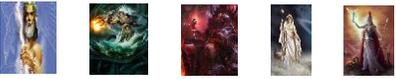


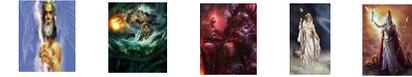


Contents

English
Mathematics
Science
Geography
History
Religious Education
French
Art
Design and Technology
Food and Nutrition
Music
PE



English – Unit 1 - Introduction to Greek Mythology



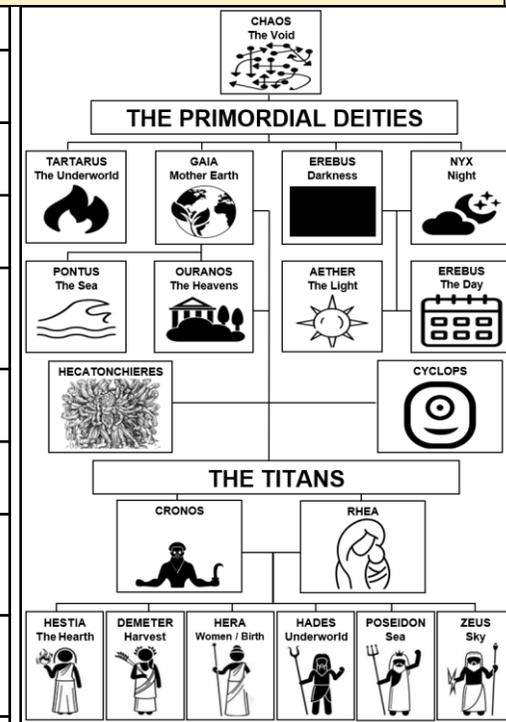
What is a Myth?

Every human culture has developed its own mythology to explain its origins and make sense of the phenomena that we see in the natural world. The word “mythology” comes from the Greek muthos, meaning “story,” and logia, “knowledge.” Myths serve two purposes. The first is to tell of the creation of the world or predict its end; to explain how animals were made and the land formed; they bridge the world of humans and the world of the spirits or gods; they try to impose order on a terrifying chaos, and to confront the mysteries of death. Crucially, myths are also the foundation of religions: they define cultures and their values. The second function of myth is to justify an existing social system and account for traditional rites and customs. In ancient Greece, stories about gods and goddesses and heroes and monsters were an important part of everyday life. They explained everything from religious rituals to the weather, and they gave meaning to the world people saw around them.

Greek Mythology

the earliest Greek myths were part of an oral tradition that began in the Bronze Age, and their plots and themes unfolded gradually in the written literature of the archaic and classical periods. Around 700 BC, the poet Hesiod’s Theogony (the name of a poem) offered the first written cosmogony, or origin story, of Greek mythology. The Theogony tells the story of the universe’s journey from nothingness (Chaos, a primeval void) to being, and details an elaborate family tree of elements, gods and goddesses who evolved from Chaos and descended from Gaia (Earth), Ouranos (Sky), Pontus (Sea) and Tartarus (the Underworld). Later Greek writers and artists used and elaborated upon these sources in their own work. Over centuries and millenia, these stories have been developed and built upon to form the basis of countless literature that we are familiar with today. Thinkers from Ancient Greece also laid the foundations for many areas of study outside of literature. They continue to have a profound influence on how we live today in western society and laid the foundations for many areas of study including astrology, mathematics, biology, engineering, medicine or linguistics.

Myth	Concept	Summary
(1) Cronos	Fate	Devours his children to avoid a prophecy; that he is destined to be overcome by his own sons, just as he had overthrown his father. Eventually defeated by Zeus and his other children during the Titanomachy.
(2) Oedipus	Fate Tragedy	Unwittingly fulfils a prophecy, where he kills his father and marries his mother. The truth becomes known and terrible consequences happen.
(3) Prometheus	Punishment and Retribution	Prometheus steals fire from the gods and gifts it to humans. Zeus punishes him by having him spend eternity chained to a rock, where an eagle eats his daily-replenished liver. Symbolises unfair punishment for defying order.
(4) Pandora	Punishment and Retribution	Meaning “the gift of all”, was the first woman, created in magnificent beauty by Zeus and sent to Prometheus as punishment for stealing fire. Carries a box (Pandora’s box) and ordered not to open, but does, unleashing a variety of misfortunes on the human race. Symbolises irresistible temptation.
(5) King Midas	Punishment	Granted a wish that everything his touches turns to gold and, as a result, lives a terribly conflicted existence. Suggests wealth and unhappiness.
(6) Sisyphus	Punishment	Tricks the gods and defeats death temporarily. As a result he is forced to continuously push a boulder up a steep hill for eternity. Represents an endless, difficult and pointless task.
(7) Perseus and Medusa	Heroes	Perseus kills the gorgon Medusa and saves Andromeda. Symbolises courage and heroism
(8) Hercules	Heroes	Fulfils twelve gruelling labours, showing courage, strength and honour. Achieves kleos and takes a place amongst the gods on Mount Olympus when he dies. Refers to a task that will be difficult and require physical and mental strength to achieve.
(9) Odysseys	Heroes	Odysseus undergoes a 10-year struggle to return home after the Trojan War, battling mystical creatures and facing the wrath of the gods along the way





What is a Gothic Text?

Gothic fiction is a genre of literature which combines parts of both **horror** and **romance**. The genre is said to have started in England in 1764 with Horace Walpole's book *The Castle of Otranto*. Its second edition was subtitled *A Gothic Story*. The idea quickly spread to other European languages.

High emotion is typical in a Gothic text: characters are often overcome by anger, sorrow, surprise, and especially, terror. Characters suffer from raw nerves and a feeling of impending doom; crying and emotional speeches are frequent.

There is often an **atmosphere of fear and suspense**. Gothic texts often feature a threatening feeling, a fear that is boosted by the unknown. Often the plot itself is built around a mystery, such as unknown parentage, a disappearance, or some other inexplicable event. People disappear or show up dead inexplicably.

Gothic Settings

Haunted houses and ruined castles are typical Gothic settings. By day, when the sun is shining (perhaps representing goodness) all tends to be normal. But at night darkness, fear and evil prevail. Outside you will find the "wild" countryside: stories are set in bleak moors, dark forests, isolated places where there are few people living. Houses are quite often cut off from the outside world, separated from normality by inhospitable environments.

Pathetic fallacy is a common technique used by Gothic writers. Pathetic fallacy is when the outside environment mirrors the mood of the text. In a Gothic text, for example, when you meet a "bad" character you would expect the sky to be dark and stormy – the bad character is reflected by the bad weather. Other examples of pathetic fallacy include: mists that hide things away; storms that shake buildings; winds that howl through the landscape and flashes of lightning that suddenly reveal something terrifying.

Gothic texts frequently include **supernatural** elements. **Super** means above or beyond and **natural** means the known world. Ghosts, vampires and werewolves are all commonly included across the genre. Authors do not always name these supernatural characters, instead choosing to let a **spectral presence** linger over the text.

There is often something from **the past** that affects the present. For example, evil deeds that cause a punished soul walks the earth as a ghost or supernatural creatures that have lived for hundreds of years such as vampires and werewolves. Other authors include hidden rooms where there are corpses from the past; there could be a curse from the past that still appears to be in operation.

Jekyll and Hyde – Key Context

- Victorian values – from the 1850s to the turn of the century, British society outwardly displayed values of sexual restraint, low tolerance of crime, religious morality and a strict social code of conduct. Utterson is our stereotypical Victorian male.
- The implications of Darwinism and evolution haunted Victorian society. The idea that humans evolved from apes and amphibians led to worries about our lineage and about humanity's reversion to these primitive states.
- Gothic genre – the key features of the gothic genre are shown through the: setting e.g. the alleyway, character e.g. the antagonist of Hyde, the plot e.g. the vicious murder of Carew.
- Victorian London – the population of 1 million in 1800 to 6.7 million in 1900, with a huge numbers migrating from Europe. It became the biggest city in the world and a global capital for politics, finance and trade. The city grew wealthy.
- Urban terror – as London grew wealthy, poverty in the city also grew. The overcrowded city became rife with crime. Gothic and detective literature became more relevant.
- Robert Louis Stevenson was born and raised in Edinburgh, giving him the dual identity of being both Scottish and British. Edinburgh was a city of two sides - he was raised in the wealthy New Town area, but spent his youth exploring the darker, more sinister side of town.
- Religion vs Science. Religious people believed that you should not go against God and what he created but then scientists such as Dr Jekyll manipulated DNA.

Word	Definition
Ambiguous	Something that is ambiguous is open to more than one interpretation.
Obscure	Something that is obscure is not discovered or known about. It may be hidden away.
Ambivalence	Ambivalence is the state of having mixed feelings or conflicting ideas about something or someone.
Preternatural	The preternatural is something that is not normal or not natural.
Affliction	An affliction is something that causes someone pain or harm.
Wretched	Something that is wretched is in a very unhappy or unfortunate state.
Impetuous	If you are impetuous then you will make very quick and snap decisions.
Incensed	If you are incensed then you are very angry or enraged.
Mournful	If you are mournful then you are feeling deep sadness, regret or grief
Lamentable	If things are lamentable then they are in a very bad circumstances.
Aberration	Something that is abnormal
Allusion	A reference to another literary work within the one that you are reading
Duality	Two different aspects of something being explored
Feral	Something that is wild and out of control, usually due to being isolated from society
Restraint	Holding yourself back from doing something that you may want to do
Epistolary	A story written in letter form
Juxtaposition	When two contrasting ideas are placed next to each other and therefore highlighting the contrast between them
Victorian	Something that was written or created during the reign of Queen Victoria
Evolution	The belief that we have developed as humans through evolving – slowly changing and growing



Plot Summary

1. The Story of the Door:	Passing a strange-looking door whilst out for a walk, Enfield tells Utterson about incident involving a man (Hyde) trampling on a young girl. The man paid the girl compensation. Enfield says the man had a key to the door (which leads to Dr. Jekyll's laboratory)
2. Search for Hyde:	Utterson looks at Dr. Jekyll's will and discovers that he has left his possessions to Mr. Hyde in the event of his disappearance. Utterson watches the door and sees Hyde unlock it, then goes to warn Jekyll. Jekyll isn't in, but Poole tells him that the servants have been told to obey Hyde.
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.
4. The Carew Murder Case	Nearly a year later, an elderly gentleman is murdered in the street by Hyde. A letter to Utterson is found on the body. Utterson recognises the murder weapon has a broken walking cane of Jekyll's. He takes the police to Jekyll's house to find Hyde, but are told he hasn't been there for two months. They find the other half of the cane and signs of a quick exit.
5. Incident of the Letter:	Utterson goes to Jekyll's house and finds him 'looking deadly sick'. He asks about Hyde but Jekyll shows him a letter that says he won't be back. Utterson believes the letter has been forged by Jekyll to cover for Hyde.
6. Remarkable Incident of Dr. Lanyon:	Hyde has disappeared. Jekyll seems happier and more sociable until a sudden depression strikes him. Utterson visits Lanyon on his death-bed. He hints that Jekyll is the cause of his illness. Utterson writes to Jekyll and receives a reply that suggests he is has fallen 'under a dark influence'. Lanyon dies and leaves a note for Utterson to open after the death or disappearance of Jekyll. Utterson tries to revisit Jekyll but is told he is living in isolation.
7. Incident at the Window	Utterson and Enfield are out for walk and pass Jekyll's window, where they see him confined like a prisoner. Utterson calls out and Jekyll's face has a look of 'abject terror and despair'. Shocked, Utterson and Enfield leave.
8. The Last Night:	Poole visits Utterson and asks him to come to Jekyll's house. The door to the laboratory is locked and the voice inside sounds like Hyde. Poole says that the voice has been asking for days for a chemical to be brought, but has rejected it each time as it is not pure. They break down the door and find a twitching body with a vial in its hands. There is also a will which leaves everything to Utterson and a package containing Jekyll's confession and a letter asking Utterson to read Lanyon's letter.
9. Dr Lanyon's Narrative:	The contents of Lanyon's letter tells of how he received a letter from Jekyll asking him to collect chemicals, a vial and notebook from Jekyll's laboratory and give it to a man who would call at midnight. A grotesque man arrives and drinks the potion which transforms him into Jekyll, causing Lanyon to fall ill.
10. Henry Jekyll's Full Statement of the Case:	Jekyll tells the story of how he turned into Hyde. It began as a scientific investigation into the duality of human nature and an attempt to destroy his 'darker self'. Eventually he became addicted to being Hyde, who increasingly took over and destroyed him.

