produce 3-4 detailed, high quality drawings/sculptures in different materials, try zooming in to investigate close up sections of pattern/texture.
- Use clay, soft sculpture, collage, drawings (ink, charcoal, pastels, chalk etc) **polypropylene**, matchsticks, casting, mixed media.
- **Evaluation** - Explaining your ideas, and what you observed.

Checklist

Example

- Photographs
- Sketches
- Close ups
- Mark making
- Notes on what you observed
- Colour swatches
- Keywords linking your theme to images and ideas



Scan here for more advice on AO3



<https://www.aqa.org.uk/>

Keywords

AO3:

noticed
focused
wrote
explained
made connections with
saw
Recorded
observed
watched
drew
sketched
modelled
photographed

AO4:

presented
mounted
displayed
resolved
personal
meaningful
reflected
reviewed
audience
viewed
understanding
represented
outcomes

AO4

OUTCOMES

PRESENT Present personal & meaningful responses that realise intentions & demonstrate understanding of visual language.

Aims

The aim of **Sheet AO4** is to finalise all your ideas and come up with a clear plan for your final piece of work. Examiners will want to see 2 or 3 **proposed plans** and then a **development of your final, chosen design**. You can use models, sketches & CAD to communicate the plan for your final piece and make sure it is CLEAR how all your ideas now link. **Sheet AO1, AO2 and AO3 are now used to link together to create your design.** You will also need to **explain** your ideas and add a **final evaluation**.

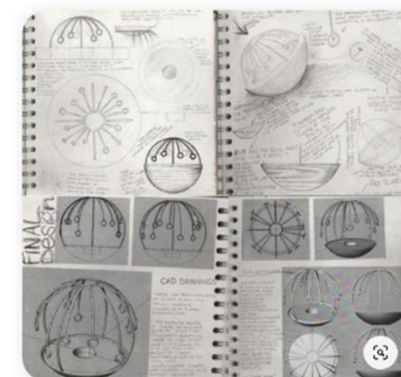
Tasks

- From all your research, **produce 3 possible versions of your final proposal**.
- **Annotate** each idea explaining the key features and/or problems.
- Choose the **most successful idea** and develop a clear plan and **show improvement** on the original idea.
- Add any more experiments if you feel they will solve any problems.
- Add a **final evaluation** once the whole project is complete.

Checklist

- Photographs
- Sketches
- 3 versions of your final design
- Notes explaining your ideas.
- Notes on key features, possible problems and improvements to designs
- LINK all your research, observations & ideas HERE

Example



Scan here for more advice on AO4



[Oak Academy ANNOTATION](#)

Year 10/11 GCSE 3D Design Assessment Objectives A01 + A02 + A03 +A04

Key words & phrases

Here are some words and phrases to help you evaluate your work.

Evaluation is simply the process of explaining:
1..your **research** about other artists' work and the **ideas** you have had

2..your **experiments** and the way you have **refined** them

3.the **decisions** you made along the way and how you have **recorded** your learning

4..**what you made**, how you chose to **display** it and **what it means**

Explaining is more interesting than just describing. It involves giving clear reasons for your creative decisions and really thinking hard about what you have done and why!

A01: **Develop**

researched
selected
chose
reviewed
compared
contrasted
a range of
a variety of
decided
responded
appreciated
imagined
wondered
considered

E.g.
I began this project by researching a variety of artists and artists and designers whose work expressed the theme of X.

I particularly responded to the work of X. His/Her images are imaginative and skilful and I was keen to explore how to...

The individual product/artwork that had the most effect on my own work was X. This is because...

A02: **Refine**

experimented
played with
explored
used Computer aided design to...
developed skills in...
formal elements
refined
revised
thought
selected
modelled
processes
techniques

E.g.
I have explored a range of media, processes and techniques in this project including...

I selected the technique of X because...

Throughout this project my work developed in a number of ways. For example...

I have learned a number of new skills. These include...

