



**Year 9**  
**Learning Cycle 3**  
**Knowledge Booklet**

Student Name: \_\_\_\_\_



# Instructions on how to use your learning cycle booklet:



At Poltair we **SORT** it!

The aim is for all students to be fully prepared and ready for all assessments in all subjects.

To help them with this we have a whole school revision/study strategy – SORT.

There are three learning cycles throughout Year 9. At the beginning of each learning cycle students will be issued with a booklet that details all the knowledge they are expected to know and recall by the end of the learning cycle.

Each day, for home learning, students are set two activities that support in memorising and recalling this key knowledge.

The assessment windows for Learning Cycle 3 will be 8th – 19th May

<b>Summarise</b>	<b>Organise</b>	<b>Recall</b>	<b>Test</b>
Summarise and condense any class notes, revision guides and revision.	Organise your revision materials by topic/subtopic. Traffic light your PLC sheets to identify areas of weakness or gaps (Red/Amber) that need to be prioritised.	Use active recall and spaced repetition to memorise your knowledge organisers until you can recall the information eg. Look, cover, write or self-testing	Use low stakes online tests/ quizzes and answer high stakes past paper/sample questions to check and apply knowledge and understanding
<b>Strategies</b>			
<ul style="list-style-type: none"> <li>• Cornell Notes</li> <li>• Flash cards</li> <li>• Mind mapping</li> <li>• Revision clocks</li> <li>• Dual coding</li> </ul>	<ul style="list-style-type: none"> <li>• How to use your PLC</li> <li>• How to schedule your home learning and stick to it!</li> </ul>	<ul style="list-style-type: none"> <li>• Look cover &amp; test</li> <li>• Leitner system</li> <li>• Blurt it</li> <li>• Transform it</li> </ul>	<ul style="list-style-type: none"> <li>• Low stakes</li> <li>• Self-quizzing</li> <li>• Quiz each other</li> <li>• Online quizzes</li> <li>• High stakes</li> <li>• Exam style questions</li> </ul>

# Instructions on how to use your learning cycle booklet:



At Poltair we **SORT** it!

Learning cycle 3 will focus on the SORT strategies:

<b>Summarise</b>	<b>Organise</b>	<b>Recall</b>	<b>Test</b>
<ul style="list-style-type: none"><li>• Cornell Notes</li><li>• Flash cards</li><li>• Mind mapping</li></ul>	<ul style="list-style-type: none"><li>• How to use your PLC</li><li>• How to schedule your home learning and stick to it!</li></ul>	<ul style="list-style-type: none"><li>• Look cover &amp; test</li><li>• Leitner system</li><li>• Blurt it</li></ul>	<ul style="list-style-type: none"><li>• Self-quizzing</li><li>• Quiz each other</li><li>• Online quizzes</li></ul>

## Using the Personal Learning Checklists (PLC)

Review each key idea on the PLC

- In the **Organise** column write R, A or G depending on your understanding. **Red** = no understanding, **Amber** = Some understanding but needs work, **Green** = Secure understanding
- When you complete a **Summarise** activity for each key idea, tick the S column
- When you complete a **Recall** activity for each key idea, tick the R column
- When you **Test** by self-quizzing or complete an online-quiz for each key idea, tick the T column

Videos explaining all of the SORT strategies can be found on the Student SharePoint

# Home Learning timetable - when I am going to complete my home learning

	Mon A	Tue A	Wed A	Thu A	Fri A
Core Activity	Reading	Complete Maths goal	Reading	Complete Maths goal	Reading
Subject 1	Geaography	Science	Maths	English	Spanish
Subject 2	RE	Art	Food	History	Computing
	Mon B	Tue B	Wed B	Thu B	Fri B
Core Activity	Reading	Complete Maths goal	Reading	Complete Maths goal	Complete Maths goal
Subject 1	Geography	Science	Maths	English	Spanish
Subject 2	Music	Drama	DT	History	

## Expected time home learning will take:

Activity	Time
Reading	30 mins
Complete Maths	30 mins a goal
All other activities	15 mins each

## My Computer passwords:

Platform	Username	Password
School System		
Complete Maths		
Educake		
Memrise		

# Revision Planner

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Time	Saturday	Sunday
8.30am - 4pm						8.30am - 4pm		
4pm - 5pm						4pm - 5pm		
5pm - 6pm						5pm - 6pm		
6pm - 7pm						6pm - 7pm		
7pm - 8pm						7pm - 8pm		
8pm - 9pm						8pm - 9pm		







# Year 9 Learning Cycle 2 Personal Learning Check lists

## English

Key Ideas	S	O	R	T
I can write a 'What, How, Why' paragraph of analysis.				
I know some important ideas about the context of 'Jekyll and Hyde'.				
I understand the key parts of the plot of 'Jekyll and Hyde'.				
I understand the key characters and the relationships between them.				
I can write about the character of Jekyll, supporting my ideas with evidence and analysis.				
I can write about the character of Hyde, supporting my ideas with evidence and analysis.				
I can analyse the setting of the novella, supporting my ideas with evidence and analysis.				
I can analyse how Stevenson creates suspense and tension.				
I can use ideas from the novella to inspire my own creative writing: dramatic monologues.				

## Maths

Key Ideas	S	O	R	T
I know the facts about angles in parallel lines				
I can calculate the sum of interior/exterior angles in a polygon.				
I can calculate the probabilities of single events				
I can calculate the probability of combined events				
I can convert between fractions, decimals and percentages				
I can translate a shape using a vector.				
I can enlarge a shape using a scale factor.				
I can reflect a shape over a mirror line				
I can rotate a shape given an angle and a point				
I can describe transformations.				

## Science

Key Ideas	S	O	R	T
I can recall the parts of the digestive system and state their function				
I can recall the role of enzymes and identify enzymes involved in digestion				
I can describe the food tests for sugar, starch, protein and fats				
I can label the parts of the heart and describe the flow of blood through the human body				
I can compare and contrast the differences between aerobic and anaerobic respiration				
I can describe the greenhouse effect				
I can describe the effect of climate change on the planet				
I can label and describe the carbon cycle				
I can describe how to test for oxygen, hydrogen, carbon dioxide and chlorine				
I can label and describe the water cycle using key words				

# Year 9 Learning Cycle 2 Personal Learning Check lists

## Geography

Key Ideas	S	O	R	T
I can locate the world's major biomes on a world map				
I can describe the main features of rainforest ecosystem				
I can explain how plants and animals adapt to the climate and environment in a rainforest				
I can explain the causes and effects of deforestation in the rainforest				
I can explain how rainforests can be developed sustainably				
I can explain how UK environments are under threat and how they can be managed sustainably				
I can explain the role of Governments and NP authorities in the management of UK rural environments				

## History

Key Ideas	S	O	R	T
I can define Segregation				
I can explain how the Jim Crow laws affected the lives of Black Americans				
I can define migration				
I can explain push and pull factors for migration				
I can outline reasons that the Vikings came to Britain				
I can explain who the Huguenots were				
I can define discrimination				

## Spanish

Key Ideas	S	O	R	T
I can talk confidently about the subjects that I study				
I can describe my school in detail				
I can describe the positives and negatives at my school				
I can talk about the school rules and my opinion of them				
I can talk about what has happened at my school recently				
I can express my aspirations for the future				
I know my non-negotiable verbs				
I know my question words				

# Year 9 Learning Cycle 2 Personal Learning Check lists

## Computing

Key Ideas	S	O	R	T
I can recognise HTML key words				
I can edit HTML to change format and design of a webpage				
I know the difference between the WWW and the internet				
I can create and use CSS statements				
I know the factors that affect the file size of an image				
I know the factors that affect the file size of a sound file				
I can explain how images are stored using binary				
I can explain how images are stored using binary				

## Art

Key Ideas	S	O	R	T
I understand and can explain the meaning of the 7 observational drawing key words.				
Tone, texture, line, scale, composition, shape, scale, composition and background.				
I can discuss and compare different designers, craftspeople and artists using tier 3 vocabulary.				
I understand how to research and selection information to develop ideas.				
Realising your ideas by producing a final outcome.				
I understand how to develop my ideas using the work of my chosen artist, craftsperson or designer to realise my idea.				

## DT

Key Ideas	S	O	R	T
I can use specifications to help develop work and explain why they are used in the design process.				
I am able to describe why it is important to design products, considering sustainable use of materials and product lifespan (6Rs)				
I can describe the importance of ergonomics and identifying how we research the needs of intended users.				

# Year 9 Learning Cycle 2 Personal Learning Check lists

## Food

Key Ideas	S	O	R	T
I understand the importance of a healthy balanced diet				
I can list the roles and responsibilities of an environmental health officer.				
I can discuss a range of factors that affect consumer choice.				
I can explain how a quiche sets during the cooking process.				
I understand the importance of ensuring meat is cooked thoroughly to prevent food poisoning.				
I can explain how to ensure a hygienic and safe kitchen environment.				
I can describe how to reduce food waste by using left overs.				

## RE

Key Ideas	S	O	R	T
I can define resurrection				
I can define Akhirah				
I can outline the beliefs about life after death in Islam				
I can outline the beliefs about life after death in Hinduism				
I can outline the beliefs about life after death in Christianity				
I can outline the beliefs about life after death in Sikhism/ Sikh				
I can outline the beliefs about life after death in Buddhism				
I can outline the Humanist approach to life after death				

## Music

Key Ideas	S	O	R	T
I am able to understand what different structures and forms are and can explain them to others.				
I am able to understand how lyrics can be used to tell a story.				
I can work out chords on an instrument using my knowledge of what they are.				
I understand the difference between a major and a minor chord and can hear the differences.				
I understand what a melody is and how it uses harmony to enhance it.				
I can create a simple and catchy melody using an instrument.				

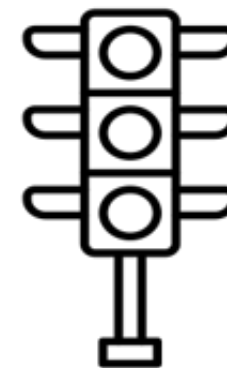
# Year 9 Learning Cycle 2 Personal Learning Check lists

## Drama

Key Ideas	S	O	R	T
I can understand the key conventions of naturalism and apply them in rehearsal and performance				
I can understand the key conventions of non-naturalism and apply them in rehearsal and performance				
I can devise a piece of theatre in response to a stimulus				
I can sustain a role for the duration of a performance?				
I can evaluate the impact of the practical work and set targets for future practical work				



At Poltair we **SORT** it!