Key Characters

Dr Henry Jekyll	A doctor and experimental scientist who is both wealthy and respectable.
Mr Edward Hyde	A small, violent and unpleasant-looking man; an unrepentant criminal.
Gabriel Utterson	A calm and rational lawyer and friend of Jekyll
Dr Hastie Lanyon	A conventional and respectable doctor and former friend of Jekyll.
Richard Enfield	A distant relative of Utterson and well-known man about town.
Poole	Jekyll's manservant
Sir Danvers Carew	A distinguished gentleman who is beaten to death by Hyde.
Mr Guest	Utterson's secretary and handwriting expert.

Key Themes in the novel

- Duality
- Science
- The Supernatural
- Reputation
- Rationality
- Urban Terror
- Secrecy and Silence
- The Gothic





Of Mice and Men



The Plot	
Section 1	The story opens with a description of the wooded area around the Salinas River in California. Two men approach: George and Lennie. As they talk more, it becomes clear that Lennie has a mild mental disability, and that George looks out for him. George catches Lennie petting a dead mouse and takes it off him, angrily. Lennie swears that he didn't kill it, although it becomes clear that Lennie's enormous strength means that he kills things unintentionally. George reminds Lennie that they are going to work on a ranch and he needs to behave. The two eat beans for dinner, with George losing his temper with Lennie for persistently asking for ketchup. He states that he would get along much better without Lennie. He then feels guilty about losing his cool, and reminds Lennie of their dream: one day, they are going to own their own farm. They then settle for the night.
Section 2	The two men arrive at the ranch, and after being scolded by their new boss, are assigned to a picking team led by Slim. They meet Candy, and also Curley, who immediately becomes aggressive towards Lennie. After he leaves, Lennie tells George to stay away from Curley. Curley's Wife then appears at the bunk, who Lennie finds 'purty' and who flirts with them. George has to tell Lennie to stay away from her. Slim then enters, who is clearly admired by all. He stokes up a friendship with George and Lennie.
Section 3	Slim gives one of his new pups to Lennie. George tells Slim of how they got chased out of the last town – Lennie grabbed hold of a girl's red dress, and wouldn't let go. Carlson begs Candy to let him shoot his old, stinking dog, to which Candy reluctantly agrees. Curley comes in, asking where his wife is. When he learns that she is not there, and neither is Slim, he storms out. The others follow, hoping to see a fight. Thinking they are left alone, George discusses the dream again to Lennie. Candy overhears, and swears to devote his life savings to it if he can be in. The other men return, Curley apologising to Slim for false accusations. Being mocked by the others, Curley turns his attention on Lennie, beating him. Lennie only fights back when George tells him to, severely crushing Curley's hand. Curley is warned by Slim not to get them fired.
Section 4	Crooks sits in his room alone. Lennie soon wanders in, lonely as the other men have gone out to town. Crooks initially tells him to go away, saying that he (as a black man) is not allowed in the others' bunk, and so they should not be allowed in his. Lennie persists, and eventually Crooks lets him in. Soon enough, Lennie begins to babble about his and George's dream. Crooks speaks of his own loneliness, before then taunting Lennie by suggesting that George might never return. He only relents when Lennie grows aggressive. Candy enters and begins to speak again of the men's dream. Curley's Wife interrupts, and taunts the men about being 'the weak ones' left behind. She speaks of her own loneliness. Crooks asks her to leave, but she threatens that she could easily have him lynched if he says too much more. The other men then return and Curley's Wife leaves.
Section 5	Lennie sits in the barn, stroking his dead puppy, questioning why it died. He decides to try and hide the puppy but then gets angry with it for dying and hurls it across the room. Curley's Wife enters, reassuring him that it is safe to talk to her. She speaks of her loneliness, and her past dreams. She explains that she doesn't like Curley. She asks Lennie to stroke her hair, but he quickly becomes too excited and holds on too tight. When she cries out, he tries to silence her, and accidentally breaks her neck. He runs away, towards the clearing that he and George were in at the beginning of the story. Candy finds the body and informs George – they immediately know what has happened. George asks Candy to pretend that George hasn't seen it, so he can't be implicated. Candy agrees. After a while, he calls the other guys in. Curley almost instantly asks for his shotgun, to track down Lennie.
Section 6	Steinbeck starts the last chapter as he starts the first, by describing in some depth the riverside scene from the opening. Lennie appears, anxious, but also proud that he has remembered the place that he should come to if he finds himself in trouble. He has two visions: of his Aunt Clara scolding him for getting into trouble, and a giant rabbit telling him that George will leave him. George appears, seeming unusually quiet. George tells Lennie that he is not made at him, comforting Lennie. Lennie asks him to talk about the dream again, which George does. As Lennie sits, listening to the story, looking out over the stream, George pulls Carlson's gun from his jacket and shoots Lennie in the back of the head. Lennie immediately dies, his body jerking to the ground. The sound of the gun causes the rest of the lynch party to locate the two. Carlson questions what happens, and George lies that he had to wrestle the gun from Lennie and shoot him with it. Only Slim understands what has truly happened and agrees with what George did.

Main Characters	
George – George is one of the two lead protagonists (with Lennie) in Of Mice and Men. Although he is <u>occasionally short-tempered</u> with Lennie, he is a <u>loyal and caring</u> friend. George could be described as an idealist, as he harbours <u>dreams</u> of one day owning his own farm and land. George is relatively <u>smart</u> , thinking and acting sharply in difficult situations.	Lennie – Lennie is a <u>kind and simple</u> character, who possesses <u>enormous physical strength</u> . At both the beginning and end of the novel he likes to pet soft things, is totally <u>devoted to George</u> , and is an unintentional threat to both himself and others. Lennie's huge size makes him a target of others – principally Curley. Lennie dreams of <u>tending the rabbits</u> on his and George's own farm.
Curley – Curley is the <u>boss's son</u> , and is perhaps the chief antagonist throughout the novella. He is <u>confrontational, mean-spirited and violent</u> , and to back up his threats he is rumoured to be a former prizefighter. Curley tries to compensate for this small stature by picking fights with larger men – such as Lennie. As a recently married man, Curley is extremely <u>paranoid, jealous and controlling</u> .	Curley's Wife – Curley's Wife is initially introduced to the reader as a <u>'tramp', a 'rat-trap' and a 'tart'</u> , such are the views towards women on the farm. However, she emerges as one of the most <u>complex characters</u> in the text, revealing openly that she is disappointed with her life that 'Curley ain't a nice fella' and that she is lonely. Eventually her longing for attention becomes her downfall.
Crooks – Crooks is the <u>lively and quick-witted stable-buck</u> , who is named so because of his crooked back. As with many of the other characters in the novella, Crooks openly admits that he is lonely – however in his case this is caused by the <u>racial discrimination</u> and separation that he suffers. Crooks <u>loneliness</u> can manifest itself into cruelty towards those who are even weaker, such as when he taunts Lennie.	Candy – Candy is an <u>old</u> odd-job worker who lives on the farm, who only has <u>one hand</u> after an accident. Candy worries that one day the boss will declare him unfit to work and he will be cast aside, left to die in poverty. His <u>old, smelly dog</u> (that is shot by the other ranch workers) is a harsh reinforcement of this belief. Candy is revitalised as he begins to share in <u>George and Lennie's dream</u> of owning their own place.

Key Context

<p>John Steinbeck – John Steinbeck was an American author, who lived between 1902 and 1968. He was a Nobel Prize winner for Literature. Many of his <u>27 books</u> (including 16 novels) have been considered as classics of Western literature. His works frequently explore the themes of <u>fate and injustice</u>, as experienced by <u>everyman</u> characters. Many take place in the Salinas Valley of California.</p>	<p>The American Dream– The American Dream is a national ethos of the United States, which declares that <u>freedoms, prosperity, success, and social mobility</u>, can all be achieved through <u>hard work</u>. It implies that society has few barriers preventing anyone from achieving their dreams, should they be willing to put in enough effort. James Truslow Adams described it as life should be better and richer and fuller for everyone.”</p>
<p>Racism– Life was tough for black people living in America in the 1930s. <u>Racism was still rampant</u>, and there were not yet laws ruling against racial discrimination. White and black people were <u>segregated</u> at the time, and black people were considered 2nd class citizens. Black people often had to work harder for less money, often being given the ‘dirty work’ in their industry. The <u>lynching</u> of black people was common, sometimes for the most petty or unproven of crimes. The Jim Crow laws of post-1876 strongly reinforced racism.</p>	<p>The Wall Street Crash and The Great Depression –In the 1920s, the USA had been an enormously prosperous nation. However, in <u>October 1929</u> millions of dollars were wiped out in an event that became known as the <u>Wall Street Crash</u>. This triggered the <u>Great Depression</u> across the country throughout most of the 1930s. In this time, between 12 and 15 million (one third of the population at the time) became <u>unemployed</u>, and many people lost their life savings as banks went bust. With no social support system, many families were left to face <u>poverty</u>.</p>
<p>Gender Inequality– Women had filled in for men when they had participated in the First World War. However, after the Great Depression, when many jobs were lost, <u>women’s jobs were often the first to go</u>. Women were not trusted as they were seen to be ‘taking jobs away from men.’ With so few job prospects, many women consigned themselves to a life as a <u>housewife</u>. Curley’s Wife provides an example of the difficulties for women at the time – she is forced into a marriage with a man she does not love to stave off poverty.</p>	<p>Golden California – To further compound the effects of the Great Depression, in the 1930s America received a number of <u>severe dust storms</u>, which greatly damaged the ecology and agriculture across much of the country. The only state that remained relatively unaffected was California on the west coast, which soon became known as ‘<u>Golden California</u>.’ Workers from all over the country descended upon the state in order to work for little pay as <u>farm-hands</u>. As men would often travel to do this alone, it was as an extremely solitary existence.</p>

Themes – A theme is an idea or message that runs throughout a text.