A03: **Record**

noticed
focused
wrote
explained
made connections with
saw
Recorded
observed
watched
drew
sketched
modelled
photographed

E.g.
I have used close up photographs to explore...

I have written keywords that link my artist.....and the theme by

I have recorded a variety of shapes and patterns relevant to my theme including

My sketches have developed to show.....

I have found that the best way to communicate my observations/ideas was.....

A04: **Present**

presented
mounted
displayed
resolved
personal
meaningful
satisfied/pleased with
reflected
reviewed
audience
viewed
understanding
represented
outcomes

E.g.
I am pleased with my final outcomes because they represent how I feel about the theme of X.

I have chosen to display them in a particular way because...

If I had more time I would like to explore the theme of X in even more detail by...

My work is personal because...



Remember full sentences

Year 10/11 GCSE 3D Design Assessment Objectives AO1 + AO2 + AO3 +AO4

This set of questions are specifically set of questions under each of the Assessment Objectives to help you reflect on your work at every stage. Use them as starting points for comments throughout your sketch book and to help structure longer pieces of written work about your starting points, thoughts and ideas, progress and final pieces.

AO1:

Develop ideas through investigations, demonstrating critical understanding of sources.

- What theme did you explore? What were your first thoughts about the theme? How did your ideas and feelings change about it as you developed your work?
- Which artists/designers have you researched during this project? How did you discover them? What have you learned from studying their work?
- Are there any 'big ideas' that have you tackled?

AO2:

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

- Describe the experiments you have carried out with different media, materials, techniques and processes and explain the decisions you made about how to refine and develop your work.
- How did you develop your investigation? How has it become more sophisticated over time? What changed along the way?
- What have you found most challenging about working like an artist/designer? How did you change along the way?

AO3:

Record ideas, observations & insights relevant to intentions as work progresses.

- What other inspiration did you find, (photos, objects etc). Was there a particular part of the theme 'Light and Dark' that you focused on in your drawings and observations.
- How did your drawing style develop over the project? What were the best ways of communicating your ideas to begin with and as they developed?
- How have your observations created a link between your artists and experiments?

AO4:

Present personal & meaningful responses that realise intentions & demonstrate understanding of visual language.

- Describe your final outcome(s) for this Personal Project in some detail. How have you chosen to present your ideas?
- What were you hoping to create? Did it work?
- Do you think you have successfully explored the theme?
- If you had more time, what else would you have liked to try?
- What is personal about your work?
- What do you hope viewers will understand from looking at it?

Year 10 Food Preparation & Nutrition: Food, Nutrition & Health Topic: Nutritional needs and health

Food Preparation & Nutrition GCSE KS4 Year 10

KEYWORDS

Provenance
How commodity is grown/reared and processed
Classification
Nutritional values (include sources, functions, deficiencies, excess, daily requirements)
Dietary considerations
Food science
NEA Assessment 1 practise investigation
Food hygiene and safety, Storage

RECIPES

Cauliflower and broccoli cheese
Vegetable and halloumi kebabs with pesto dressing
Vegetable slaw/Potato salad (include making mayonnaise)
Vegetable curry and rice
Vegetable samosas
Fish and potato cakes
Vegetable (and chicken) fajitas
Apple and blackberry pie
Gelatine set, fruit topped cheesecake
Lemon drizzle cake



Core knowledge
Principles of Nutrition
Diet and Good Health
The Science of Cooking
Food Spoilage
Food Provenance and Food Waste
Cultures and Cuisines
Technological Developments
Factors affecting Food Choice



1. Commodity: Fruit and vegetables, including potatoes (fresh, frozen, dried, canned and juiced)
2. Food provenance, and how this commodity is grown Classification of fruits and vegetables
3. Commodity is grown, and also include processing Include storage and food hygiene and safety.
4. Nutritional values (include sources, functions, deficiencies, excess, daily requirements) Dietary considerations
5. Enzymic browning and oxidation (carry out a simple browning experiment) and introduce the concept of NEA Assessment 1 (practical and written expectations)
6. NEA Assessment 1 focus and practise
7. General nutrition and diet theory, and a linked practical Understanding of dietary reference values (EAR/RNI/LRNI/Safe Intake) BNF document Plan a dish suitable for one group listed above under Dietary considerations (e.g. high-fibre for person with iron deficiency anaemia, high in calcium for person with brittle bones)