At Poltair students will **SORT a PLC** by:

At the beginning of a learning cycle students are to RAG the key ideas they are studying by self-assessing if they are **Red** – no understanding, **Amber** – some understanding, **Green** – full understanding. They are then to put a R, A or G in the **organise** column.

- Students will then prioritise the Red and Amber key ideas when they are revising.
- Students are to summarise the knowledge for each key idea, then use recall strategies before self-quizzing.

Key Ideas	S	O	R	T
I know and understand the stock characters from Victorian melodrama.				
I know and understand the different physical skills used in melodrama and experiment with them in rehearsals.				
I know and understand the different vocal skills used in melodrama and experiment with them in rehearsal.				
I know the 3-part structure of melodrama performance.				
I can work in a group to plan a melodrama performance.				
I can apply melodramatic techniques in performance.				

# Year 9 English – The Strange Case of Dr Jekyll and Mr Hyde

## 1. Plot

1a = Chapter 1 - The Story of the Door

Passing an unusual door whilst out for a walk, Enfield tells Utterson about an incident involving Hyde trampling a young girl, and then giving the family compensation. Hyde had a key to the door (which leads to Jekyll's lab) and the cheque was signed by Jekyll.

1b = Chapter 2 - Search for Hyde

Utterson looks at Jekyll's will and discovers that he has left his possessions to Mr Hyde. Utterson has a strange dream. Utterson goes back to the door in Soho, where he meets Hyde. Utterson then goes to warn Jekyll. Jekyll isn't in.

1c = Chapter 3 - Dr Jekyll Was Quite at Ease

Two weeks later, Utterson goes to a dinner party at Jekyll's house and tells him about his concerns. Jekyll laughs off his worries.

1d = Chapter 4 - The Carew Murder Case

A year later, Hyde murders an MP. Utterson recognises the murder weapon as Jekyll's broken walking cane. At Hyde's flat, the police find the other half of the cane.

1e = Chapter 5 - Incident of the Letter

Utterson visits Jekyll, who looks ill. Jekyll shows him a letter that says Hyde won't be back. Utterson believes the letter has been forged by Jekyll to cover for Hyde.

1f = Chapter 6 - Remarkable Incident of Dr Lanyon

Jekyll is more sociable until a sudden depression; he isolates himself. Utterson visits Lanyon on his death-bed, who hints that he is ill because of Jekyll. Lanyon dies leaving a note for Utterson to open after Jekyll's death or disappearance.

1g = Chapter 7 - Incident at the Window

Utterson and Enfield pass Jekyll's window, where they see him confined like a prison. Utterson calls out and Jekyll's face as a look of 'abject terror and despair'. Shocked, Utterson and Enfield leave.

# Year 9 English – The Strange Case of Dr Jekyll and Mr Hyde

Th = Chapter 8 – The Last Night

Poole visits Utterson to ask for help. Jekyll's lab door is locked and the voice inside sounds like Hyde. Poole says Hyde has been asking for a chemical, but has rejected it each time as it is impure. They break down the door and find Hyde's body: suicide. They find documents, among which is a will leaving everything to Utterson.

Ti = Chapter 9 – Dr Lanyon

Lanyon's letter tells how he received a letter from Jekyll asking him to collect chemicals, a vial and notebook from Jekyll's lab and give it to a man who would call at midnight. A grotesque man arrived and drank the potion which transformed him into Jekyll. The sight of this transformation caused Lanyon to fall ill and die.

Tj = Chapter 10 – Henry Jekyll's Full Statement of the Case

Tj = Chapter 10 – Henry Jekyll's Full Statement of the Case This chapter is Jekyll's confession, written in the first person. He explains that he was trying to investigate the duality of human nature. When Jekyll discovered that he had a 'good' and 'bad' side to his personality, he tried to separate the two and destroy 'darker self'. But instead he unleashed this darker side, taking the potion to transform himself into Hyde. This allowed him to commit base acts without risk of detection. Then he could return home and transform back into Jekyll. Eventually he became addicted to being Hyde, who increasingly took over and destroyed him.

## 2. Characters

2a = Dr Henry Jekyll

A doctor and experimental scientist who is both wealthy and respectable.

2b = Mr Edward Hyde

A small, violent and unpleasant-looking man; an unrepentant criminal.

2c = Gabriel Utterson

A calm and rational lawyer and friend of Jekyll and Lanyon. The narrative perspective of the story.

2d = Dr Hastie Lanyon

A conventional and respectable doctor and former friend of Jekyll.

2e = Richard Enfield

A distant relative of Utterson and well-known man about town.

2f = Poole

Jekyll's manservant.

2g = Sir Danvers Carew

A distinguished gentlemen and politician who is beaten to death by Hyde.

2h = Mr Guest

Utterson's secretary and handwriting expert.



# Year 9 English – The Strange Case of Dr Jekyll and Mr Hyde

## 3. Themes

### 3a = Duality

The notion that people have two different sides to their personality is important. Stevenson suggests we have a base part of ourselves, concerned with physical desires and pleasures, and a higher part focused on intelligence, moral behaviour and thinking. Jekyll feels a terrible tension between how he wants to behave and how he feels he should behave.

There are also many contrasting ideas in the novella, in terms of setting and themes. Examples include: appearance vs. reality;; upper class areas of London and Soho.

### 3b = Science

There are two views of science in the novella: Lanyon follows a practical, rational type of science and Jekyll has a more mystical and supernatural approach.

In Victorian society, a conflict between religion and science was occurring. Religion taught that you should not go against God and what he created, but scientific developments were challenging this.

Darwin published “On the Origin of Species” in 1859, suggesting that humans evolved from a primitive state. This unsettled the Victorian readership because it questioned the truth of the Bible.

### 3c = Good and Evil

Evil is personified in Hyde and good is shown as being kind and generous to others. Hyde’s acts of violence and destruction are contrasted with the goodness of his victims.

### 3d = Appearance and Reality

Few things are as they appear. J is respectable, yet he has his secret inner identity. Hyde appears to be a normal ‘person’ (if a bit ugly) but he’s actually a product of a potion. It appears Jekyll is being blackmailed, yet he isn’t. Lanyon’s illness looks to be physical, however it is the effects of seeing Hyde’s transformation. As readers we are also taken in by what appears to be real but turns out not to be.



# Year 9 English – Animal Farm

## 4. Context

### 4a = Duality and the Victorian Gentleman

Social conventions were so strict in Victorian times that the criminal underworld developed—an outward appearance of dignity was valued more than genuine humanity. Utterson represents the perfect Victorian gentleman. He consistently seeks to preserve order and decorum, does not gossip, and guards his friends' reputations as though they were his own. There was some hypocrisy around the idea of the Victorian gentleman, as many of these men indulged their vices in poor areas so as not to be seen.

### 4b = Science and Darwinism

Darwin gave the world his Theory of Evolution which suggested that perhaps we did not come from God but evolved from apes. People were shocked at the thought that we might have something in common with primate beasts. Scientific developments were rapid, including in medicine. We knew more about anatomy than ever before. There was a growing conflict between religion and science. New beliefs such as phrenology led people to have unusual beliefs about what facial features/head shapes might mean about your personality and character.

### 4c = A Divided Society

Stevenson grew up in Edinburgh and some think the city of London in J&H is actually based on Edinburgh. Both Edinburgh and London were divided cities—made up of areas of extreme wealth side by side with areas of extreme poverty. The coexistence of these two very different worlds interested Stevenson.

### 4d = London and the Industrial Revolution

A dirty, smoggy, dark and dangerous city at the time of writing, sometimes covered in a brown fog from the factories of the Industrial Revolution. Riddled with crime which went largely unsolved by a relatively new and ineffective police force. The building of factories drove mass migration of people from country to city to find work. Housing was crowded and low quality and it was a time of rapid social change. This led to fears of depravity and crime; Londoners were concerned about the pace of change. There was also a fear of new technology and its implications for mankind.



# Year 9 English – Animal Farm

## 5. Author Intent

Robert Louis Stevenson wrote this novella for a purpose and uses the story and characters to send a message to his readers...

5a = To reveal...

the duality of human nature: we all have the capacity for evil. He reminds us that the capacity for evil is part of human nature, rather than being separate from it.

5b = To expose...

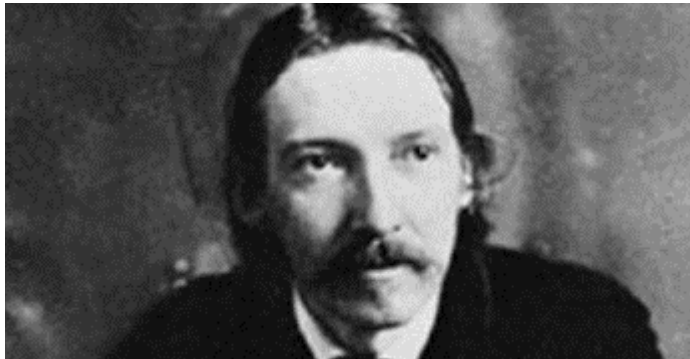
the hypocrisy and repression of Victorian society, in which appearances mean everything.

5c = To communicate...

the horrific consequences of strongly repressing all physical desires; the novel proposes that society needs to allow individuals greater freedom.

5d = To warn against...

repression of human desires, which leads to our desires growing and becoming uncontrollable.



## 6. Vocabulary

**6a = countenance (noun)** the appearance or expression of someone's face.

**6b = austere (adjective)** Of a place - very simple, with only the things that are absolutely necessary, especially because of limits on money or goods, without decoration. Of a person - very harsh and unfriendly.

**6c = surplus (adjective)** More than is needed.

**6d = sombre (adjective)** Serious and sad; without humour or fun.

**6e = indignation (noun)** Anger about a situation that you think is wrong or not fair.

**6f = stealthily (adverb)** Quietly and carefully in order not to be seen or heard.

**6g = solitude (noun)** The situation of being alone without other people.

**6h = savage (adjective)** Extremely violent, wild, or frightening.

**6i = timidity (noun)** The quality of being shy and nervous.

**6j = loathing (noun)** A strong feeling of hating someone or something.

**6k = ignorant (adjective)** Not having enough knowledge, understanding, or information about something.

**6l = dingy (adjective)** Dark, gloomy, drab and possibly dirty.

## 7. Subject Vocabulary

**7a = allegory** A story that can be interpreted to reveal a hidden meaning, typically a moral or political one.

**7b = foreshadowing** An indication or hint of what is to come later in the story.

**7c = pathetic fallacy** Giving human feelings and emotions to something not human, particularly the weather or environment.