<p>Dreams – Each character in the text has their own dreams that they live and work for: George, Lennie, and Candy share in the dream of owning their own place. Curley’s dream is to be respected by others, whilst Curley’s Wife’s dream is to be a famous actress. Crooks simply longs to be accepted and treated equally. None of the characters make their dream, showing the impossibility of the American Dream.</p>	
<p>Loneliness– All of the characters, in some sense, experience loneliness, except for Lennie (who has George). Curley’s Wife (isolated because she is a woman) and Crooks (isolated due to his colour) bemoan their lonely existences at any given opportunity, whilst all of the other men on the ranches live solitary lives as farm-hands, without families. At the end of the text, George is lonely too.</p>	
<p>Inequality – Of Mice and Men was set in a time in which the laws favoured white people, and men held far more rights than women. This is evident through the characters of Crooks and Curley’s Wife. Similarly, life at the time could be deemed more selfish and predatory, as the strong do not care for (and many actively attack) the weak. Other characters’ behaviour towards Candy and Lennie is evidence of this.</p>	
<p>Animals and Nature – Steinbeck makes frequent references to animals and nature, both literally and figuratively. At the start and end of the novella, he vividly describes the scene of nature, including the animals that reside there. He also compares characters to animals, for example Lennie is compared to a bear, whilst Curley is compared to both a fish and a frog.</p>	
Word	Definition
Displaced	A person will be considered displaced when they are forced to leave their home, typically because of war, persecution, or natural disaster.
Segregation	Segregation is the action or state of setting someone or something apart from others.
Derogatory	Being derogatory is being expressive of low opinion
Imperiously	Imperiously is an adverb to describe carrying out an action in a manner showing arrogant superiority
Contemplate	To contemplate is to consider something as a possibility
Pugnacious	Pugnacious is being ready and able to resort to force or violence
Plaintively	Plaintively describes expressing sorrow
Ominous	Ominous is a way of describing threatening or foreshadowing evil or tragic developments
Gingerly	Gingerly describes with extreme care or delicacy
Mimic	To mimic is to copy or imitate
Discrimination	Discrimination is when a person or group of people is treated unfairly compared to others.
Sexism	Sexism is when you make a difference between people based on their gender
Novella	A novella is a short novel. Of Mice and Men is a novella.
Foreshadowing	Foreshadowing is a literary technique where the writer uses an event early in the text to predict an event that will follow later in the text.
Isolation	Isolation refers to a particular type of loneliness where someone is totally separated from other people.
Utopia	Utopia refers to a perfect place or state of being. It is the opposite of dystopia.

Ratio and Scale

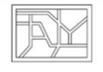
What do I need to be able to do?

- By the end of this unit you should be able to:
- Simplify any given ratio
 - Share an amount in a given ratio
 - Solve ratio problems given a part

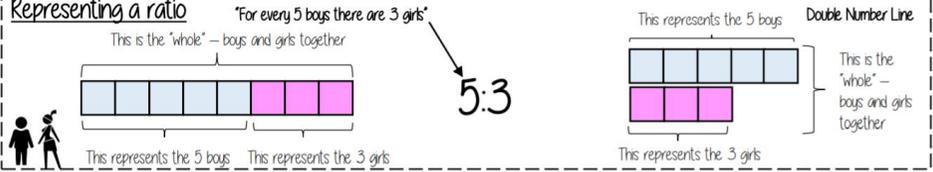
Solutions should be modelled, explained and solved

Keywords

- Ratio:** a statement of how two numbers compare
Equal Parts: all parts in the same proportion, or a whole shared equally
Proportion: a statement that links two ratios
Order: to place a number in a determined sequence
Part: a section of a whole
Equivalent: of equal value
Factors: integers that multiply together to get the original value
Scale: the comparison of something drawn to its actual size



Representing a ratio



Order is Important

"For every dog there are 2 cats"

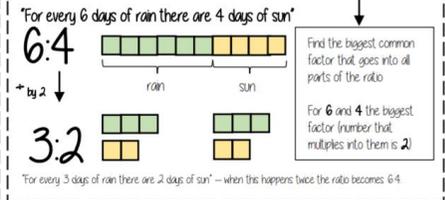
Dogs: Cats

1:2

The ratio has to be written in the same order as the information is given

e.g. 2:1 would represent 2 dogs for every 1 cat. ✗

Simplifying a ratio



Ratio In (or n:1)

This is asking you to cancel down until the part indicated represents 1

Show the ratio 4:20 in the ratio of 1:n

4:20

÷ by 4

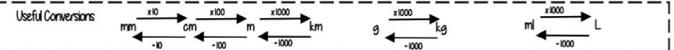
1:5

The question states that the part has to be 1 unit. Therefore divide by 4

This side has to be divided by 4 too - to keep in proportion

Units are important!

When using a ratio - all parts should be in the same units



Sharing a whole into a given ratio

James and Lucy share £350 in the ratio 3:4

Work out how much each person earns

Model the Question

James: Lucy

3:4

£350

Lucy

Find the value of one part

Whole: £350

7 parts to share between (3 James, 4 Lucy)

Put back into the question

James: Lucy

James = 3 x £50 = £150

Lucy = 4 x £50 = £200

Finding a value given In (or n:1)

Inside a box are blue and red pens in the ratio 5:1

If there are 10 red pens how many blue pens are there?

Model the Question

Blue pens: Red pens

5:1

One unit = 10 pens

Put back into the question

Blue pens = 5 x 10 = 50 pens

Red pens = 1 x 10 = 10 pens

There are 50 Blue Pens

Ratio as a fraction

Trees: Flowers

3:7

Fraction of trees

Number of parts in group: 5

Total number of parts: 10

Tree parts 3 ÷ Flower parts 7 = 10

Ratio

Fraction

Pi II

Circumference

Diameter

The ratio of a circle's circumference to its diameter

Multiplicative Change

What do I need to be able to do?

- By the end of this unit you should be able to:
- Solve problems and explain direct proportion
 - Use conversion graphs to make statements, comparisons and form conclusions
 - Understand and use scale factors for length

Keywords

- Proportion:** a statement that links two ratios
Variable: a part that the value can be changed
Axes: horizontal and vertical lines that a graph is plotted around
Approximation: an estimate for a value
Scale Factor: the multiple that increases/ decreases a shape in size
Currency: the system of money used in a particular country
Conversion: the process of changing one variable to another
Scale: the comparison of something drawn to its actual size

Direct Proportion

As one variable changes the other changes at the same rate

4 cans of pop = £2.40

12 cans of pop = £7.20

2 cans of pop = £1.20

50 x 3 = 150

50 x 0.5 = 25

This is a multiplicative change

Sometimes this is easiest if you work out how much one unit is worth first e.g. 1 can of pop = £0.60

This multiplier is the same in the same way that this would be for ratio

Conversion Graphs

Compare two variables

This is always a straight line because as one variable increases so does the other at the same rate.

To make conversions between units you need to find the point to compare - then find the associated point by using your graph

Using a ruler helps for accuracy

Showing your conversion lines help as a "check" for solutions

Labeling of both axes is vital

Conversion between currencies

£1 = 90 Rupees

£1 = 90 Rupees

£10 = 900 Rupees

£1 = 90 Rupees

£7 = 630 Rupees

900 Rupees

10 Pounds

Convert 630 Rupees into Pounds

630 ÷ 90 = 7

Currency is directly proportional

Currency can be converted using a conversion graph

Ratio between similar shapes

Angles in similar shapes do not change e.g. if a triangle gets bigger the angles can not go above 180°

The two rectangles are similar

3m x 8m

4.5m x 7m

Corresponding sides

3m : 4.5m = 8m : 12m

1m : 1.5m

Note: Simplify to the same ratio

Understand Scale Factor

The two rectangles are similar.

8m x 15m

3 x 15 = 45

Missing length: 8 x 15 = 12m

This is a multiplicative change

Use corresponding sides to calculate a scale factor

Scale factor can also be calculated by:

Bigger corresponding side ÷ Smaller corresponding side

Small corresponding side ÷ Big corresponding side

Draw and interpret scale diagrams

A picture of a car is drawn with a scale of 1:30

For every 1cm on my image is 30cm in real life

The car image is 10cm

Image: 10cm

Real life: 300cm

10 x 30 = 300

The car in real life is 210cm

Image: 7cm

Real life: 210cm

7 x 30 = 210

Interpret maps with scale factors

1cm : 250m

1cm : 25000cm

250 x 100 = 25000

For every 1cm on my map is 25000cm in real life

mm $\times 10$ cm $\times 100$ m $\times 1000$ km

Multiplying and Dividing Fractions

What do I need to be able to do?

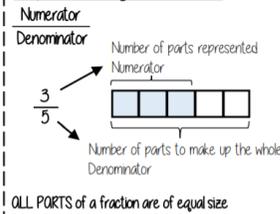
- By the end of this unit you should be able to:
- Carry out any multiplication or division using fractions and integers
 - Solutions can be modelled, described and reasoned

Keywords

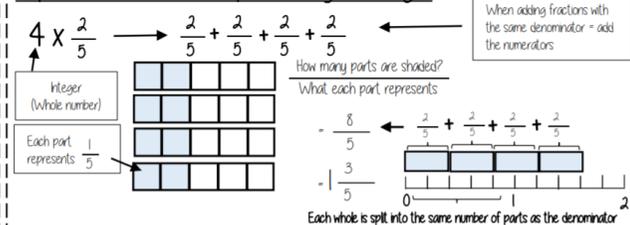
Numerator: the number above the line on a fraction. The top number. Represents how many parts are taken.
Denominator: the number below the line on a fraction. The number represents the total number of parts.
Whole: a positive number including zero without any decimal or fractional parts.
Commutative: an operation is commutative if changing the order does not change the result.
Unit Fraction: a fraction where the numerator is one and denominator a positive integer.
Non-unit Fraction: a fraction where the numerator is larger than one.
Dividend: the amount you want to divide up.
Divisor: the number that divides another number.
Quotient: the answer after we divide one number by another e.g. dividend ÷ divisor = quotient.
Reciprocal: a pair of numbers that multiply together to give 1.



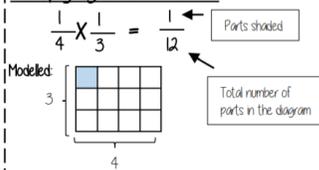
Representing a fraction



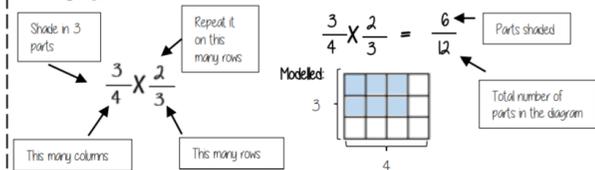
Repeated addition = multiplication by an integer



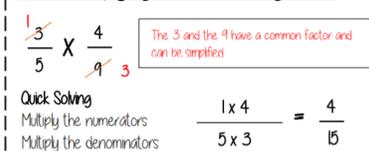
Multiplying unit fractions



Multiplying non-unit fractions



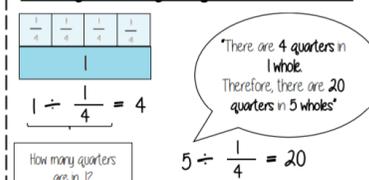
Quick Multiplying and Cancelling down



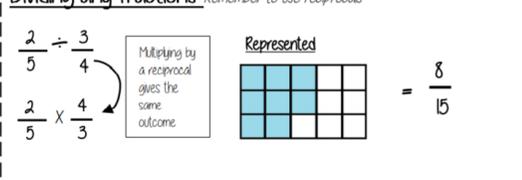
The reciprocal



Dividing an integer by an unit fraction



Dividing any fractions



Working in the Cartesian plane

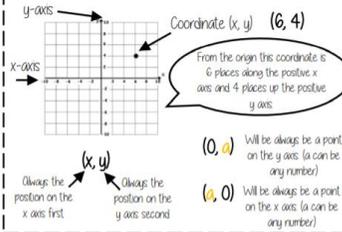
What do I need to be able to do?