Further Reading

<http://www.foodafactoflife.org.uk>

EduQuas FP&N revision illuminate publishing

Year 11 Food Preparation & Nutrition: Food, Nutrition & Health Topic: Nutritional needs and health

Food Preparation & Nutrition GCSE KS4 Year 11

Core knowledge
Principles of Nutrition
Diet and Good Health
The Science of Cooking
Food Spoilage
Food Provenance and Food Waste
Cultures and Cuisines
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KEYWORDS

Provenance
How commodity is grown/reared and processed
Classification
Nutritional values (include sources, functions, deficiencies, excess, daily requirements)
Dietary considerations
Food science
NEA Assessment 1 investigation.
NEA 2 practical exam.
Written component 50%.
1 hour 45mins written exam.
Food hygiene and safety, Storage



RECIPES

Cooking is determined by task given and decided by each student individually to trial recipes for final cook.

September

NEA 1 Food science investigation.
15% final exam

Completed 5 page A4 document and investigation by October half term.

November – 35% towards final exam.

NEA 2 Food Practical, research and work towards up to 20 page A4 document.

Actual practical exam end of February.

Write up evaluation of practical exam.

Completed for hand in, end of March.

Revision and theory lessons March through to June for final written exam. 50% final exam.

Music Year 10

Composition - the basic process

Section A

- **Come up with your idea** - usually a few chords. Ones that you like.
- **Put them in order using a short number of bars** - usually four (it could be more if you wish, or with more or less than 4 beats in a bar).

You can have one chord per bar, or more.

- **Decide on a tempo for your idea.**

Then

decide on a rhythm : to what kind of rhythm will the chords be played. Swung? Block chords? Broken quaver rhythm? Syncopated (off beat)? Fast pulsing chords?

- **Come up with a melody** - this will use the notes from the scale you are in. You could use the chord sheet for help

You can do this by creating a simple note pattern 4 or 8 beats long to begin with, in time with your chord sequence or a metronome

◆ Then try to add another pattern - maybe alter the original pattern by playing it higher or adding a few extra notes

- **Create other parts around your idea such as a bass line** - uses the first note of the chord. Played low!

Or a drum rhythm. You can work out your drum part by trying it on keyboard with a drum kit sound; using percussion such as a djembe or cajon; using body percussion; or even having a go on a drum kit and showing what you have come up with, to a drummer.

This part needs patience!

That's your first section done! You now have one idea. Let's call this your A section

Section B

- Create another idea!

The A section will usually become a VERSE while B might be a CHORUS. You need to create another section which will be your B section.

It can be slightly different to your previous section but must be related, as if it belongs to the same song or piece.

- **Structure.** Now that you have two ideas which can be called your sections you now need to put them into an order. On Soundtrap this will mean copying and pasting your sections.

Copy around 4 of your first ideas, and then 4 of your second. You can then cut certain parts out to form an intro.

For example, cut the bass for section A and drums leaving you with a piano for the intro.

Then cut the bass from the next repeat that you have copied and pasted, leaving you with piano and bass playing.

A good composition will almost always have...

- a catchy melody
- a catchy phrase or idea at its core. Could be a guitar riff, a piano chord sequence, a vocal hook, melody, a rhythmic pattern etc
- chords
- a clear structure
- variety
- repetition - but just the right amount! Too much and it's boring; too little and there's nothing for the listener to 'hook' onto
- effective use of several musical elements. Sometimes subtle use, e.g. slight increase in texture; sometimes obvious use, e.g. loud accent or an 'orchestral stab'.

Development of ideas

Adjust your chords. Replace chords OR add more complex chords OR use broken chords OR sustained chords.