**7d = imagery** The use of language to create vivid pictures in the readers' minds.

**7e = symbolism** The use of characters, events or ideas to represent something broader

**7f = metaphor** Comparing one thing to another directly - as if one thing is another - to highlight their similarities.

**7g = simile** Comparing one thing to another using the words 'like' or 'as', to highlight their similarities.

**7h = antithesis** The exact opposite.

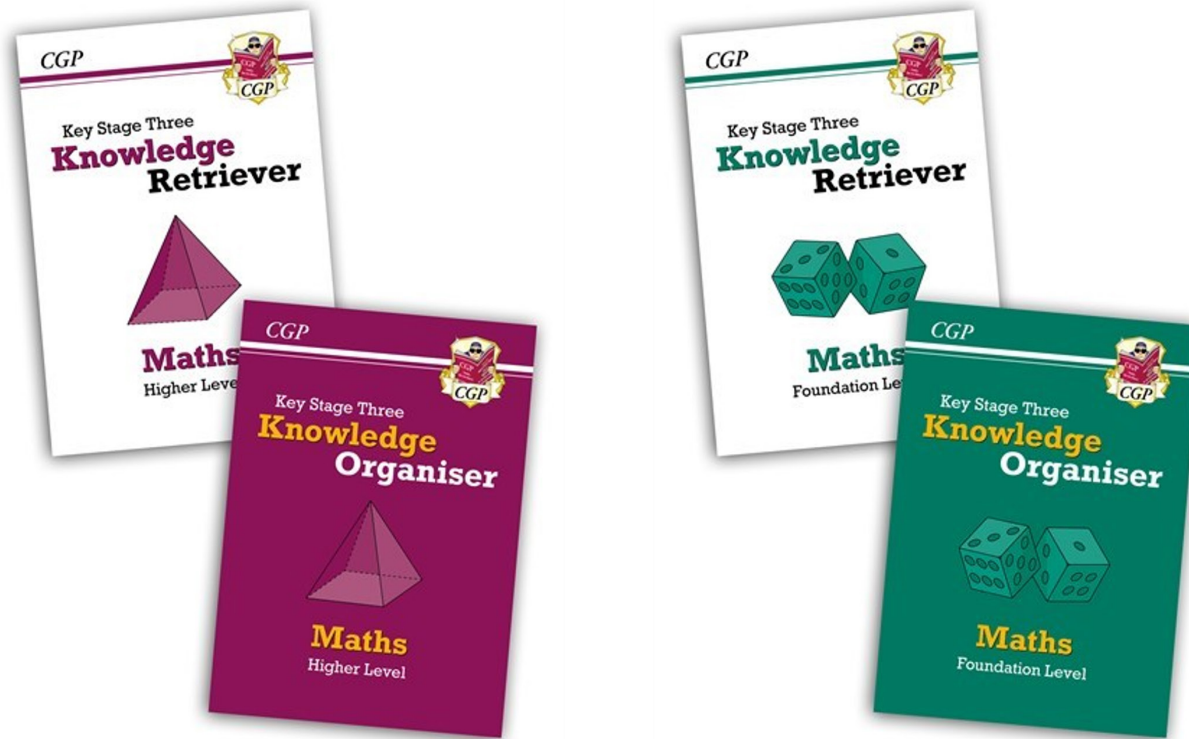
**7i = oxymoron** Two words or phrases used together that have opposite meanings.

**7j = biblical allusion** Words, phrases and details that make direct references to biblical stories, characters, places

# Year 9 Mathematics

1. Key Words	Definition
Fraction	A numerical quantity that is not a whole number (e.g. $\frac{1}{2}$ , 0.5).
Decimal	A system of numbers and arithmetic based on the number ten, tenth parts, and powers of ten.
Numerator	The number above the line in a fraction
Denominator	The number below the line in a fraction; a divisor.
Equivalent	Equal in value, amount, function, meaning
Parabola	A curved graph, either U shaped or n shaped.
Polygon	A 2-d shape with 3 or more straight edges
Regular shape	A shape where all of the angles are equal and all of the side lengths are equal
Transversal	A line which crosses two other lines
Alternate angles	Angles which occur on opposite sides of the transversal and are equal.
Corresponding angles	Angles which occur on the same side of the transversal and are equal.
Co-interior angles	Angles which occur between two parallel lines when they are intersected by a transversal.
Enlargement	A type or transformation which changes the size of a shape and its distance from a fixed point (centre of enlargement)
Translation	A type of transformation which moves a shape using a vector
Reflection	A type of shape which sees each vertex of a shape reflected across a mirror line
Rotation	A type of transformation where a shape is rotated around a fixed point
Transformation	A process which changes a shapes size, position or orientation.

# Year 9 Mathematics



Every student will be issued a Maths Knowledge Organiser booklet and a Knowledge Retriever booklet.

You will be given specific pages in the Knowledge Organiser to memorise each week using one of the SORT strategies.

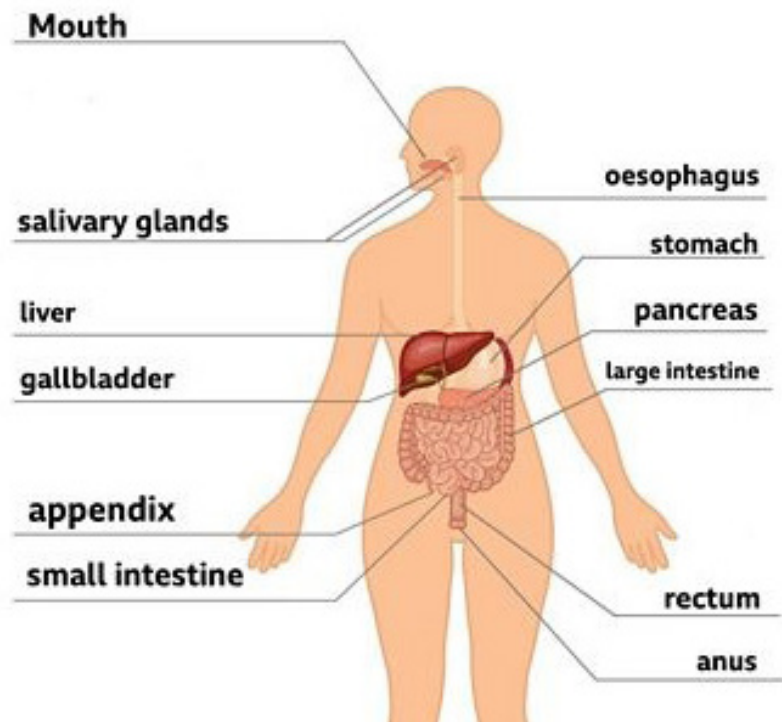
You will be asked to complete a Knowledge Retrieval quiz in the booklet to demonstrate your retention and recall of the required knowledge.

All home learning will be set on Class Charts.

# Year 9 Science – Healthy Mind and Healthy Body

1. Key Words	Definition
Enzyme	A protein that speeds up the rate of reaction without being used up itself
Non Communicable disease	A disease that cannot be spread between people
Communicable disease	A disease that can be spread between people
Aerobic	Respiration using oxygen
Anaerobic	Respiration without using oxygen

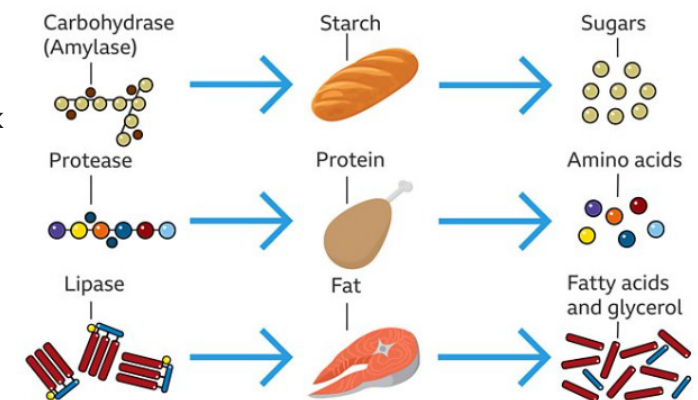
## 2. Digestion



## 3. Enzymes

Enzymes are chemicals which help to speed up the breakdown of large food molecules.

- Enzymes are not living things. They are just special proteins that can break large molecules into small molecules. Different types of enzymes can break down different nutrients:
- amylase and other carbohydrase enzymes break down carbohydrates into sugar e.g. starch into glucose.
- protease enzymes break down proteins into amino acids.
- lipase enzymes break down lipids (fats and oils) into fatty acids and glycerol.



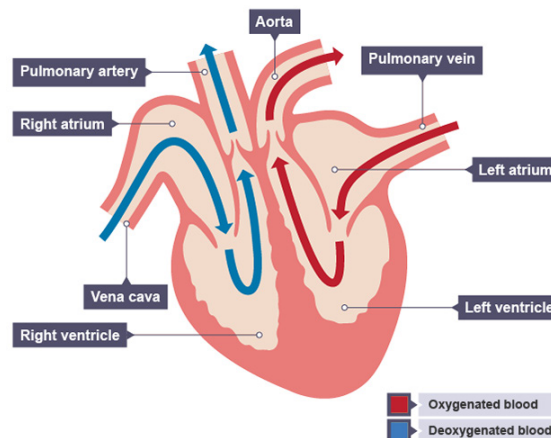
# Year 9 Science – Healthy Mind and Healthy Body

## 4. Food Tests

Food Sample	Reagent	Method	Initial Colour	Colour of Positive Result
Reducing sugar	Benedict's	Add Benedict's reagent to the food and boil in a water bath.	Blue	Brick red precipitate
Starch	Iodine	Add iodine reagent to the food.	Yellow-brown	Blue-black
Protein/amino acids	Biuret (a mixture of sodium hydroxide and copper sulfate)	Add biuret reagent to the food.	Blue	lilac/purple
Fat	Ethanol	Add ethanol to the food to dissolve the fat then add water.	Colourless	White emulsion

## 5. The Heart

1. Deoxygenated blood enters the right atrium from the vena cava.
2. Blood moves into right ventricle.
3. Blood is pumped into the pulmonary artery.
4. The pulmonary artery carries deoxygenated blood to the lungs.
5. The blood becomes oxygenated in the lungs.
6. Oxygenated blood leaves the lung via the pulmonary vein.
7. Blood enters the left atrium.
8. Blood moves into the left ventricle.
9. Blood is pumped into the aorta, which carries oxygenated blood around the body.