- By the end of this unit you should be able to:
- Label and identify lines parallel to the axes
 - Recognise and use basic straight lines
 - Identify positive and negative gradients
 - Link linear graphs to sequences
 - Plot $y = mx + c$ graphs

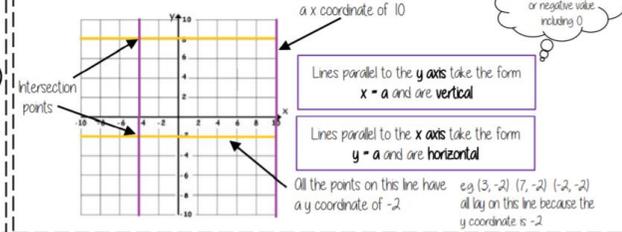
Keywords

Quadrant: four quarters of the coordinate plane
Coordinate: a set of values that show an exact position
Horizontal: a straight line from left to right (parallel to the x axis)
Vertical: a straight line from top to bottom (parallel to the y axis)
Origin: (0,0) on a graph. The point the two axes cross
Parallel: Lines that never meet
Gradient: The steepness of a line
Intercept: Where lines cross

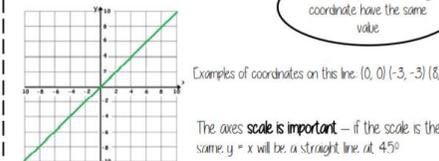
Coordinates in four quadrants



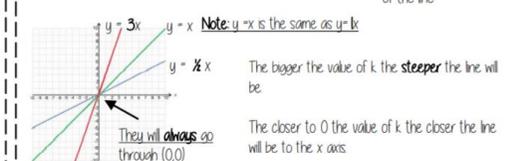
Lines parallel to the axes



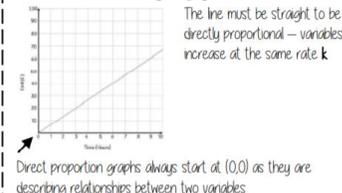
Recognise and use the line y=x



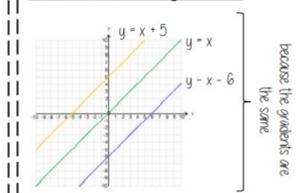
Recognise and use the lines y=kx



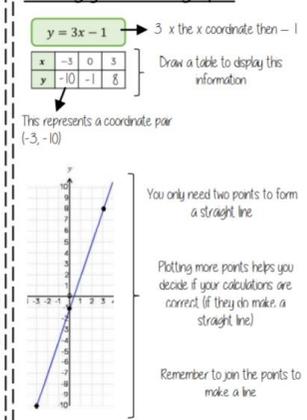
Direct Proportion using y=kx



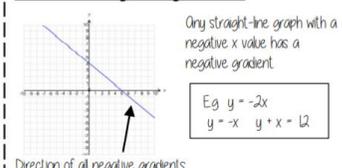
Lines in the form y = x + a



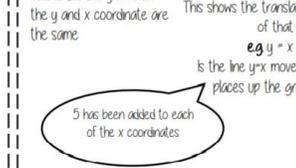
Plotting y = mx + c graphs



Lines with negative gradients



Translations



Mathematics

Representing Data

Tables and Probability

What do I need to be able to do?

- By the end of this unit you should be able to:
- Draw and interpret scatter graphs
 - Describe correlation and relationships
 - Identify different types of non-linear relationships
 - Design and complete an ungrouped frequency table
 - Read and interpret grouped tables (discrete and continuous data)
 - Represent data in two way tables

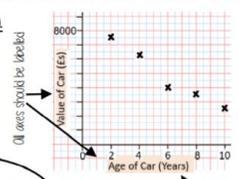
Keywords

Variable: a quantity that may change within the context of the problem
Relationship: the link between two variables (items) Eg Between sunny days and ice cream sales
Correlation: the mathematical definition for the type of relationship.
Origin: where two axes meet on a graph
Line of best fit: a straight line on a graph that represents the data on a scatter graph
Outlier: a point that lies outside the trend of graph
Quantitative: numerical data
Qualitative: descriptive information, colours, genders, names, emotions etc
Continuous: quantitative data that has an infinite number of possible values within its range.
Discrete: quantitative or qualitative data that only takes certain values.
Frequency: the number of times a particular data value occurs.

Draw and interpret a scatter graph

Age of Car (Years)	2	4	6	8	10
Value of Car (£k)	7500	6250	4000	3500	2500

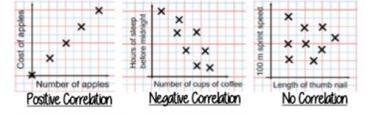
- This data may not be given in size order
- The data forms information pairs for the scatter graph
- Not all data has a relationship



"This scatter graph shows as the age of a car increases the value decreases"

The link between the data can be explained verbally

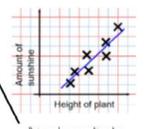
Linear Correlation



Positive Correlation: As one variable increases so does the other variable
Negative Correlation: As one variable increases the other variable decreases
No Correlation: There is no relationship between the two variables

The line of best fit

The line of best fit is used to make estimates about the information in your scatter graph

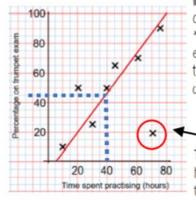


It is only an estimate because the line is designed to be an average representation of the data. It is always a straight line.

- Things to know:**
- The line of best fit DOES NOT need to go through the origin (The point the axes cross)
 - There should be approximately the same number of points above and below the line (It may not go through any points)
 - The line extends across the whole graph

Using a line of best fit

Interpolation is using the line of best fit to estimate values inside our data point.
 eg 40 hours revising predicts a percentage of 45



Extrapolation is where we use our line of best fit to predict information outside of our data. **This is not always useful - in this example you cannot score more than 100% so revising for longer can not be estimated**
 This point is an "outlier" It is an outlier because it doesn't fit this model and stands apart from the data.

Ungrouped Data

The number of times an event happened

Number of siblings	Frequency
0	2
1	3
2	4
3	2
4	1

The table shows the number of siblings students have. The answers were 3, 1, 2, 0, 3, 4, 1, 1, 2, 0, 2
 2 people had 0 siblings. This means there are 0 siblings to be counted here.
 2 + 2 + 2 + 2 OR 2 x 4 = 8
 3 + 3 OR 3 x 2 = 6
 2 people have 3 siblings so there are 6 siblings in total.
OVERALL there are 0 + 3 + 8 + 6 + 4 Siblings = 21 siblings

Grouped Data

If we have a large spread of data it is better to group it. This is so it is easier to look for a trend. Form groups of equal size to make comparison more valid and spread the groups out from the smallest to the largest value.

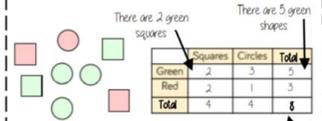
Cost of TV (£)	Tally	Frequency
101 - 150	7N, 11	7
151 - 200	7N, 7N, 1	11
201 - 250	7N	5
251 - 300	111	3

We do not know the exact value of each item in a group - so an estimate would be based to calculate the overall total (Midpoint)
 eg this group includes every weight bigger than 60kg up to and including 70kg

x	Frequency
40 < x ≤ 50	1
50 < x ≤ 60	3
60 < x ≤ 70	5

Representing data in two-way tables

Two-way tables represent discrete information in a visual way that allows you to make conclusions, find probability or find totals of sub groups



Using your two-way table
 To find a fraction eg What fraction of the items are red? $\frac{3}{8}$ red items
Interconversion Use your fraction, decimal percentage equivalence knowledge.

What do I need to be able to do?

- By the end of this unit you should be able to:
- Construct a sample space diagram
 - Systematically list outcomes
 - Find the probability from two-way tables
 - Find the probability from Venn diagrams

Keywords

Outcomes: the result of an event that depends on probability
Probability: the chance that something will happen
Set: a collection of objects
Chance: the likelihood of a particular outcome
Event: the outcome of a probability - a set of possible outcomes.
Bias: a built in error that makes all values wrong by a certain amount
Union Notation 'U': meaning the set made by comparing the elements of two sets

Construct sample space diagrams



Sample space diagrams provide a systematic way to display outcomes from events

The possible outcomes from rolling a die

	1	2	3	4	5	6
H	1H	2H	3H	4H	5H	6H
T	1T	2T	3T	4T	5T	6T

This is the set notation to list the outcomes S = { }
 In between the { } are a possible outcomes
 $S = \{ 1H, 2H, 3H, 4H, 5H, 6H, 1T, 2T, 3T, 4T, 5T, 6T \}$

Probability from sample space

The possible outcomes from rolling a die

	1	2	3	4	5	6
H	1H	2H	3H	4H	5H	6H
T	1T	2T	3T	4T	5T	6T

What is the probability that an outcome has an even number and a tails?
 This is the set notation that represents the question P
 $P(\text{Even number and Tails}) = \frac{3}{12}$
 There are three even numbers with tails
 Numerator: the event
 Denominator: the total number of outcomes
 In between the () is the event asked for
 There are twelve possible outcomes

Probability from two-way tables

	Car	Bus	Walk	Total
Boys	15	24	14	53
Girls	6	20	21	47
Total	21	44	35	100

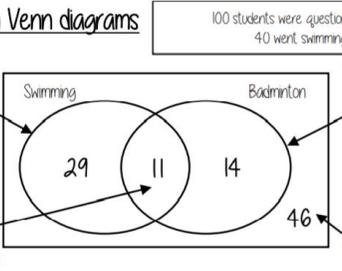
$P(\text{Girl walk to school}) = \frac{21}{100}$
 The event
 The total in the set

Product Rule

The number of items in event a x The number of items in event b

Probability from Venn diagrams

This whole curve includes everyone that went swimming
 Because 11 did both we calculate just swimming by 40 - 11
 The intersection represents both Swimming AND badminton



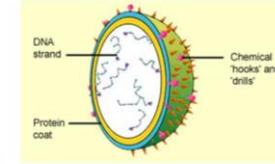
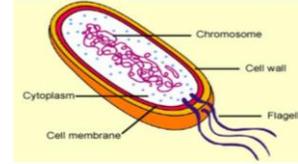
100 students were questioned if they played badminton or went to swimming club
 40 went swimming, 25 went to badminton and 11 went to both
 This whole curve includes everyone that went to badminton
 Because 11 did both we calculate just badminton by 25 - 11
 The number outside represents those that did neither badminton or swimming
 $P(\text{Just swimming}) = \frac{29}{100}$
 $100 - 29 - 11 = 60$

Science – Staying Healthy

Staying Healthy

CHEMICAL	TESTS FOR ...?	HOW TO CARRY OUT THE TEST	RESULT	CHEMICAL	TESTS FOR ...?	HOW TO CARRY OUT THE TEST	RESULT
	Starch	1.) Add the iodine solution directly to the substance to be tested (in solid or liquid form) and look for a colour change.	Turns blue black with starch		Protein	1.) Add Benedict's to the solution/suspension to be tested and look for a colour change.	Turns purple with protein
	Reducing Sugar	1.) Add Benedict's to the solution/suspension to be tested. 2.) Heat for 2 mins in a water bath at boiling point and look for a colour change.	Turns brick red with reducing sugars (green/yellow/orange if less sugar present)		Lipid (known as the Emulsion test)	1.) Add ethanol to the solution/suspension to be tested and shake thoroughly. 2.) Then add water and look for a colour change.	Turns cloudy/milky with lipid

food group	why it is needed
carbohydrates	energy
protein	growth and repair
fats	energy and to keep warm
fibre	keeps digestive system healthy
vitamins and minerals	keeps body healthy and working properly



Bacteria can be killed by **antibiotics**, viruses can not. With a virus you have to let your body fight it by learning how to make the antibodies. Some viruses have a vaccination, which is a weak or dead strain of the virus. Your body learns how to make the antibodies so it knows how to fight it in the future.

- Bacteria are living cells and can multiply rapidly in favourable conditions. Once inside the body, they release poisons or toxins that can make us feel ill.
- Viruses can only reproduce inside host cells. Once inside, they make hundreds of thousands of copies of themselves.

Drugs:

Medical drugs are prescribed by a doctor or to help someone who is feeling unwell like paracetamol.

Recreational drugs are taken by people for enjoyment, to help them relax or to help them stay awake. Some recreational drugs are illegal.

Some people develop a **dependency** on drugs and if they stop taking them may develop **withdrawal symptoms** like anxiety, headaches and sweating.