Think about your instrumentation? What instrument will have the melody?

What kind of drums will you use - percussion or a full drum kit?

'Boost' your piece with small touches such as dynamics, adjustments in texture, variations in melody, harmonies, silences or pauses, hooks, or fills etc

Key Words:

Composition Knowledge Organiser

Texture: The layers of sound, how sparse or dense the music is.

Timbre: The unique sound quality of an instrument or sound.

Tonality: The overall sound of the music (pleasant, unpleasant, dissonant)

Rhythm: How Long or short a sound is

Dynamics: How Loud or soft a sound is

Form: The order or arrangement of the parts of music

Harmony: The instruments that support the melody with chords

Melody: A series of pitches that make a tune.

Key: A selection of notes and chords that all work well with each other.

Root Note: Tonal center of the chord, often the lower most note of the chord.

MAKING YOUR OWN CHORD PROGRESSIONS? TRY USING THE ...

TABLE OF USUAL ROOT PROGRESSIONS

Starting Chord	Usually followed by...	Sometimes followed by...	Rarely followed by...
I	IV or V	vi	ii or iii
ii	V	IV or vi	I or iii
iii	vi	IV	I, ii, or V
IV	V	I or ii	iii or vi
V	I	IV or vi	ii or iii
vi	ii or V	iii or IV	I
vii°	I or iii	vi	ii, IV, or V

Key of C Chords and numerals

I	ii	iii	IV	V	vi	vii°
Major	Minor	Minor	Major	Major	Minor	Diminished
C	Dm	Em	F	G	Am	B°

Common Progressions

I-IV-V-I
 I-V-vi-IV
 I-vi-IV-V
 vi-IV-I-V
 i-v-iv-i
 I-vi-ii-V
 I-V-vi-iii-IV-I-IV-V
 I-ii-iii-IV-V
 V-IV-I
 ii-V-I

Writing a bassline in 3 steps:

1. check the chords to your song.
2. Take the root note of the chord on your bass and record a simple rhythmic pattern. Follow your intuition.
3. Do this for all the chords. Basically write the bass under the chord progression with only the root notes of the chords.

Blood Brothers Knowledge Organiser

Very Brief Plot Summary

Act 1: Mrs Johnstone finds out she is pregnant with twins. The wealthy Mrs Lyons, who employs Mrs Johnstone as a cleaning lady, suggests she gives her one of the babies, as Mrs Johnstone is worried about not being able to support them. Mrs Johnstone reluctantly agrees. After she hands over the baby, she is sacked by Mrs Lyons.

Seven years later, the boys, Mickey and Edward, meet and become 'blood brothers'. Mickey introduces Edward to his friend, Linda, and to his mum. Mrs Johnstone warns Edward to stay away from them. However, the two boys cannot be kept apart. Mrs Lyons becomes increasingly paranoid about the Johnstones. Mr Lyons tells Edward they are moving to the countryside for Mrs Lyons' health. Upset, Edward says goodbye to Mrs Johnstone. Shortly afterwards, Mrs Johnstone receives a letter saying her family can move to the countryside.

Act 2: Time has moved on. Edward and Mickey meet up again and recognise each other. They instantly resume their friendship. Mrs Lyons goes to see Mrs Johnstone and accuses her of following them to the area. She tries to bribe her to move away, then tries to stab her.

Linda and Mickey get together, get married and have a baby. Edward goes to university and falls out with Mickey. Mickey is made redundant, commits a robbery and is imprisoned. When he is released, he is addicted to anti-depressants. Linda asks for Edward's help and he gets Mickey a job. Brought together once again, Linda and Edward are attracted to each other and start an affair. Mickey finds out from Mrs Lyons and shoots Edward dead. He is immediately shot dead himself by the police.

Characters

Mrs Johnstone: A single mum, Mrs Johnstone has lots of children and looks older than she is. She works as a cleaning lady and is desperate to provide for her family, but often struggles. She is warm and caring, and spends her life regretting her decision to give away Edward.