## 6. Aerobic and Anaerobic Respiration

	Aerobic	Anaerobic
Presence of oxygen	Present	Absent or in short supply.
Oxidation of glucose	Complete	Incomplete. The products of respiration still contain energy.
Products of respiration	Carbon dioxide and water. The products do not contain stored chemical energy.	Mammalian muscle: lactic acid. Yeast: ethanol and carbon dioxide. The products still contain stored chemical energy.
Amount of energy released	Relatively large amount.	small amount, but quickly.

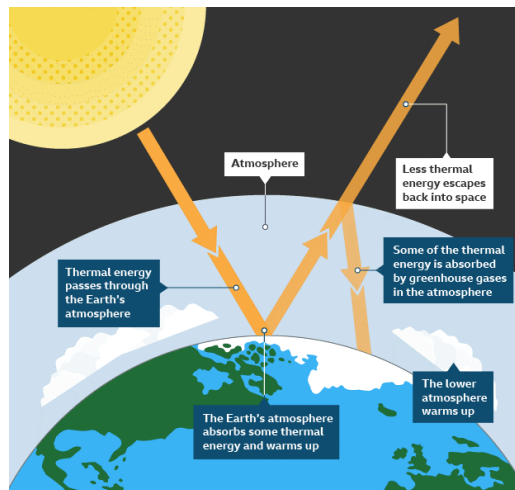
# Year 9 Science – Our Changing Planet

1. Key Words	Definition
Hydrocarbon	A compound that contains hydrogen and carbon only.
Green house effect	The retention of heat in the atmosphere caused by the build up of greenhouse gases.
Global warming	The rise in the average global temperature of Earth's surface.
Climate change	The long term changes in Earth's global temperature and weather patterns.

## 2. Green House Effect

Thermal energy (heat energy) radiates from the Sun. Some of this hits the Earth. Without this, there would be little or no life on Earth. Not all of the thermal energy that hits the Earth stays here. Some of it is reflected off pale, shiny surfaces like ice and escapes into space.

Some gases in the atmosphere, called , trap escaping thermal energy. This causes some of the thermal energy to return to the surface and warm it up. This is called the It is much hotter standing in a greenhouse or sitting in a car with the windows up on a sunny day than a cloudy one for the same reason. As there are more greenhouse gases in the atmosphere, the Earth is getting hotter.



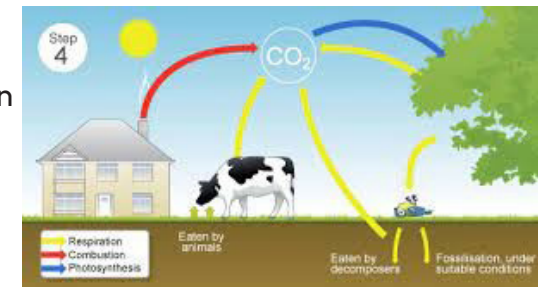
## 3. Impact of climate change

The weather includes the wind, sunshine and rain you see from day to day. The climate is the weather seen over years and decades. Climate change and its effects as a result of global warming include:

- Ice on land melting faster than it can be replaced in the Arctic and Antarctic, causing sea levels to rise.
- Oceans warming up, which affects corals as they bleach and then die.
- Extreme weather events like flooding and heat waves, cold snaps and violent storms.
- Increases in the number and strength of forest fires.
- Changes to the places where animals and plants live, making their survival harder.
- More tropical diseases spreading to new places as insects fly to new homes.

## 4. Carbon Cycle

1. Carbon enters the atmosphere as carbon dioxide from respiration and combustion.
2. Carbon dioxide is absorbed by producers to make glucose in photosynthesis.
3. Animals feed on the plant passing the carbon compounds along the food chain. Most of the carbon they consume is exhaled as carbon dioxide that was formed during aerobic respiration. The animals and plants eventually die.
4. Decomposers break down the dead organisms and return the carbon in their bodies to the atmosphere as carbon dioxide by respiration. In some conditions, decomposition is blocked. The plant and animal material may then be available as fossil fuel in the future for combustion.

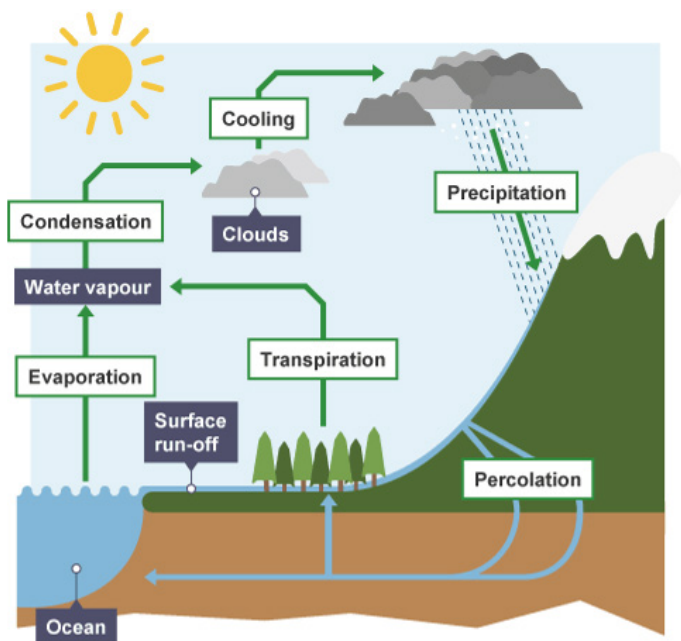


# Year 9 Science – Our Changing Planet

## 5. Gas Tests

Test	Observation	Inference
Glowing splint held in a test tube	Splint relights	Oxygen is present
Lighted splint held in a test tube	Pop sound heard	Hydrogen is present
Gas bubbled through limewater	Limewater turns milky or cloudy white	Carbon dioxide is present
Damp litmus paper held in a test tube	Paper turns white	Chlorine is present

## 6. Water Cycle



Process	What happens to water
Evaporation	Water turns from a liquid to a gas when it evaporates. Energy from the Sun can evaporate water from lakes on the Earth's surface such as puddles, ponds, lakes and oceans.
Condensation	After evaporation water can cool and convert from gas to liquid, often forming clouds.
Transport	Water within clouds can be blown many miles by strong winds and so transported to other areas.
Precipitation	Precipitation occurs when rain, snow, hail and sleet fall from the sky.
Surface runoff	Much water will be absorbed into the ground after precipitation but if a large volume falls or the ground is already wet some water can run along the surface of the ground.
Infiltration	This occurs when water that has fallen as precipitation is absorbed into the ground. This can then be stored within the underground rocks called aquifers.
Transpiration	Plants need to maintain a constant stream of water to their leaves for transport and support. So they allow some water to evaporate as water vapour from their leaves to mean that more is continually 'pulled' to their leaves from the soil.



# Year 9 Geography - Ecosystems Under Threat

1. Key Words	Definition
Biome	is an area of the planet that can be classified according to the climate, the plants, and animals that live within it.
Ecosystem	Ecosystem-can be an area within a biome, such as a lake or forest.
Climate	The Average weather conditions of a region or an area, measured over many years.
Nutrient cycle	The movement and exchange of nutrients from living things, to the earth, and then back again.
Biomass	The total quantity or weight of organisms in an area.
Store	Dead plants or animals that fall to the floor. They start to decompose here.
Vegetation	The different plants of an area or a region.
Litter	Nutrients are cycled between three stores; litter (dead organisms such as leaves), biomass (living organisms), and soil.
Transfer	Nutrient transfer is the transfer of nutrients between the stores.
Deforestation	The clearing for rainforests and wooded areas.
Desertification	The process by which fertile land becomes desert, typically as a result of drought, deforestation or inappropriate agriculture .

# Year 9 Geography – Ecosystems Under Threat

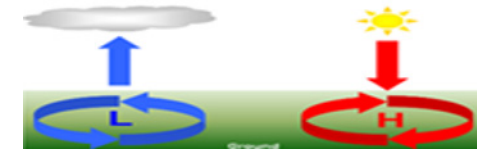
## 2. Where are the major biomes of the world located?



<p><b>Coniferous Forests (CF)</b></p> <ul style="list-style-type: none"> <li>• These regions are found between 50° and 60° north of the Equator.</li> <li>• Summers are short, and winters are long and cold.</li> <li>• There are high levels of precipitation, including snow in winter.</li> <li>• Evergreen trees include spruce and fir.</li> </ul>	<p><b>Temperate Grasslands (TG)</b></p> <ul style="list-style-type: none"> <li>• These regions are found between 40° and 60° north and south of the Equator.</li> <li>• Summers are hot and winters cold.</li> <li>• Nutrient-rich soils are well-suited for growing crops.</li> <li>• Grasses include blue grama and buffalo grass.</li> </ul>	<p><b>Deserts (D)</b></p> <ul style="list-style-type: none"> <li>• Deserts are found between 15° and 35° north and south of the Equator.</li> <li>• Days are extremely hot and nights cold.</li> <li>• Rainfall levels are very low (&lt;250 mm per year).</li> <li>• Plants are sparse and include hawthorns and cacti.</li> </ul>
<p><b>Tundra (T)</b></p> <ul style="list-style-type: none"> <li>• Tundra regions are found at high latitudes where rainfall is low.</li> <li>• Summers are short, and winters are long and cold.</li> <li>• The ground is generally frozen (permafrost).</li> <li>• Plants include Arctic moss and bearberry.</li> </ul>	<p><b>Temperate Deciduous Forests (TDF)</b></p> <ul style="list-style-type: none"> <li>• These forests are found mostly in mid-latitudes where rainfall occurs all year.</li> <li>• There are four seasons. Summers are usually warm and winters mild.</li> <li>• Deciduous trees lose their leaves in winter.</li> <li>• Trees include oak, beech and maple.</li> </ul>	<p><b>Mediterranean (M)</b></p> <ul style="list-style-type: none"> <li>• Mediterranean regions are found between 30° and 45° north and south of the Equator.</li> <li>• There are two seasons: hot, dry summers and mild, wet winters.</li> <li>• Semi-drought-resistant plants include olive trees, scrub and vines.</li> </ul>
<p><b>Tropical Rainforests (TR)</b></p> <ul style="list-style-type: none"> <li>• Tropical rainforests are found near the Equator.</li> <li>• The weather is hot and wet year round.</li> <li>• These regions have high levels of rain due to the concentrated sunlight heating the moist air.</li> <li>• Trees include rubber trees and açai trees.</li> </ul>	<p><b>Tropical Grasslands (TrG)</b></p> <ul style="list-style-type: none"> <li>• Tropical grasslands are found between the Tropics.</li> <li>• There are two seasons: dry and wet. However, rainfall is low (&lt;900 mm per year).</li> <li>• There are high levels of evaporation.</li> <li>• Plants include red oat grass and açai trees.</li> </ul>	