Key word	Definition
Carbohydrates	A nutrient providing energy
Fats	Bulk energy store
Fibre	Nutrient to help keep the digestive system working
Lipids	See fats
Protein	Nutrient for growth of new tissues
Alcohol	A substance containing ethanol
Drugs	A chemical which affects the body
Nicotine	The addictive drug found in cigarettes
Antibiotic	A chemical which kills bacteria
Bacteria	A living cell which releases toxins making you unwell
Vaccination	A weak or dead dose of a virus to prevent people becoming unwell
Virus	A pathogen which takes over a host cell

Why is it unhealthy to be underweight?

Some people do not eat enough food. In extreme cases this is known as **starvation**. If the energy in the food you eat is less than the energy you use, you will lose body mass. This leads to you being underweight. Underweight people:

- often suffer from health problems, such as a poor immune system
- lack energy to do things, and are often tired
- are likely to suffer from a lack of vitamins or minerals.

Why is it unhealthy to be overweight?

Some people eat too much, or eat too many fatty foods. If the energy content in the food you eat is more than the energy you use, you gain body mass. This is stored as fat under the skin. If a person becomes extremely overweight, they are said to be **obese**.

Overweight people have an increased risk of:

- heart disease
- stroke
- diabetes
- some cancers.

What is alcohol?

Alcohol contains the drug **ethanol**. When you drink alcohol, ethanol is absorbed into your bloodstream. It then travels to your brain, where it affects your nervous system. This chemical is called a **depressant** because it slows down your body's reactions.

What's in tobacco smoke?

Cigarettes contain tobacco. Tobacco smoke contains over 4000 chemicals, many of which are harmful. These include:

- tar – a sticky black material that collects in the lungs. It irritates and narrows the airways. Some of the chemicals it contains cause cancer.
- nicotine – an addictive drug that speeds up the nervous system. It is a **stimulant**, which makes the heart beat faster and narrows blood vessels.
- carbon monoxide – a poisonous gas that stops the blood from carrying as much oxygen as it should. It binds to the red blood cells in the place of oxygen.





Science – Separation Techniques

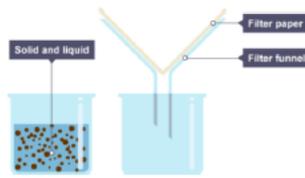
Keyword	Definition
Solution	A liquid mixture in which a solute has dissolved in the solvent
Solute	A minor component in a solution – dissolves in the solvent
Solvent	The liquid which the solute dissolves in
Saturated	The point at which no more solute can dissolve
Pure	Only one type of particle
Dissolve	Solid is mixed into a liquid to become a solution
Particle	A small piece of matter – everything is made up of these
Filter	To remove solid particles from liquid particles
Evaporate	Particles go from a liquid to a gas
Separate	To remove one type of particle from another
Soluble	A substance is capable of dissolving
Mixture	More than one type of particle
Solubility	How much of a substance will dissolve in a solution
Insoluble	A substance is not capable of dissolving

Solubility is the measure of how well a substance dissolves and is measured as the mass in grams of a substance which can be dissolved in 100ml of water.

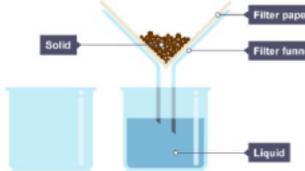
$$\text{Solubility} = \frac{\text{Mass of substance dissolved}}{\text{Volume of water}} \times 100$$

Filtration:

- A method for separating an insoluble solid from a liquid. A beaker containing a mixture of insoluble solid and liquid. There is filter paper in a filter funnel above another beaker.

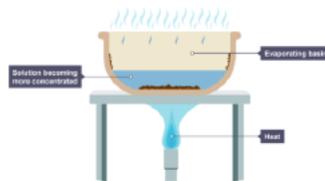


- The mixture of insoluble solid and liquid is poured into the filter funnel.
- The liquid particles are small enough to pass through the paper as a filtrate. The solid particles are too large to pass through the filter paper and stay behind as the residue.



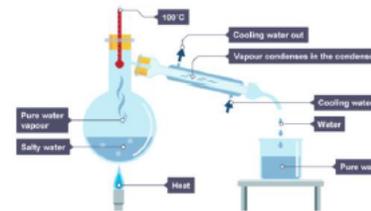
Evaporation:

- A method used to separate a soluble solid from a liquid.
- A solution is placed in an evaporating basin and heated with a Bunsen Burner.
- The water will begin to evaporate and solid particles will begin to form in the basin.
- Once the water has evaporated, it will leave solid crystals behind.



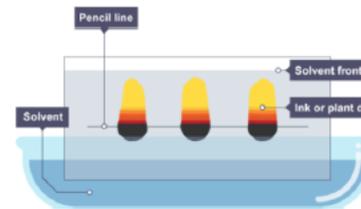
Distillation:

- A method used for separating the solvent from a solution. E.g. water can be separated from a salt solution because the water has a much lower boiling point than the salt.
- Salt water is heated. The water evaporates and its vapours rise.
- The vapours rise and pass into the condenser, where they cool and condense.
- Liquid water drips into a beaker and the salt will be left in the round bottom flask.

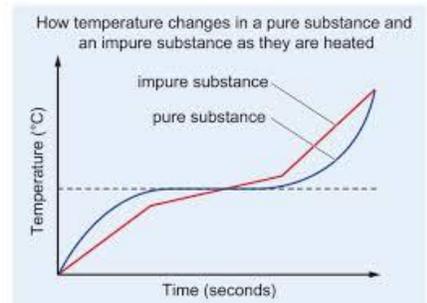


Chromatography:

- Paper chromatography is a method for separating dissolved substance from one another. Often used when the dissolved substance are coloured such as inks, food colouring or plant dyes.
- A pencil line is drawn on the paper, and spots of ink are placed on the line.
- There is a solvent usually water or ethanol in a container/beaker.
- The paper is lowered into the solvent. The solvent travels up the paper, taking some of the substances with it.
- As the solvent travels up the paper, the different coloured substances are spread apart.

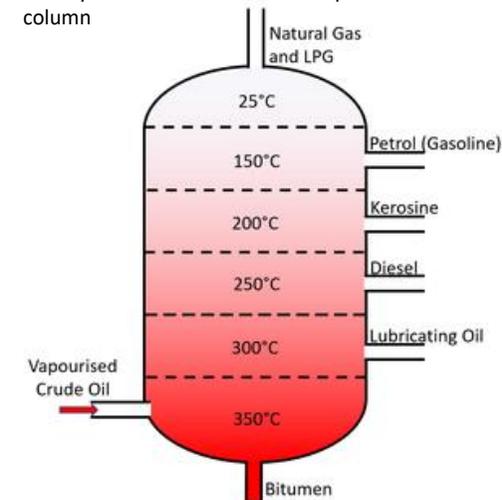


A pure substance consists of only one chemical. A pure substance will have a specific melting and boiling point.



Fractional Distillation:

Separates different liquids by their boiling points as they condense at different temperatures in the column



Science – Energy

Solid	Liquid	Gas
The particles vibrate in a fixed position.	The particles are close together and move around each other.	The particles are far apart and move quickly in all directions.
The particles cannot move from place to place.	The particles are arranged in a random position.	The particles are arranged in a random way.

Keyword	Definition
Particle	A term for a small piece of matter. For example atoms.
Matter	A substance which is made up by atoms or molecules.
Internal Energy	The total kinetic energy and potential energy of the particles in an object.
Specific Heat Capacity	The amount of energy needed to raise the temperature of 1kg of substance by 1°C.
Thermal Conductivity	A measure of how well a material conducts energy when it is heated.
Conduction	The transfer of heat through a material by transferring kinetic energy from one particle to another.
Convection	The transfer of thermal energy through a moving liquid or gas.
Infrared Radiation	Electromagnetic radiation emitted from a hot object.

Keyword	Definition
Energy Transfer	Changes from one form of energy to another form of energy.
Conservation of Energy	Energy cannot be created or destroyed. It can be stored, dissipated or transferred from one form into another.
Internal Energy	Energy stored in all materials, including energy due to the motion of particles and the forces between them.
Kinetic Energy	Energy which an object possesses by being in motion.
Elastic Potential Energy	Energy stored in squashed, stretched or twisted materials.
Gravitational Potential Energy	The energy stored by an object lifted up against the force of gravity. Also known as GPE.
Thermal Energy Store	Energy store filled when an object is warmed up.
Work done	Work is done when a force makes an object move a distance, energy is transferred
Power	The rate of work done. Or The energy transferred per second.
Fossil Fuel	Natural, finite fuel formed from the remains of living organisms, e.g. oil, coal and natural gas.
Non-Renewable	A resource that cannot be replaced when it is used up, such as natural gas or coal.
Renewable	An energy resource that will not run out, e.g. solar energy and wind energy

Type of energy	Description	Type of energy	Description
Kinetic	The energy in moving objects	Thermal (Internal)	The heat stored in an object
Chemical	When a substance undergoes a chemical reaction	Gravitational potential	When an object is raised to a height
Magnetic	When 2 objects attract or repel	Electrostatic (electrical)	Allows an electric current to flow
Elastic potential	When an object is stretched or squashed	Nuclear	Energy stored in an atom (not needed till GCSE)
Light	From a bright object (not stored)	Sound	From a vibrating object (not stored)

Calculating Kinetic Energy

$$E_k = \frac{1}{2}mv^2$$

E_k = Kinetic Energy
 m = Mass
 v = velocity

Calculating GPE

$$GPE = \text{mass} \times \text{gravitational field strength} \times \text{height}$$

- Mass is measured in kilograms (kg).
- Gravitational field strength is measured in newtons per kilogram (N/kg), usually taken as 10N/kg on Earth.
- Height is measured in metres (m).
- GPE is measured in joules (J).

Calculating Power

Word Equation: $\text{Power} = \frac{\text{Work Done}}{\text{Time Taken}}$

Dimensions: $P = W / t$

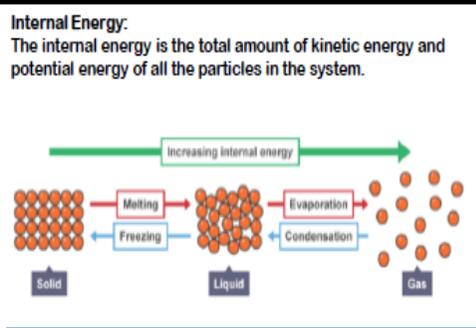
Units: $\text{Watt} = \text{Joule} / \text{second}$

Specific heat capacity

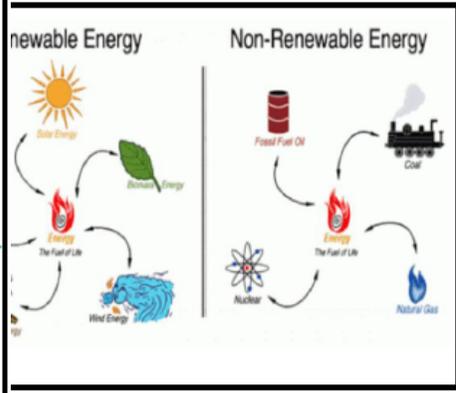
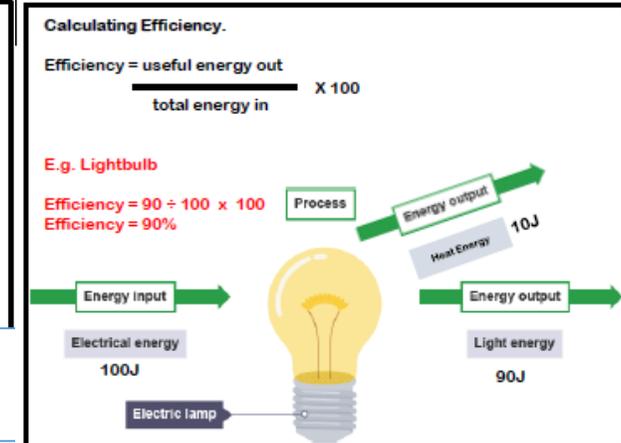
- This is the amount of energy needed to raise the temperature of 1kg of a material by 1°C

$$E = m \times c \times \theta$$

E = Energy (J)
 m = Mass (kg)
 c = Specific heat Capacity ($J \text{ } ^\circ\text{C}^{-1} \text{ kg}^{-1}$)
 θ = Change in temperature ($^\circ\text{C}$)

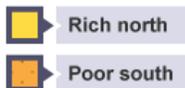


The conservation of energy states energy cannot be **created** or **destroyed**, instead it is transferred usefully or dissipated



Geography - Development

The North/South Development Divide (Brandt Line): The Brandt Line is a simple model which divides the planet into the rich north and the poor south. However, the world has changed a lot in the last 20 years and the Brandt line is now considered too simplistic. For example, China and India are no longer seen as poor countries.