Mrs Lyons: A wealthy, middle-class woman, Mrs Lyons is desperate for children. She is lonely because her husband is often away on business. She is cunning, as she hatches a plan to pass one of the twins as her own. She pays for her decision by becoming paranoid that the truth will come out, and increasingly jealous of Mrs Johnstone. She lacks maternal warmth.

Mickey: One of Mrs Johnstone's twins, his life is often chaotic. He is suspended from school, gets his girlfriend, Linda, pregnant, loses his job, goes to prison, becomes addicted to anti-depressants and eventually kills his own brother. Mickey shows us how the chances we get in life can define who we become.

Edward: The twin that Mrs Johnstone gives away, Edward is raised in a privileged lifestyle, with private school and a university education. He gets a good job and eventually wins over Linda. However, he never experiences the maternal kindness that Mickey experiences.

Linda: Boisterous and fun-loving, Linda falls in love with Mickey and is fiercely loyal to him. She stands up for him against teachers and against Sammy, but his eventual decline sends her into Edward's arms. She feels trapped by the life that has been created for her with Mickey.

The Narrator: The Narrator stays on stage throughout the play, commenting on and narrating events. He asks the audience to speculate about who is to blame for the events in the play, and often appears as a minor character to remind Mrs Johnstone of her guilt at giving away her son.

Sammy: Mickey's older brother is a violent bully who exhibits aggressive behaviour throughout the play. At first, Mickey looks up to him, but eventually he becomes a threat. It is Sammy who involves him in the robbery and who unwittingly provides the gun which Mickey uses to kill Edward.

Mr Lyons: A wealthy, middle-class businessman, Mr Lyons has no understanding of his wife's desperation for a baby, or her deep paranoia about Edward. He is dismissive about her worries. He also shows no care for his employees, whom he makes redundant in Act II.

Key Quotations

"As like each other as two new pins." Narrator, Act I.

"a mother, so cruel, / There's a stone in place of her heart." Narrator, Act I

"I believe that an adopted child can become one's own." Mrs Lyons, Act I

"I love the bones of every one of em." Act I, Mrs Johnstone

"Kids can't live on love alone." Act I, Mrs Johnstone

"if either twin learns that he was once a pair, they shall both immediately die." Act I, Mrs Lyons

"you know the devil's got your number" Act I, Narrator

"we always have to stand by each other." Mickey, Act I

"you're not the same as him. You're not, do you understand?" Mrs Lyons, Act I

"Make sure he keeps with his own kind, Mr Lyons." Policeman, Act I

"You've got to have an ending, if a start's been made. / No-one gets off without the price being paid." Narrator, Act II

"Everybody has secrets. Don't you have secrets?" Eddie, Act II

"You have ruined me." Mrs Lyons, Act II

"you've not had much of a life with me, have y'?" Mrs Johnstone, Act II

"it's just another sign / Of the times." Mr Lyons, Act II

"while no one was looking, I grew up." Mickey, Act II

"so I can be invisible." Mickey, Act II

"how come you got everything... An' I got nothin'?" Mickey, Act II

"I could have been him!" Mickey, Act II

"And do we blame superstition for what came to pass / Or could it be what we, the English, have come to know as class?" Narrator, Act II

Themes

Nature vs Nurture

- Splitting up Edward and Mickey at birth shows us how environment can have a huge impact on life chances.
- The boys continue to be drawn to each other, despite very different upbringings.
- Mrs Johnstone is shown as having a natural maternal instinct, while Mrs Lyons seems unable to show easy motherly love. This has an impact on the boys and ironically drives Edward towards Mrs Johnstone.

Violence

- Mickey is exposed to violence from a young age, in the games played by his friends and by Sammy.
- Sammy is frequently violent to others and it is his violent tendencies which lead to Mickey going to prison.
- Mrs Lyons resorts to violence when she threatens Mrs Johnstone.
- Mickey resorts to violence at the end of the play when he finds out the truth.