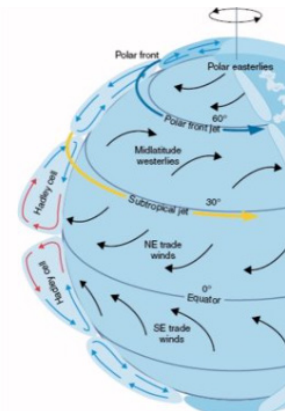
## 3. High and Low Pressure

Low Pressure	High Pressure
Caused by hot air rising. Causes stormy, cloudy weather.	Caused by cold air sinking. Causes clear and calm weather.

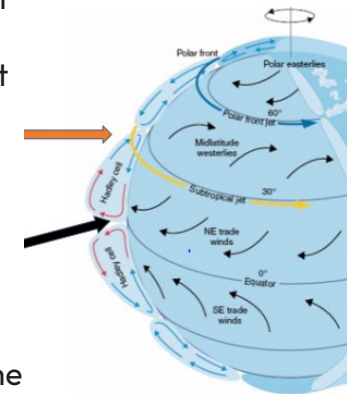


## High and Low Pressure Areas

Globally there are belts of high and low pressure that follow the lines of latitude around the Earth. We can see clear patterns of biomes appearing in either high or low pressure areas.



30°S and 30°N are high pressure areas. This produces the hot desert biome, like the Sahara and the Thar deserts.



The equator is a low pressure area. This produces the tropical rainforest biome, like the Amazon Rainforest.

# Year 9 Geography - Ecosystems Under Threat

## 5. Tropical Rainforests

# Tropical Rainforests

Tropical rainforests have the greatest biodiversity of all the global ecosystems on Earth. Despite only covering 7% of the world's surface, they are home to over 50% of all animal and plant species.

### Physical Characteristics

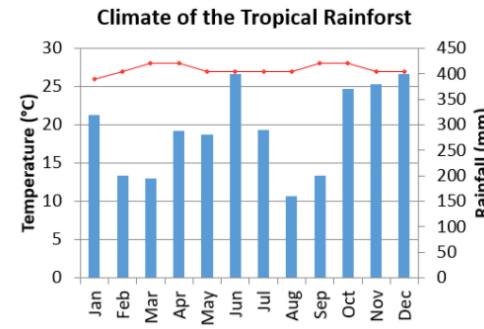
Tropical rainforests are found close to the Equator, where the climate is hot and humid all year round. The concentrated sunlight warms the moist air, and as it rises, it condenses to form large clouds and convectional rain. This results in high annual rainfall.

2000–3000 mm rainfall

25–30°C

No distinct seasons\*

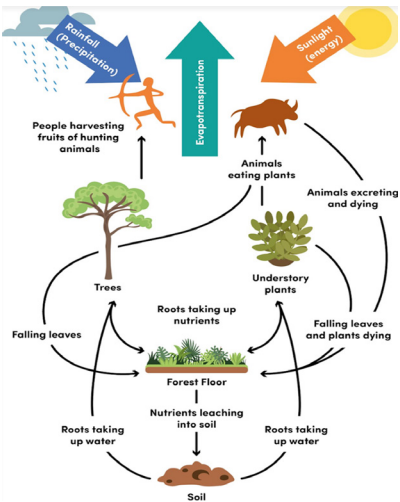
*\* Some rainforests, such as the Amazon rainforest, do have a 'dry' season.*



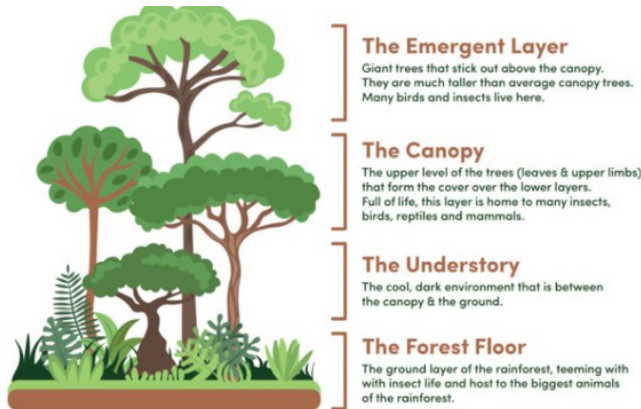
Adaptions - Butress roots and drip tips



### The nutrient cycle in the rainforest.



### The layers of the rainforest



## Management of Tropical Rainforests

**Selective logging**- Trees are only cut when they reach a particular height. This allows younger trees a guaranteed life span and the forest will regain full maturity after around 30-50 years.

**Agroforestry** - Valuable crops such as coffee and cacao are frequently grown under the canopy of tropical forest. This method is highly sustainable as it does not require trees to be cut down in order to make way for farmland

**Forest reserves** -Also known as National Parks these are essentially large areas of protected rainforests where no logging activity is allowed.

**Afforestation** -This is the opposite of deforestation. After trees are cut down, they are replanted to maintain the canopy.

**Satellite monitoring**-This involves the use of satellite technology and aerial photography to ensure that any logging activities taking place are legal and follow guidelines for sustainability.

# Year 9 Geography – Ecosystems Under Threat

## 6. Hot Deserts

**Physical Characteristics** Hot desert environments are found between 20° north and 30° south of the Equator, where hot, dry air sinks and causes cloud-free conditions.


Rainfall levels are low and unpredictable – it may not rain for years at a time. Averages are less than 250 mm a year.

It is extremely hot in the day but cold at night, as there are no clouds to stop heat loss. Diurnal (daily) temperatures can range between 35-40°C in summer. Deserts are dry and arid with little vegetation.

Hot deserts offer extremely challenging environments for animals and people.

Due to the hot, dry conditions, soil is poor and desert biodiversity is low. Only specially adapted animals are able to survive.

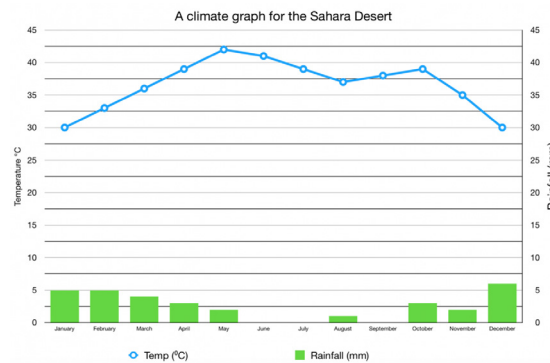
Desert people are often nomadic, meaning they keep moving in search of food and water. They grow crops where they can and rely on animals such as goats and camels for food and transport.



### Who are the Bedouin people?

Arabic-speaking nomadic peoples of the Middle Eastern deserts, especially of North Africa, the Arabian Peninsula, Egypt, Israel, Iraq, Syria, and Jordan.

Most Bedouins are animal herders who migrate into the desert during the rainy winter season and move back toward the cultivated land in the dry summer months. Bedouin tribes have traditionally been classified according to the animal species that are the basis of their livelihood.



## 7. UK Landscapes



### Key words

**National Park:** A legally designated area of valuable landscape worth preserving. Planning and development are controlled. E.g. The Lake District

**Honey Pot Site:** A specific location attracting a very large number of people that causes pressure on the environment. e.g., Beatrix Potters House

The National Parks were created as part of the post World War II re-establishment process and aimed to bring long-term protection to areas of beautiful countryside that were highly valued for physical and spiritual refreshment.

### Why is it important to protect National Parks?

National Parks are important and special areas covering 10% of the land area in England and Wales. They protect vital landscapes and wildlife habitats, are important places where people live and work, and provide a focus for recreation and tourism for millions of visitors each year.

There are 90 million visitors to National Parks each year. These visitors experience the well documented physical and mental health benefits of being connected with nature.

Over 23% of land in National Parks in England is designated as Sites of Special Scientific Interest. The Parks play an important role in mitigating the effects of climate change and are essential carbon stores. Peat soils in National Parks in England hold 119 megatons of carbon, that's the equivalent to England's entire CO2 emissions for one year.

# Year 9 History

1. Key Words	Definition
Minority	A small group of people within a community or country, differing from the main population in race, religion, language, or political persuasion
Segregation	Separating people based on race
Separate but equal	Providing different but equal quality facilities like schools. The reality of this was very different.
Jim Crow Laws	Laws that enforced racial segregation in the Southern states of the USA
Boycott	To refuse to buy something to make a political point.
Migration	Moving to a new place, usually for work or a better life.
Economic Migration	Moving to a new place for work or financial reasons.
Archaeology	The scientific study of material remains (such as tools, pottery, jewellery, stone walls, and monuments) of past human life and activities
Colonise	To send people to live in and govern another country
Discrimination	To treat someone differently.

## Key Historical Terms:

**Significance** - means something that is important or worth learning about

**Cause** - A reason for an event

**Consequence** - The outcome of an event

**Interpretation** - Different opinions on an event or a person



# Year 9 History

## 2. Segregation and Jim Crow laws

The laws that introduced segregation in the US South (the laws that kept black people and white people apart).

The laws were meant to marginalize African Americans by denying them the right to vote, hold jobs, get an education or other opportunities. Those who attempted to defy Jim Crow laws often faced arrest, fines, jail sentences, violence and death.