Keyword(s)	Definition
Development	How countries change and the effect this change has on people's lives.
North/South Development Divide (Brandt Line)	The North South Divide is a Geographical model based on how rich countries are measured by their GDP [per capita.] It divides the world into 'High Income Countries' (HICs) in the 'developed north' and 'Low Income Countries' (LICs) in the 'less developed south'.
Low Income Country (LIC)	Countries are sometimes classified by how much each person earns on average. In low income countries, people earn on average US\$1045 per year.
High Income Country (HIC)	In high income countries, people earn on average US\$12746 or above per year.
Gross Domestic Product (GDP)	The total value of all the goods and services a country produces in a year. Measured in US\$ so that each country can be compared.
GDP per capita	The GDP divided by the population. It gives you an idea of how well-off people are, on average. Measured in US\$.
Development Indicator	Used to measure the quality of life in a particular country e.g. literacy rate, GDP per capita, infant mortality rate etc.
Birth Rate	The number of births per 1000 people per year.
Death Rate	How many people die each year per 1000 people.
Infant Mortality Rate	Number of children per 1000 born, who die before the age of 1.
Adult Literacy Rate	The percentage (%) of adults that can read and write.
Life Expectancy	The average age that people die.
Under Nourishment	Lack of sufficient food or water for good health.
Civil War	A war between people living in the same country.
Malaria	A potentially deadly disease caused by a parasite, which it transmitted by the bite of infected mosquitoes.

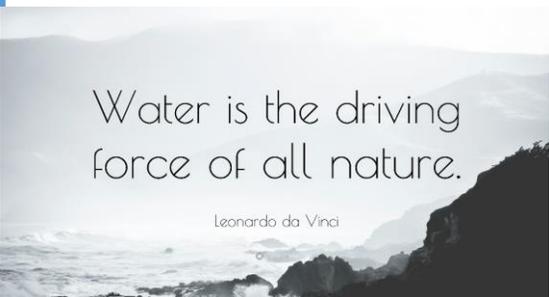


The importance of access to clean water:

- **Access to clean water is essential for all life:** Without clean water, humans, animals and plants would not be able to survive.
- **Access to clean drinking water prevents disease:** Drinking contaminated water leads to people contracting potentially deadly diseases such as typhoid and cholera.
- **Access to clean water is necessary for the food that we eat** e.g. crops require clean water to grow properly and fish/animals need clean water to survive and thrive.
- **Access to clean water is essential for proper sanitation:** We use water when we wash our hands, our clothes or take a shower. When dirty water is used, we are at much higher risk of being exposed to diseases.

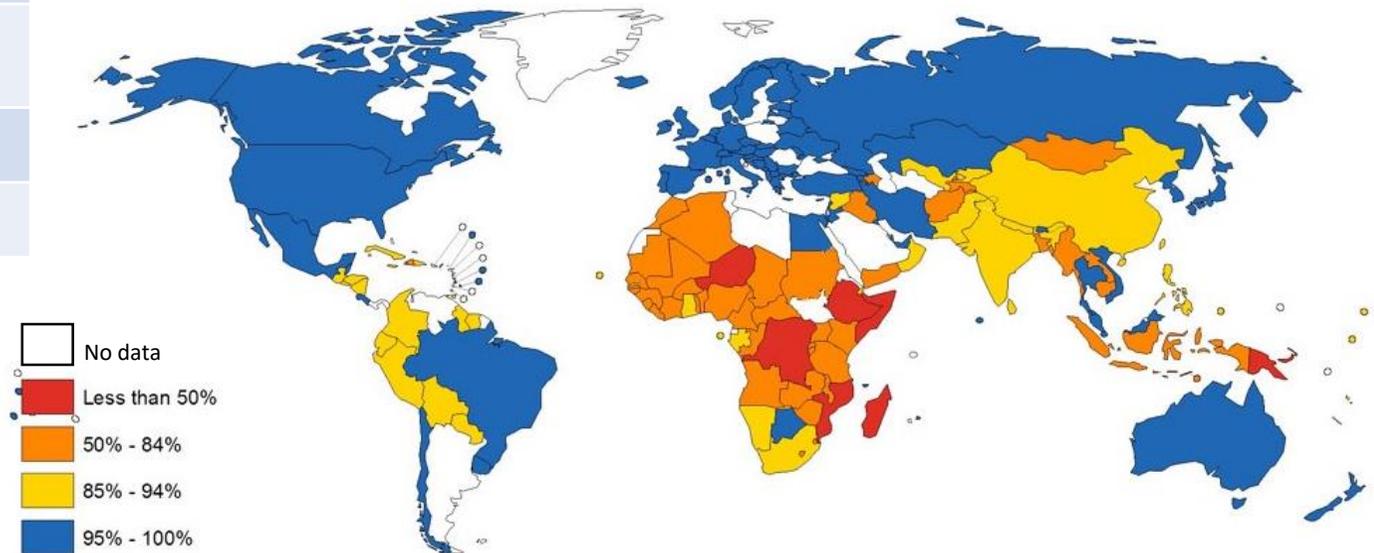
Clean water facts from Water Aid (www.wateraid.org)

- **785 million people don't have clean water close to home.**
- **2 billion people don't have a decent toilet of their own.**
- **31% of schools don't have clean water.**
- **Every minute a new born baby dies from infection caused by a lack of safe water and an unclean environment.**
- **Diarrhoea caused by dirty water and poor toilets kills a child under 5 every 2 minutes.**
- **Around the world up to 443 million school days are lost every year because of water-related illnesses.**



Keyword(s)	Definition
Sanitation	The process of keeping places clean and healthy, especially by providing a clean water supply and sewage system.
Contamination	The action of making something impure by polluting or poisoning e.g. polluting water by releasing raw sewage into a river.
Hygiene	Practises that help maintain health and prevent disease e.g. regular washing.
Disease	Medical conditions that are associated with specific signs and symptoms.
Potable Water	Water that is safe to drink or use for food preparation.
Diarrhoea	A condition in which faeces (waste matter) are frequently discharged from the bowels in a liquid form.
Purification	The process of removing contaminants of any kind from water.
Wells	A hole dug in the ground to obtain water, oil or gas.

Percentage (%) of people with easy access to clean water:



There is often an unequal/unfair balance in the relationship between two trading countries, particularly when one is a developing (poorer) country and the other is a more developed (richer) country. Some of the reasons for these inequalities in trade are shown below:

- A country may have a **lack of natural resources** to develop or sell.
- A country may have **low literacy rates** so there may be a **lack of skills** to develop resources.
- **International debt and poverty** prevents developing countries from investing in industry.
- **Poor health and diseases**, e.g. AIDS and malaria, mean people are unable to work even if they were skilled and wanted to work.
- **Natural disasters** such as drought, famine and earthquakes can set the development of a country back many years.
- **Civil wars** prevent industrial development as foreign investors are put off.
- **Lack of infrastructure**, e.g. roads, railways, ports and airports, prevents products from being exported to market.

The result of the pattern of world trade is that the producers of primary products in developing countries lose out with low wages and poor standards of living. With little money they cannot afford essentials such as primary education for their children and many children are required to work to help the family earn a living.

Trade can be really unfair for some countries, but what can be done about it?

One option is to support Fair Trade. Fair Trade means that producers receive a guaranteed and fair price for their products, regardless of the price on the world market. This means their quality of life should improve, as will the long-term prospects for their children.

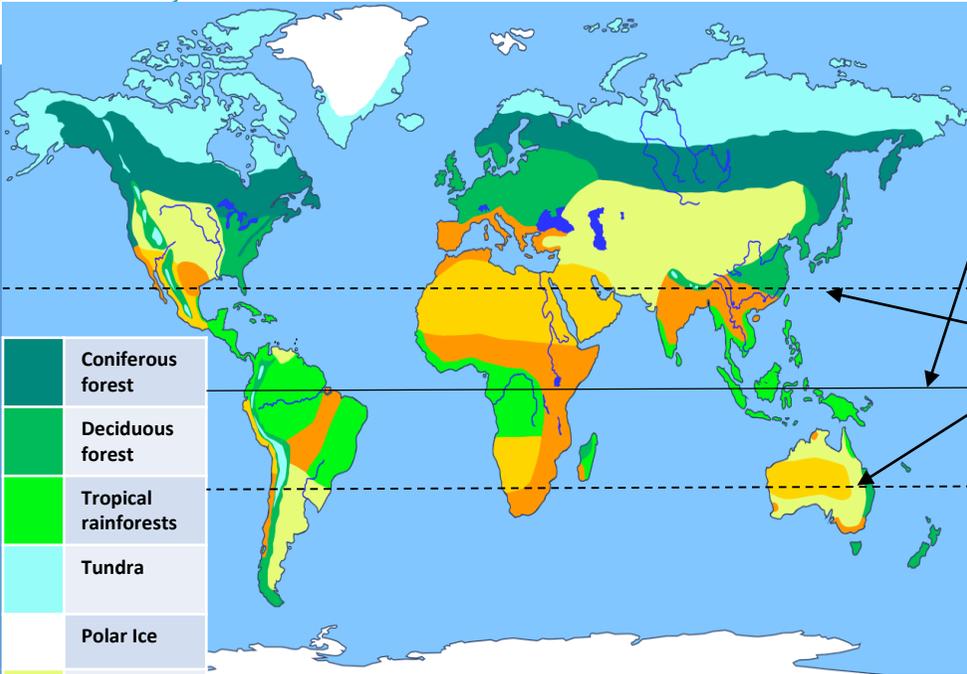


Fairtrade logo



Keyword(s)	Definition
Trade	The buying and selling of goods and services between different countries around the world. Trade occurs because no country has enough raw materials or manufactured goods to be self-sufficient.
Mismanagement	The process of managing something badly or wrongly.
Producer	A country that makes or grows foods or materials e.g. tea grown in India.
Consumer	A country that buys and uses these foods or materials e.g. tea that we drink in the U.K.
Fair Trade	Fair trade means that producers receive a guaranteed and fair price for their products, regardless of the price on the world market. This means their quality of life should improve, as will the long-term prospects for their children.
Fair Trade Premium	An extra sum of money that is paid to farmers on top of the selling price, that they can invest in projects of their choice e.g. building a school.
Aid	A transfer of resources from one country to another e.g. money, food, building materials.
Short Term/ Emergency Aid	Aid given to help people survive. Usually given after a natural disaster.
Long Term/ Development Aid	Aid that is given over a long period of time to help a country develop.
Non-Government Organisation (NGO) Aid	Aid that is given by charities or other groups that receive donations from organisations and individuals to help a country.
Bilateral Aid	Where one country gives aid to another country.
Multilateral Aid	Where many countries give money to an organisation e.g. United Nations or World Bank, and then that organisation distributes it.
Conditional Aid	Aid that is given with certain agreements/conditions attached.