Growing Up

- Mickey and Edward's childhoods are juxtaposed throughout the play to show how childhood experiences can be very different and yet very similar.
- Mrs Johnstone and Mrs Lyons react to their children growing up in different ways.
- The montage in Act II shows the transition from childhood to adulthood.
- Mickey realises that some people have to grow up quicker than others, due to their circumstances.
- The play shows how two children with similar backgrounds (Sammy and Linda) can make different choices and take different paths in life.

Fate and Superstition

- We are told how the story will end at the beginning of the play – so there is no escaping the fate of the blood brothers.
- The play considers how one decision can decide a person's fate – Mickey realises at the end of the play that he could have had Edward's life if Mrs Johnstone had chosen differently.
- Mrs Johnstone is highly superstitious at the beginning of the play, and Mrs Lyons uses this to create the superstition about twins who are parted.
- Mrs Lyons becomes superstitious as her paranoia takes over.
- The Narrator asks us if superstition is to blame for boys' fate.

Class

- Willy Russell shows us the injustices of the class divide by juxtaposing the upbringing of Edward and Mickey.
- Accents, vocabulary and costume are used to show the class divide between the two boys and their mothers.
- Education is shown as a key factor in the class divide: Edward's education guarantees him university and a good job; Mickey's education is largely pointless and reduces his chances in life.
- The Narrator asks us if class is to blame for the boys' fate.

Friendship and Loyalty

- Edward and Mickey forge a friendship which bridges the class divide.
- That friendship is destroyed by Edward's inability to understand the pressures of money problems – ultimately the class divide comes between them.
- Linda shows loyalty to Mickey throughout her life, standing up for him against bullies. But when Mickey becomes unreachable, she betrays him.



Symbols and Motifs

Guns are a recurring symbol throughout the play. Firstly, they are shown as harmless toys, part of games that the children play. Then they become more mischievous, as Mickey, Edward and Linda play with an air gun and are reprimanded by the police. Finally, Sammy's gun in the robbery puts Mickey in prison and becomes the weapon that kills Edward. They represent violence, and the transition from childhood to adulthood.

Edward's locket is a symbol which represents secrets. Mrs Lyons wants to see the locket but the irony is that she is guarding a far bigger secret. The locket also represents the power of motherhood – Edward is drawn to Mrs Johnstone even though he does not know her relationship to him.

Marilyn Monroe is a recurring symbol within the play – Mrs Johnstone's husband was attracted to her because she looked like the film star, but when she starts to age he finds a replacement. A tragic figure, Marilyn Monroe is significant because she combined sexuality, vulnerability and secrets.

Context

Set in the 1970s and 80s, *Blood Brothers* shows the realities of life in Liverpool during the era. In 1979, Margaret Thatcher came to power as Prime Minister and privatised much of Britain's manufacturing industry. As a result, there was widespread unemployment; in Liverpool, up to 25% of the population were unemployed. This led to high levels of poverty.

The Johnstone family, and in particular Mickey's redundancy, show the real life impact of this. Russell uses the play to explore the consequences of poverty and unemployment. As a Liverpudlian himself, he was writing from first-hand experience.

Language and Techniques

audience address
chorus
Colloquial
contrast
dramatic Irony
emotive language
foreshadowing
irony
juxtaposition
metaphor
refrain
repetition
rhyming Couplet
song
tragedy



Key Vocabulary

act
deprivation
education
inequality
maternal
nature
nurture
playwright
recession
social divide
superstition
stage directions

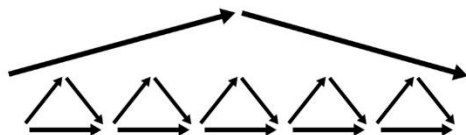


PRACTITIONERS: BRECHT

Naturalism was at its peak, but Brecht thought that theatre should be political and be a force for change. He wanted his audiences to remain objective and distant from emotional involvement, so that they could make considered and rational judgements about the issues in the play - this is called Epic Theatre

Components
2 and 3

Episodic Structure/Montage: The play is split into separate episodes, that can 'stand alone'. The episodes jump around in time, place and featured characters; so that the audience doesn't become 'engrossed' in a specific moment.