## 5. Viking Migration

In the Middle Ages, England faced a number of invasions from the Norse people living in Norway and Denmark. These raiders were known as Vikings. They attacked and invaded lands overseas to get riches and slaves which they brought back to their home countries. Some Vikings settled in the lands that they raided. They came to England after 793, and then to Northern France, where they established Normandy (the land of the Northman) in the early 10th century.

## 3. Fight for Civil Rights

The Civil Rights Movement challenged legal inequality:

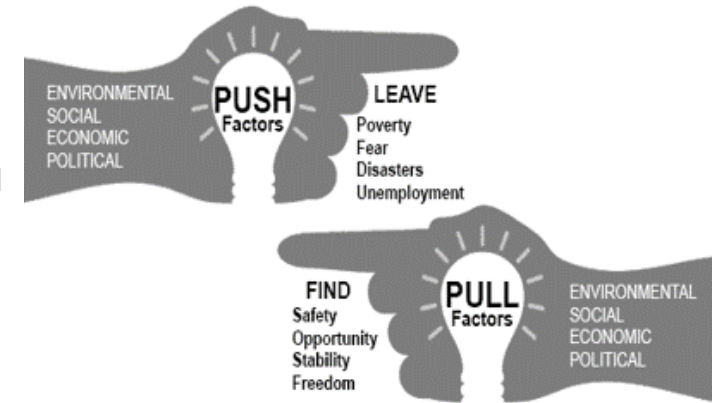
- The Civil Rights Act (1964) outlawed segregation in schools, public places or jobs.
- The Voting Rights Act (1965) outlawed racial discrimination in voting.
- The Fair Housing Act (1968) outlawed discrimination in housing.

However, despite these laws, black Americans did not achieve economic equality. Although there has been significant progress since the Civil Rights Movement, black Americans still remain a socially disadvantaged group.

## 6. Who were the Huguenots?

Huguenots in France had generally lived in towns and had followed skilled crafts, such as textile weaving and watchmaking, and professions like law and banking. Between 40,000 and 50,000 Huguenots settled in England, mainly in major towns like London, and they continued their crafts and professions. They assimilated (joined in) easily into English society, because their religion and culture were so like their host society. They learned the language and were Protestant which was dominant in England after the Glorious Revolution of 1688.

## 4. Push and Pull factors for Migration



## 7. Additional reading and resources

Huguenots come to settle, 16th and 17th Century - Migration's effect on Britain - economics and commerce:

<https://www.bbc.co.uk/bitesize/guides/z2374j6/revision/2>



A summary of the Civil Rights Movement in America - The Civil Rights Movement in America:

<https://www.bbc.co.uk/bitesize/guides/zpcwmn/revision/1>



# Year 9 Spanish

## 1. Know your phonics!

Revisit these rules and then apply them to all new vocabulary that we cover this term. Remember the rules never change!

**a - e - i - o - u**

**ca - ce - ci - co - cu**

**ca - que - qui - co - cu**

**ga - ge - gi - go - gu**

**ga - gue - gui - go - gu**

**rr - ll - v - h - j - ñ - z**

Pronouncing words in Spanish:

<https://www.bbc.co.uk/bitesize/topics/zhy27nb/articles/zk78382>

## 2. Non-negotiable verbs

These are the most important verbs in the Spanish. If you know these well you can talk about most things!

<b>fui = I went</b>	<b>iré = I will go</b>
<b>vi = I saw</b>	<b>será = it will be</b>
<b>fue/era = it was</b>	<b>habrá = there will be</b>
<b>me gustó = I like it</b>	<b>voy a = I'm going to</b>
<b>me divertí = I had fun</b>	<b>va a = he/she's going to</b>
<b>visité = I visited</b>	<b>to</b>
<b>comí = I ate</b>	<b>me gustaría = I would like</b>
<b>había = there was/were</b>	

You can practise the essentials on Memrise too!

## 3. Vocab learning techniques

Regularly practise your topic specific vocabulary using the techniques listed below:

- Log into your Memrise Group and practise online
- Look-cover-write-check

This video demonstrates what to do:

<https://youtu.be/eKoOoW8PBc0>

- Use the Parallel text

This video demonstrates what to do:

<https://youtu.be/WcvVeNM6dWc>

Make Flashcards and self-test:

<https://youtu.be/-SL9037YMKA>

## 4. Know your question words!

To answer any question, it's essential you know your key question words well. These are all on Memrise as well for you to practise.

<b>qué = what</b>	<b>cuánto = how much</b>
<b>cuál = which</b>	<b>cuántos = how many</b>
<b>dónde = where</b>	<b>cómo = how</b>
<b>adónde = where to</b>	<b>cómo es = what like</b>
<b>de dónde = where from</b>	
<b>cuándo = when</b>	
<b>quién = who</b>	
<b>con quién = with whom</b>	
<b>por qué = why</b>	

## 5. High frequency vocab

This vocab is commonly used all the time in Spain, the more of this you know, the better you will be able to communicate in any situation:

<b>me flipa</b>	} <b>I like</b>	<b>dado que</b>	} <b>because</b>
<b>me mola</b>		<b>puesto que</b>	
<b>más...que = more...than</b>		<b>ya que</b>	
<b>menos...que = less...than</b>			
<b>mejor que = better than</b>			
<b>peor que = worse than</b>			

## 6. Further reading, websites

How to talk about the past in the preterite tense:

<https://www.bbc.co.uk/bitesize/guides/zhwgmfr/revision/1>

How to talk about the future:

<https://www.bbc.co.uk/bitesize/guides/zj9yjhv/revision/1>

GCSE tasks relating to school:

<https://www.bbc.co.uk/bitesize/guides/zm2xgwx/revision/1>

GCSE tasks relating to future plans:

<https://www.bbc.co.uk/bitesize/guides/zfsywty/revision/1>



# Year 9 Computer Science - HTML

## 1. Using HTML

HTML	<p>HyperText Markup Language. The language used to write and display web page documents.</p> <p>HTML can be written with specialist software or using a text editor, but must be saved with the extension .html</p> <p>This is an example of html</p> <pre>&lt;html&gt;   &lt;body&gt;     &lt;h1&gt;Hello world&lt;/h1&gt;     &lt;p&gt;This is my first webpage&lt;/p&gt;   &lt;/body&gt; &lt;/html&gt;</pre>
HTTP	<p>Hypertext Transfer Protocol - a request/response standard. Web browsers send requests and websites or servers respond to requests.</p>
Hyperlink	<p>A link in a document or webpage that connects to another location</p>
Network	<p>A group of interconnected computers/devices.</p>
Internet	<p>A global, partial mesh network</p>
WAN	<p>Wide area network</p>

## 2. CSS

### Cascading Style Sheets

Cascading Style Sheets (CSS) can be used to style web pages. While HTML tells the browser what to display on a page, CSS tells the browser how to display it. CSS rules can be added to already existing HTML files.

#### A CSS rule set consists of:

**a selector** – what the rule is for

**a declaration block** – what the rule will do

Change background colour of the body to ivory	<pre>body {   background-color:ivory; }</pre>
Set the format of the header to blue and font size to 12 pixels	<pre>h1 {   color: blue;   font-size: 12px; }</pre>

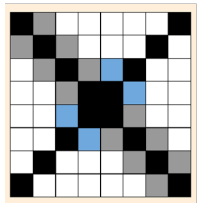
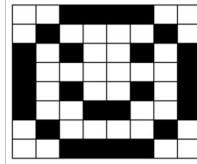


# Year 9 Computer Science - HTML

## 3. How are Images represented in Computers?

Images are stored in binary

- A binary number is allocated to each colour in the image.
- The size of an image file depends on the number of bits used for each colour (as well as the file height and width).



11	10	00	00	00	00	00	11
10	11	10	00	00	00	11	00
00	10	11	10	01	11	00	00
00	00	10	11	11	01	00	00
00	00	01	11	11	10	00	00
00	00	11	01	10	11	10	00
00	11	00	00	00	10	11	10
11	00	00	00	00	10	11	11

1 bit = two possible colours (black and white)

The more bits, the more colours you can use in your image.

So 2 bits = 4 colours, 4 bits = 16 colours

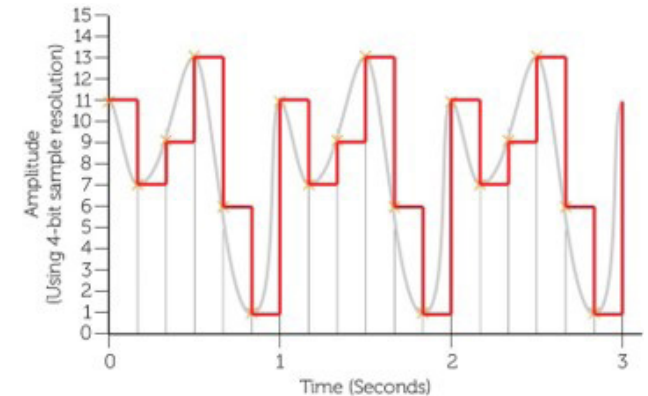
Colour depth	The number of bits determines the range of colours. More bits = more colours in an image. More bits = larger file size
Image size	the number of pixels that an image contains. It is expressed as height and width in mm.
Image file size	Calculated by multiplying: Colour depth (bits) x Height (pixels) x width (pixels)
resolution	Images are made up of pixels. The density of pixels is called resolution. Files with higher resolution are have larger file size but can also be displayed at a larger size without loss of detail.
Metadata	Information which is stored with the image, such as when it was taken, file size, bit depth

## 4. How is sound represented in computers?

Sound is stored in binary

An analogue sound wave is converted to digital using a technique called sampling

The sound wave is sampled and the amplitude measured is stored as a binary number.



bit	The smallest unit of data in computing represented by a 1 or 0 in binary.
Bit depth	The number of bits available to store an audio sample.
Bit rate	The number of bits processed per second.
sample	A digitally recorded fragment of sound, taken from an existing track or sound environment.