Geography - Biomes



Coniferous forest
Deciduous forest
Tropical rainforests
Tundra
Polar Ice
Temperate grasslands
Tropical grasslands
Hot deserts
Marine

Keyword(s)	Definition
Biome	A biome is a large geographical area of distinctive plant and animal groups , which are adapted to that particular environment. The climate and geography of a region determines what type of biome can exist in that region.
Ecosystem	An ecosystem is a natural environment and includes the flora (plants) and fauna (animals) that live and interact within that environment.
Equator	An imaginary line that runs around the middle of the earth and is always closest to the sun. It marks the difference between the two parts of the earth: the northern hemisphere and the southern hemisphere.
Tropic of Cancer	The Tropic of Cancer is an imaginary latitude line located above the equator that runs across the globe at about 23 degrees north.
Tropic of Capricorn	Opposite the Tropic of Cancer is the Tropic of Capricorn , whose latitude line circles the globe at about 23 degrees south (below the equator).

Components of an Ecosystem:		
Abiotic	These are non-living, such as air, water, heat and rock.	
Biotic	These are living, such as plants, insects, and animals.	
	Flora	Plant life occurring in a particular region.
	Fauna	Animal life of any particular region.

Climate (Average temperature and rainfall), plants (flora) and animals (fauna) found in different Biomes:

Biome	Location	Temperature	Rainfall	Flora (Plants)	Fauna (Animals)
Tropical rainforest	Centred along the Equator.	Hot all year (25-30°C)	Very high (over 200mm/year)	Tall trees forming a canopy; wide variety of species.	Greatest range of different animal species. Most live in canopy layer
Tropical grasslands	Between latitudes 5°- 30° north & south of Equator.	Warm all year (20-30°C)	Wet + dry season (500-1500mm/year)	Grasslands with widely spaced trees.	Large hooved herbivores and carnivores dominate.
Hot desert	Found along the tropics of Cancer and Capricorn.	Hot by day (over 30°C) Cold by night	Very low (below 300mm/year)	Lack of plants and few species; adapted to drought.	Many animals are small and nocturnal: except for the camel.
Deciduous Forest	Between latitudes 40° - 60° north of Equator.	Warm summers + mild winters (5-20°C)	Variable rainfall (500-1500mm /year)	Mainly deciduous trees; a variety of species.	Animals adapt to colder and warmer climates. Some migrate.
Tundra	Far Latitudes of 65° north and south of Equator	Cold winter + cool summers (below 10°C)	Low rainfall (below 500mm/ year)	Small plants grow close to the ground and only in summer.	Low number of species. Most animals found along coast.
Coral Reefs	Found within 30° north – south of Equator in tropical waters.	Warm water all year round with temperatures of 18°C	Wet + dry seasons. Rainfall varies greatly due to location.	Small range of plant life which includes algae and sea grasses that shelters reef animals.	Dominated by polyps and a diverse range of fish species.

Geography - Biomes

Global Pattern of Air Circulation – The Global Atmospheric Circulation Model:

Atmospheric circulation is the large-scale movement of air by which heat is distributed on the surface of the Earth.

Hadley cell	Largest cell which extends from the Equator to between 30° to 40° north & south.
Ferrel cell	Middle cell where air flows poleward between 60° & 70° latitude.
Polar cell	Smallest & weakest cell that occurs from the poles to the Ferrel cell.

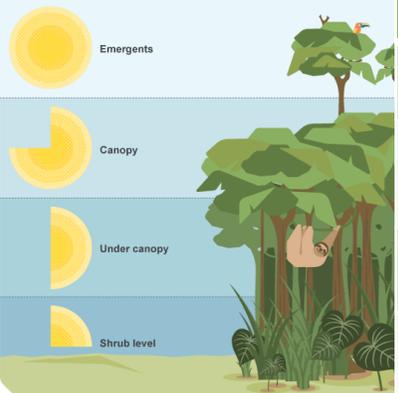


Tropical Rainforest Biome

Tropical rainforests cover about 2 % of the Earth's surface yet they are home to over half of the world's plants and animals.

Distribution of Tropical Rainforests

Tropical rainforests are centred along the Equator between the Tropic of Cancer and Capricorn. Rainforests can be found in South America, Central Africa and South-East Asia. The Amazon is the world's largest rainforest and takes up the majority of northern South America, encompassing countries such as Brazil and Peru.



Layers of the Rainforest

Emergent	Highest layer with trees reaching 50 metres, that emerge out of the canopy.
Canopy	The second layer in the rainforest. 50% of life is found here as it receives most of the sunlight and rainfall.
Under Canopy	Consists of trees that reach 20 metres high. Younger trees competing for light.
Shrub Layer	Lowest layer with smaller plants that have adapted to living in the shade.

Keyword(s)	Definition
Hadley/Ferrel/Polar Cells	Large cells of air created by the global pattern of air circulation – the Global Atmospheric Circulation Model.
Condensation	Where water vapour in the air cools down and changes back into tiny drops of liquid water, forming clouds.
Cumulonimbus	A type of cloud that extends to a great height and is associated with thunderstorms.
Low Air Pressure	A type of atmospheric pressure. When the air warms, the molecules fly further apart; the air becomes lighter and rises, creating low pressure. Low pressure draws moisture from the ground creating clouds, rain and storms.
High Air Pressure	A type of atmospheric pressure. When the air is cold, the molecules are packed tightly together; the air becomes denser and begins to sink. The air now presses on the Earth's surface, creating high pressure. High pressure often brings fine weather.
Vegetation Layers	The different layers of the rainforest composed of the shrub layer, under canopy, canopy and emergent layer.
Decomposition	The state or process of rotting, or decay.
Species Diversity	The number of different species that are represented in a given ecosystem e.g. the tropical rainforest.
Endemism	Something that can usually only be found in a particular place or population e.g. endemic species of animals are limited to specific geographical areas, such as Adelie Penguins in Antarctica.
Habitat	The natural home or environment of a plant or animal.
Interdependence	A rainforest works through interdependence . This is where the plants and animals depend on each other for survival. If one component changes, there can be serious knock-on effects for the entire ecosystem.

Rainforest nutrient cycle

The hot, damp conditions on the forest floor allow for the rapid decomposition of dead plant material. This provides plentiful nutrients that are easily absorbed by plant roots. However, as these nutrients are in high demand from the many fast-growing plants, they do not remain in the soil for long and stay close to the surface. If vegetation is removed, the soils quickly become infertile.

Climate of Tropical Rainforests

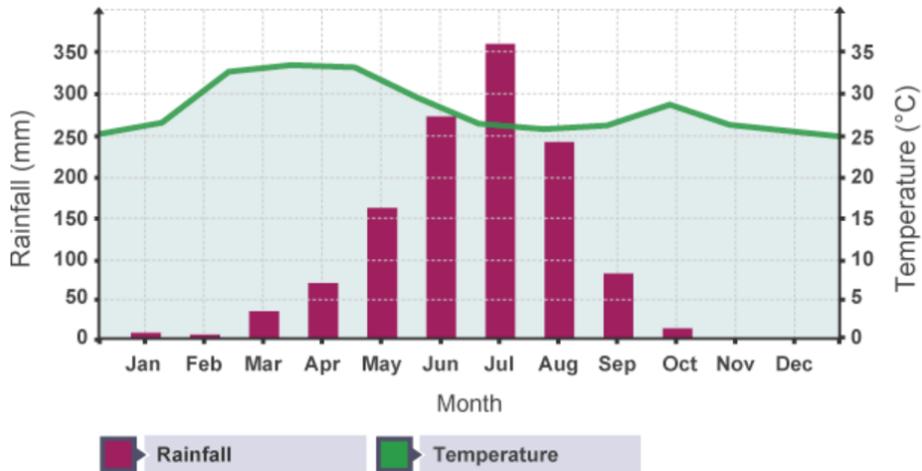
- Evening temperatures rarely fall below 22°C.
- Due to the presence of clouds, temperatures rarely rise above 32°C.
- Most afternoons have heavy showers.
- At night with no clouds insulating, temperature drops.

Savannah (Tropical) Grasslands Biome – Location and Climate:

Savannahs, also known as tropical grasslands, are found to the north and south of tropical rainforest biomes. The largest expanses of savannah are in Africa, where much of the central part of the continent, for example **Kenya** and **Tanzania**, consists of tropical grassland. Savannah grasslands can also be found in **Brazil** in South America.

Savannah regions have two distinct seasons - a wet season and a dry season. There is very little rain in the dry season. In the wet season vegetation grows, including lush green grasses and wooded areas. As you move further away from the equator and its heavy rainfall, the grassland becomes drier and drier - particularly in the dry season. Savannah vegetation includes scrub, grasses and occasional trees, which grow near water holes, seasonal rivers or aquifers.

Climate graph for a typical Savannah Grassland ecosystem:



Plant and Animal Adaptations in the Savannah Biome:

Plants and animals have to adapt to the long dry periods. Many plants are xerophytic, which means they have adapted to live in a dry habitat - for example, the acacia tree with its small, waxy leaves and thorns. Plants may have adapted to enable them to store large amounts of water, for example the baobab tree, or have long roots that reach down to the water table.

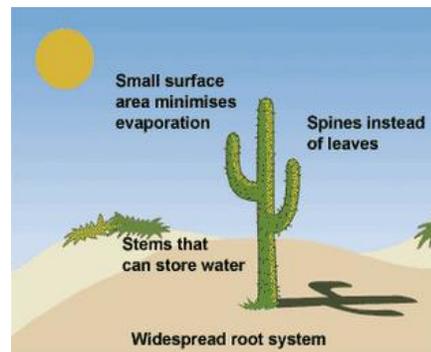
Animals may migrate (move/travel) great distances in search of food and water.

Keyword(s)	Definition
Africa	One of the seven continents of the world, containing 54 highly diverse countries, with a total population of over 1.3 billion people.
Equator	An imaginary line that runs around the middle of the earth and is always closest to the sun. It marks the difference between the two parts of the earth: the northern hemisphere and the southern hemisphere.
Precipitation	Water in the form of rain, hail, sleet or snow falling to the ground.
Species	A group of closely related organisms e.g. plants or animals that share common characteristics.
Adaptation	The process of change by which an organism or species becomes better suited to its environment.
Predator	An animal that naturally preys on others e.g. wolves are major predators of smaller mammals.
Defense	The action of defending from or resisting attack.

Hot Deserts Biome – Location, Characteristics and Climate:

Most of the world's hot deserts are found in the **subtropics** between **20 degrees and 30 degrees north & south** of the Equator. The **Tropics of Cancer and Capricorn** run through most of the world's major deserts.

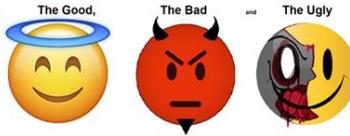
- **Aridity** – hot deserts are extremely dry, with annual rainfall below **250 mm**. It might only **rain once every two to three years**.
- **Major temperature change between the day and night** – temperatures in hot deserts rise to over **45 degrees during the day**, but they are **cold at night** (approx. 5 °C) due to little cloud cover.
- **Landscapes** – Some places have dunes, but most are **rocky** with **thorny bushes**.



Examples of adaptations to the desert:

- | | |
|---------------|--|
| Cactus | <ul style="list-style-type: none"> • Large roots to absorb water soon after rainfall. • Needles instead of leaves to reduce surface area and therefore transpiration. |
| Camels | <ul style="list-style-type: none"> • Hump for storing fat (NOT water). • Wide feet for walking on sand. • Long eyelashes to protect from sand. |

History - Henry VIII



What was Henry like as a king?