Gestus: A gesture which represents a character's attitude, status or social position (eg a servant's bow). These gestures are repeated by characters to make them more stereotypical.



Narration: Actors narrate what their character is doing either just before they do it or as they are doing it.

Placards: held up by the character(s) to detract the audience's attention away from the emotion; they usually show thought provoking facts, statistics or information.



Music/song: Characters often sing in the middle of the scene, or add music and movement sequences instead of using words and dialogue. Sometimes nursery rhymes with changes to the lyrics are used.



Fourth Wall: This is the imaginary wall between the audience and the performers. In naturalism it is as though the audience is looking through the fourth wall, into the world of the play. Brecht wanted to 'break' the fourth wall, preventing the audience from forming an emotional attachment with/to the characters.

Verfremdungseffekt (Veffect): The process of 'making strange'. This the process where the audience experience something familiar, but it is presented in an unrecognisable way or the context is unfamiliar - it is now in contradiction with itself. The audience then have to reach a new understanding in order to 'move past' the contradiction.

The Veffect was a way of distancing the audience from the emotion of the performance. Brecht wanted his audience to always be aware that it was not real life - it was a performance, performed by actors.

This effect can be created through the use of:

- Direct Address
 - Narration
 - Placards
 - Montage
 - Multi-rolling
- Speaking stage directions
 - Music/song

DIG DEEPER QUESTIONS

How might Brecht's techniques help you to develop a performance?

How could using placards in a scene change the meaning for the audience?

Brecht said that in naturalistic theatre, audiences: "hang up their brains with their hats in the cloakroom". What do you think he was saying about naturalistic theatre and its audience?

What makes a successful, Brechtian/political theatre performance?

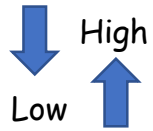
When do you think using Brecht's techniques might not be useful?

PERFORMANCE SKILLS

For the GCSE course you are required to have a thorough knowledge of a wide range of performance skills, so that you can write about how they can/have been used as well as being able to use them yourself.

Components
1, 2 & 3

VOCALS



Pitch: How high or low your voice is.

Pace: The speed that you speak at.



Pause: A break in speaking; a period of silence.

Volume: The loudness or quietness of your voice.



Diction: The clearness of your voice - the audience being able to understand what you are saying.



Power: The amount of tension in your voice. This is not the same as volume - you can have large vocal power at a low volume.



Emphasis: 'Highlighting' a specific word or phrase, by changing at least one aspect of your vocals.



Accent: The way words are pronounced in a local area or country. E.g. Liverpooldian, R.P. 'Jordie', Irish, American South.



Articulation: The way that you pronounce each letter in a word. If using a high level of articulation, you would pronounce every letter in every word.



PHYSICALITY



Direction: The position you face or move in.

Pace: The speed that you move at.



Gait: The way that you walk.

Tension: How tightly you are holding your muscles.



Control: Being able to execute a specific and precise movement.

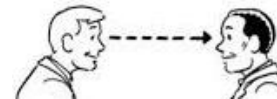


Gesture: A movement (of the head, arm, hand, leg or foot) which communicates a specific meaning.

Facial Expression: Using your face to show how a character is feeling.



Eye Contact: Choosing to look at a specific performer, object, audience member or direction.



Posture: The way that you sit or stand; the alignment of your spine. Your physical stance, which conveys information about your character.



DIG DEEPER QUESTIONS

How could you use vocal skills to communicate subtle changes to a character's emotions?
 How could you use physical skills to communicate subtle changes to a character's emotions?
 Which do you think is the most important vocal skill? Why?
 Why do you need to change your characterisation depending on the style of the play?

How can eye contact change the meaning communicated?
 How might adding a pause change the meaning of a line?
 Which do you think is the most important physical skill? Why?
 What makes a successful performance?