**Calculating sound file size:**

**Bit rate x bit depth x time (seconds)**

# Year 9 Art - Colour: Artists use Art to be Heard.

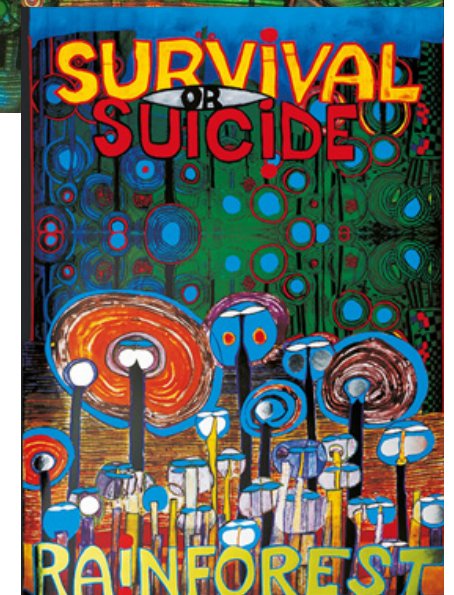
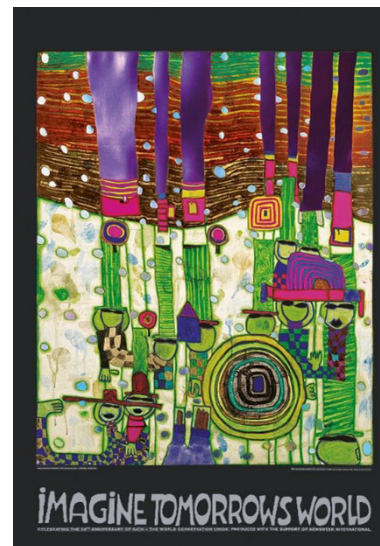
1. Keywords	Definitions
Tone	How the light falls on an object. From dark to light
Texture	What is the object made from?
Pattern	Repeating marks that can represent texture.
Message	The story, meaning or message in the art work.
Environment	The natural world we live in.
Collage	Using coloured paper torn into pieces and stuck down to create colour and tone.

## 2. What will I learn?

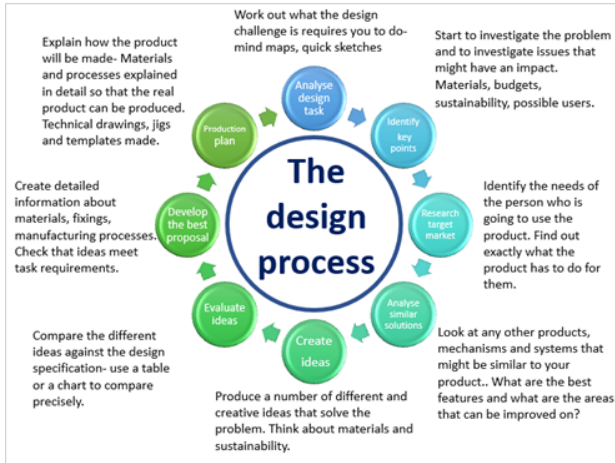
You will be introduced to the work and life of Hundertwasser. He actively campaigned for environmental issues as far back as the 1970's. You will start to learn how art can convey meaning and message.

## 3. What do I need to know?

You will use all the skills you have learnt this year combining mark making, tone, texture, pattern, and colour to create a final outcome inspired by Hundertwasser with an environmental message.



# Year 9 Design Technology - The Design Process



## Design Process- Investigating target market

When we design products it is incredibly important to meet the needs of the user/ customer. One way of starting is to collect examples of products that they already use and would want to own. It can also be useful to investigate brands and campaigns that they think are important.

How often do you cook with your children?	Boys	Girls
Do you think healthy eating is important?	Yes	No
Do your children enjoy cooking?	Yes	No
Are you worried about cooking with kids?	Yes	No
Do you or your kids use any equipment?	Yes	No
Are your children able to work safely?	Yes	No
Are your kids able to work independently?	Yes	No
Are your children organised enough?	Yes	No
Is your cooking space child-friendly?	Yes	No
Do the kids have their own cooking gear?	Yes	No

It is important to have an actual person to talk to so that they can help you review the design proposals. Asking them a focused questions is an important task.



## Design process- writing a specification.

When we have investigated the requirements of the design brief and we have identified the intended user and their needs, it is time to describe clearly what the product is and how it will work. There are lots of different things that can be 'specified' .... It will depend on each project. A really good starting point is to use the ACCESS FM method to remind you of key points.

A:	Aesthetics, what does the product look like.
C:	Cost, how much does the product cost to buy?
C:	Customer, who would buy or use the product?
E:	Environment, where would the product be used or stored?
S:	Size, how big or small is the product?
S:	Safety, how safe during normal use?
F:	Functions, how does the product work?
M:	Material, what is the product made of?

By being 'specific' when describing the features and functions design thinking can be guided and degrees of success measured by evaluations and notes.

- Examples of bad specification points.**
  - It will be quite big so that it fits.
  - It will be suitable for everyone so you can sell more.
- Examples of good specification points.**
  - Size will be maximum 200 x 300 x 25 so that it fits in a standard kitchen drawer.
  - It will be appealing for users under five and must include room for them to customise the product..

## Design Process- Analyse existing products

It is always a good idea to look at products and systems that are already in existence. It gives you a chance to see what works well and how the product has been put assembled or manufactured.

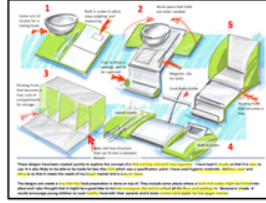
It can also be useful to be look at smaller parts of products or systems. For example parts for a circuit or mechanisms that perform specific tasks.

If you look at how products are assembled you can use similar or improved methods.



## Design Process- Generate design Ideas

A really exciting stage of the design process is when you create the first ideas for your product. You need to come up with a **wide range** of different versions of your design solution....These should try out different solutions, materials, mechanisms, colours. Make sure you **show the intended user your design ideas** so that they can help you select the most effective ones.



## Design Process- Evaluate design Ideas

Once you have come up with a range of ideas and you are developing the product and the manufacturing process you need to evaluate the design ideas.

There are lots of ways to evaluate- **always use notes** to describe design thinking. The **star profile** allows you to compare different ideas **visually** to help you select the best version. A **comparison table** lets you score the design against the original specification.. So long as you compare ideas and describe why it works then you will improve the final product.

Evaluating first ideas and thinking about next steps.

	1	2	3	4	5	6	7	8	9	10
It will be safe and bright.										
It will be less than £20 to produce.										
It will be suitable for use by 5-7 year olds when supervised.										
It will be made from durable and non-toxic materials.										
It will be able to be stored out of the way when not in use.										
It will be easy to use by a standard sized user.										
It will be designed with safety of the children in mind.										
It will be easy to assemble.										
It will be made from materials that are common and easy to find.										
It will be made from materials that are common and easy to find.										

These evaluated each of the ideas against the specification. In the moment there are still lots of things that aren't done and have made them. Another 10 ideas that they think could be made to make them. I will not identify them any further. I will not identify them any further. I will not identify them any further. I will not identify them any further.

Existing products- possible concepts

Existing Products

Aesthetics  
Cost  
Customer  
Environment  
Size  
Safety  
Function  
Material

Technical drawings and 3D models of design ideas.

## Design Process- physical modelmaking

Models are made all the way through a design process. They are better than drawings sometimes because you get a chance to really explore the design in 3D- to see how parts fit together, how mechanisms work, to see if the products are comfortable and to measure parts that might be hard to work out in your head. Models are made according to the function they need to perform.

- Sketch models made of card- these are often used for layout and size.
- Handling models to test ergonomics and fit.
- Circuit prototypes to test how components function
- Mechanism models to test how components will fit and function together.
- Appearance models to see how the finished product might look (not always functioning).
- Models might be made from card and board. Blue foam is a good material for shaping 3D objects.
- Foam board is useful for modelling architecture.
- Resin is a good choice for making batches of models by casting.



## Design Process- Developing design Ideas

Once you have settled on the most likely design ideas you will need to go into detail explaining how the real product will be assembled and what the key components are. Your developments need to show sizes (dimensions) and details about materials and components such as screws, nuts and rivets. There should be a technical drawing- of the assembled product and of the different components.

Section D- Development of ideas. Assembly development sketches.

- Q1.** Designers use a variety of modelling techniques to develop their ideas. This sometimes involves working directly with materials and components in the forms below: **Card modelling Breadboard**  
Choose **one** of the modelling techniques above. Describe how your chosen modelling technique is used to develop products. **(Total 6 marks)**
- Q2.** Computers are an important part of product design and manufacture. Describe how a designer might use a computer in the development of a product you have chosen. **(Total 6 marks)**
- Q3.** This question is about modelling and prototyping. Explain the value of modelling and prototyping in the development of a new product. **(Total 4 marks)**
- Q4.** Give **two advantages** of modelling circuit designs on a computer instead of building them. **Advantage1. Advantage2**
- Q5.** Give **two disadvantages** of modelling circuit designs on a computer instead of building them. **(Total 2 marks)**
- Disadvantage 1  
Disadvantage 2
- Q6.** Choose two of the following terms and explain what they mean. (3)  
  - Design specification
  - Product analysis
  - Prototype
  - Evaluating**Term Meaning**

# Year 9 Food – Food Provenance/Food Waste

## 1. Food Provenance

Food provenance means where food comes from. Where it is grown, reared or raised.

### Why Choose Local?

- Food is Fresher
- Better for the environment: lower carbon footprint
- Supports local producers and economy

## 2. Food Miles

Food miles refer to the distance the food has travelled from farm to fork. It also refers to the potential impact on the products carbon footprint.

- Oranges - Spain - 787miles
- Green Beans - Kenya - 4237 miles
- Lamb - New Zealand - 11690 miles

## 3. Reducing Your Carbon Footprint

- Shop locally
- Grow your own
- Eat food in season
- walk to the supermarket
- Shop once a week

## 4. Logos to Look For



## 5. Food Poverty

Food poverty is the inability to access healthy and affordable food. This can be attributed to affordability of food due to financial issues or accessibility to food due to transport.

Due to food poverty people are likely to develop diet related issues such as obesity, type 2 diabetes and CHD.

## 6. Ways to Reduce Food Waste

- Plan your meals and shopping, only buy what you need
- Cook the correct measurements of items such as rice and pasta
- Store food correctly
- Use leftovers to make other dishes
- Compost vegetable peelings
- Check use-by-dates regularly

## 7. Types of Food Packaging

**Plastic** - Not biodegradable but most plastics can be recycled. Used for bottles, trays, sandwiches



**Paper/Card** - Easily recycled and biodegradable, cheap to make. Used for pizza boxes, eggcartons.

**Glass** - Reusable and recyclable. Doesn't biodegrade easily. Used for bottles and jars.



**Metal** - Aluminium and steel both easily recycled. Doesn't biodegrade easily. Used for takeaway containers, tinned products.

## 8. Food Packaging

Packaging of food is essential to preserve freshness, to protect from damage and to prevent contamination.

## 9. 3R's

**Reduce** - Choose items with the least amount of packaging. Reduce the time to cook items.

**Reuse** - Reuse items such as carrier bags, glass jars. Reuse leftovers to make another meal

**Recycle** - Recycle everything you can, use bottle banks and composters.



# Year 9 Religious Education – How far does it make a difference if you believe in life after death?

1. Keywords	Definitions
Resurrection	The act of arising from the dead and becoming alive again
Reincarnation	The rebirth of a soul in another body
Soul	The spiritual part of a person that some people believe continues to exist in some form after their body has died
Spirit	The non-physical part of a person which contains a person's emotions and character
Afterlife	An existence after death
Judgment	Reaching a verdict on the actions someone has taken
Immortality	Living forever
Akhirah	In Islam, the belief in everlasting life after death
Karma	The Hindu and Buddhist concept that what will happen to you in your next life based on what you do in this life
Nirvana	Breaking free from the cycle of reincarnation. Used in Buddhism and Hinduism.

## Additional Resources:

<https://www.bbc.co.uk/bitesize/topics/zkdk382/articles/zbgp7nb>



## What does a humanist believe?

Humanists reject the idea or belief in a supernatural being such as God. This means that Humanists class themselves as agnostic or atheist. Humanists have no belief in an afterlife, and so they focus on seeking happiness in this life.

# Year 9 Religious Education – How far does it make a difference if you believe in life after death?

2. Religion or belief	Basic ideas on life after death
Islam	<p>Islam teaches that there is life after death. This is known as Akhirah.</p> <p>In Islam, it is Allah (God) who decides when a person dies. Most Muslims believe that when they die, they will stay in their graves until Yawm al-din (the Day of Judgement). On that day, they will be raised from their graves and brought before Allah and judged on how they lived their earthly lives. This belief is known as the resurrection of the body.</p>
Judaism	<p>Jewish beliefs about life after death are ambiguous. This means beliefs are unclear and there are differences amongst Orthodox and Reform Jews. Judaism places a great emphasis on how this life should be lived. It teaches that what happens in the next life is in the hands of God. There is a general agreement that death is not the end.</p>
Christianity	<p>Many Christians believe that after death they will be taken into the presence of God, and they will be judged for the deeds they have done or failed to do during their lifetime. humans will have a spiritual existence after death, rather than a physical one. Belief in heaven and hell.</p>
Buddhism	<p>Most Buddhists believe that death marks the end of this life and the passage into the next. It is just one spoke among infinite spokes in samsara, the cycle of birth, death, and rebirth. According to the Buddha, beings go through countless births and deaths until they gain enlightenment.</p>
Sikhism	<p>Sikhs believe that life is a cycle of birth, death and rebirth. This is known as the cycle of samsara. Part of this belief is the idea of reincarnation, which is the belief that when humans die, they are reborn into a new body. Many believe there are over 8.4 million different possible life forms that they might have to experience before they are liberated from the cycle of samsara</p>
Hinduism	<p>Most Hindus believe that humans are in a cycle of death and rebirth called samsara. When a person dies, their atman (soul) is reborn in a different body. Hindus believe in karma. Many believe that good or bad actions in life - leading to positive or negative merit - determine the atman's rebirth.</p>

## Year 9 Music – Songwriting

1. Keyword	Definition
Songwriting	The process of creating a song, including lyrics, melody and chords.
Structure	The organisation of a song, including its sections (verse, chorus, bridge)
Strophic Form	A structure of music that has a section that repeats (usually a chorus).
Binary Form	A structure that has two clear sections (usually A and B).
Ternary Form	A structure of music that has three sections, but the first and third section are the same (e.g. A, B, A).
Rondo Form	A structure of music where a main theme happens and then alternates with different parts (A, B, A, C, A, D...)
Melody	The main tune of the music – this is typically what the lyrics would go to.
Chord Progression	A series of chords played in a certain order to create the foundation of a song.
Tonality	The overall key or mood of the piece of music. It can make a song sound happy (major) or sad (minor).
Hook	A hook is a catchy and memorable part of a song that usually gets stuck in your head!

# Year 9 Music – Songwriting

## 2. Structure

Music must always have a clear and identifiable structure in place otherwise the music is just random chaos.

In music, we sometimes represent each section of music (such as a verse) as a letter. There are few structures/forms we need to remember:

**BINARY FORM** A B

**TERNARY FORM** A B A

**RONDO FORM** A B A C A D...

**STROPHIC FORM** Verse, Chorus, Bridge etc.

## 3. Melody & Harmony

The melody is the tune of the song and is usually the most memorable and catchy part. It is often the main focus of the song and can be created by singing or playing an instrument.

The harmony refers to the chords and what chords are used within the song. The harmony always accompanies a melody. The harmony creates a musical backdrop for the melody and can add depth and emotion to the song.

## 4. Lyrical Content

Lyrics are a crucial element of songwriting because they are the words that convey the message or story that a songwriter wants to tell. They can express a wide range of emotions and ideas and can connect with the listener on a deep and personal level.

## 5. Chords

Chords are three or more notes played together. They are used to create harmony in a song. The most common chords are major (happy) or minor (sad).

There are many ways to play different chords and it is important to play what you think sounds good. Some chords tend to work better with others, and it is down to experimenting to try and find which ones fit best! Try to combine a mixture of major and minor chords in a song to make the music sounds like it progresses.



[is.gd/pianochordshelp](https://is.gd/pianochordshelp)

## 6. Links and Further Reading

### Video:

How To Write a Song

[is.gd/howtowriteasong](https://is.gd/howtowriteasong)



### Lesson:

Writing Lyrics

[is.gd/writinglyrics](https://is.gd/writinglyrics)



### Revise:

Flash Card Maker

[is.gd/flashcardmaker](https://is.gd/flashcardmaker)





# Year 9 Drama – Blood Brothers by Willy Russell

## Features of form

1. A didactic play	A drama which intends to teach, especially with regard to morals.
2. Tragedy	An event causing great suffering, destruction and distress.
3. Parallels and contrasts	Parallels – similarities. Contrasts – differences.
4. Narrator	A person who gives the spoken account of something. Omniscient to remind the audience about the ending of the play.
5. Stage directions	An instruction in the text of the play indicating the movement, the position or tone of an actor, or the sound effects and lighting.
6. Song	A single work of music that is typically intended to be sung by the human voice. It is through the songs that the characters reveal their true thoughts and feelings.
7. Dialogue	A conversation between two or more people.
8. Montage	A series of short sequences are edited into a sequence to condense space.
9. Foreshadowing	A warning or indication of a future event.
10. Symbols and motifs	A thing that represents or stands for something else. A motif is a dominant or recurring image of idea.
11. Accent and dialect versus Standard English	Standard English is any form of the English Language that is accepted as a national norm. Accent is a distinctive way of pronouncing a language. Dialect is a particular form of language which is peculiar to a specific range or social group.



## Characters

Mrs Johnstone	Naïve, loving and maternal, caring, rash, strong, generous, good, selfless, uneducated, superstitious, lively, zesty, trapped, victim, helplessness,
Mrs Lyons	Lonely, cold, wealthy, dependent, inconsiderate, pampered, self-centred, manipulative, over-protective, anxious, unreasonable, mad
Mickey	Friendly, excitable, adventurous, sneaky, cast-off, wants to impress, shy, determined, bright, witty, hard-working, ambitious, trapped, victim
Edward	Friendly, generous, naïve, restricted, impulsive, lacks compassion, condescending, sneaky
Sammy	Aggressive, threatening, sarcastic, anti-social, criminal, hostile
Linda	Kind, compassionate, feisty, humorous, strong-willed, supportive, protective, poor, untrustworthy, desperate

## Context

<b>Willy Russell</b>	<ol style="list-style-type: none"> <li>Born into a working class family.</li> <li>He grew up near Liverpool.</li> <li>Father had various jobs including mining and factory work.</li> <li>Annoyed at treatment of intelligent working class and associated stereotypes.</li> <li>Left school at 15 with just one O'level: a D in English Language. Went to evening classes and university to become a teacher.</li> </ol>
<b>Liverpool</b>	<ol style="list-style-type: none"> <li>A major port and the centre for trade providing lots of jobs at the docks.</li> <li>During the Industrial decline, Liverpool became very vulnerable as the docks were shut and unemployment rates soared.</li> <li>Some men turned to crime and gangs in order to support themselves and their families. There were also riots in 1980s.</li> </ol>
<b>Margaret Thatcher</b>	<ol style="list-style-type: none"> <li>Prime Minister in 1979.</li> <li>Reduced the power of the trade unions and closed down many factories etc leading to widespread unemployment.</li> </ol>
<b>Skelmersdale</b>	<ol style="list-style-type: none"> <li>In the 1960s the government began building New Towns. These were small, existing towns which were extended and redeveloped to provide more housing for nearby cities.</li> <li>Working class families were rehoused here in the 1960s.</li> </ol>
<b>Class</b>	<ol style="list-style-type: none"> <li>Working class vs Middle class divide</li> <li>More opportunities for middle classes reflected in education, job prospects and wealth.</li> </ol>
<b>Education</b>	<ol style="list-style-type: none"> <li>The Education Act of 1944 led to 'secondary modern schools' and 'grammar schools.'</li> <li>Top 20% went to a grammar school with an academic curriculum. Secondary modern taught more practical subjects.</li> <li>7% of students were educated in private, fee-paying schools. The average boarding school fees in the 1960s would have been approximately 25%.</li> </ol>

## Key Themes

- Childhood Adolescence
- Superstition
- Violence
- Nature Vs Nurture
- Social Class

## Further Reading

An interview with Willy Russell

<https://www.on-magazine.co.uk/arts/arts-interviews/willy-russell-blood-brothers/>



Characters

<https://www.youtube.com/watch?v=RF9V5zeUf5U>



Set between 1960 – 1980s In Liverpool, England