The Good

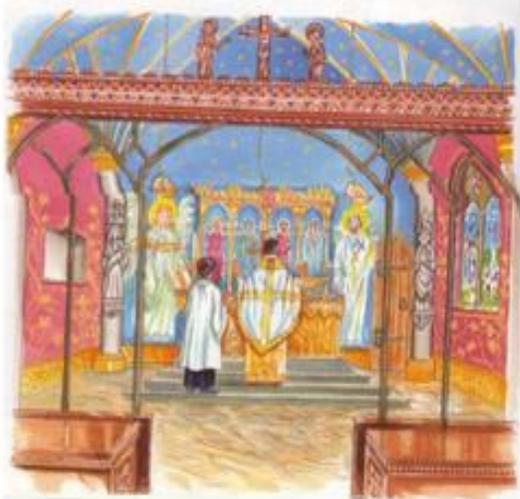
- Fought wars in France and Scotland and beat the Scottish at Flodden in 1513.
- Built up the navy from 5 ships to 50.

The Bad

- Spent the money his father had saved on parties, jousting and war
- Divorced his first wife, Catherine of Aragon when she didn't give him a son

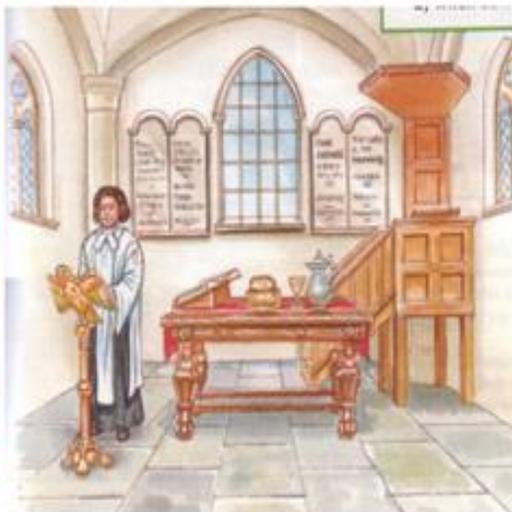
The Ugly

- Executed 2 wives, one for treason & the other for adultery (cheating on him).
- Lied to the leaders of the 1536 rebellion by saying he wanted to thank them. He executed them instead.



Roman Catholic

Bible & church services in Latin
Priest acts as a link between person & God
Head of the church is the Pope



Protestant

Bible & church services in Latin
People can communicate with God through prayer
Head of the church is Jesus

Key Terms	Definitions
Pope	Head of the Catholic Church
Divorce	Ending a marriage
Catholic Church	Church lead by the Pope, based in Rome. Nearly everyone in England until the 1530s was Catholic.
Church of England	The new church set up by Henry VIII. This followed Protestant beliefs e.g. the decoration was much plainer
Monastery/nunnery	A religious building where monks/nuns live
Monk/nun	Religious men/women who dedicated their lives to God
Dissolution	Ending/dissolving

The break from Rome

When Catherine of Aragon became too old to have any more children, Henry asked the Pope for a divorce. He refused, so Henry decided to set up his own church and give himself a divorce. In 1534 he made himself head of the Church in England. Immediately he divorced Catherine and married Anne Boleyn who was already pregnant. The new church was the Church of England.

The dissolution of the monasteries

In 1535, Henry asked Thomas Cromwell, his Chief Minister to investigate whether the monasteries in England were being run properly. He was looking for excuses to close them down.

Cromwell's inspectors found evidence that monks were misbehaving & spending money on themselves & not the poor.

Henry ordered all the monasteries to be closed. He took their wealth, sold their land and threw out all the monks.

History - Edward, Mary & Elizabeth

The next Tudor monarchs



Edward VI

Ruled: 1547-1553

Protestant, changed the church so priests could marry & alters were replaced with communion tables.

Tried to make his cousin, Lady Jane Grey queen after him so Protestantism could continue. Didn't marry (only 15 when he died) & had no children.



Mary (known as 'Bloody Mary')

Ruled: 1553-1558

Catholic, returned England to Catholicism. Burnt nearly 300 Protestants alive at the stake when they refused to become Catholic.

Lost Calais, the last English land in France.

Married Philip II of Spain, but didn't have children.

Who could Elizabeth marry?

Robert Dudley
English
Protestant
Knew England but other Englishmen might be jealous.
Would not bring a foreign alliance
His first wife died in mysterious circumstances

Philip II of Spain
Spanish
Catholic
Was married to Elizabeth's sister Mary
Would bring a foreign alliance
The English didn't like him
He was very wealthy

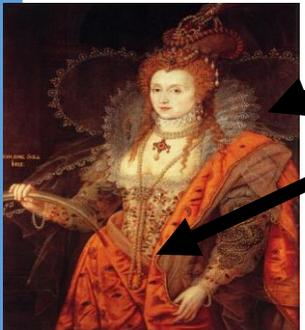
Francis, Duke of Alencon
French
Catholic
Would bring a foreign alliance, as he was the French king's brother
Some English didn't like him
He was very wealthy

Robert Devereux, Earl of Essex

English
Protestant
Knew England but other Englishmen might be jealous. Would not bring a foreign alliance
He was immature & reckless

Elizabeth I
Ruled: 1558-1603
Protestant
Never married

Elizabeth used portraits to get her message across to her people. She used symbolism e.g. she has angel wings to show she was sent from god. The eyes and ears to show she was always watching and listening to her people.



Why didn't Elizabeth get married?

There were problems with all the men who Elizabeth could marry. Her older sister had married Philip II of Spain & it had caused problems. England had been dragged into a war that Spain was fighting against France (and lost Calais). Philip had also encouraged Mary to return England to Catholicism. Even though Elizabeth needed an heir, she never got married.



Key Terms	Definitions
Alliance	An agreement between two countries to help each other. They might support each other in fighting or trade
Portraits	Paintings
Heir	The person who will rule after the current king or queen

History - Elizabeth's problems

Why was Mary, Queen of Scots a problem for Elizabeth?

- 1542:** became Queen of Scotland at 6 days old
- 1548:** sent to live in France
- 1558:** married the Dauphin of France, Francis
- 1559:** became Queen of France, when her father-in-law died
- 1560:** Francis died, Mary was sent back to Scotland
- 1565:** married Henry, Lord Darnley
- 1566:** Mary's secretary David Rizzio was murdered in front of her. Darnley was probably involved.
- 1566:** gave birth to her son, James
- 1567:** Darnley was murdered in suspicious circumstances. Shortly after Mary married Lord Bothwell who many people thought had been involved in Darnley's murder
- July 1567:** Mary was forced to abdicate from the throne
- 1568:** she lost a battle against the Protestant lords & ran away to England. She hoped that her cousin Elizabeth would help her get her throne back. Elizabeth put her in prison for the next 19 years
- 1586:** Babington Plot uncovered. This was a plan to assassinated (murder) Elizabeth
- 1587:** executed

What was the Babington Plot?

- A plot to murder Elizabeth & replace her with Mary, Queen of Scots
- Led by Anthony Babington, a Catholic
- Letters were smuggled into Mary hidden in barrels
- BUT Sir Francis Walsingham, Elizabeth's spy master, found out about it
- Mary, Babington and the other plotters were arrested.
- Mary was put on trial & found guilty

Should Elizabeth execute Mary?

NO

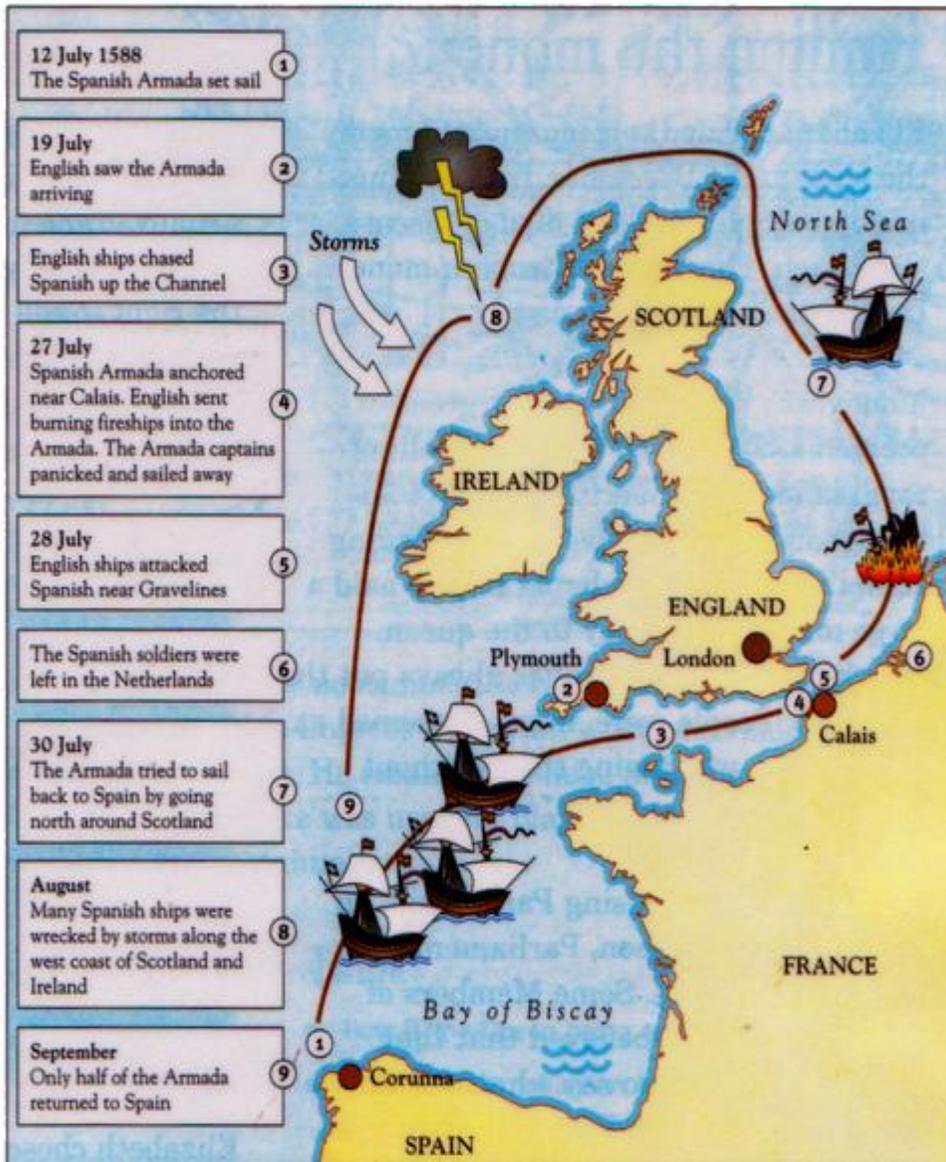
- Mary said she was innocent
- Powerful countries like Spain would be angry if Mary was killed
- Mary was a queen, chosen by God.

YES

- There had been lots of plots to replace Elizabeth with Mary, these would carry on for as long as she was alive
- Parliament wanted her killed
- Mary was a Catholic & a threat to the Protestant Elizabeth



History - Elizabeth's problems



The route of the Spanish Armada

Why did Spain want to attack England?

- England was becoming stronger & starting to challenge Spain's position
- English sailors like Sir Francis Drake had been attacking and stealing from Spanish ships
- Philip II wanted to protect Catholics in England

Sir Francis Drake



Second in command
Experienced sailor
Had sailed around the world
Had been attacking & stealing from Spanish ships for years

Duke of Medina-Sidonia



In command
Had no experience of commanding a fleet
Got seasick & even his mother thought it was a bad decision to give him command!

Why did England defeat the Spanish?

English tactics: the English were well trained to use their cannon. English ships were better designed than the Spanish ships. They were smaller, lighter and better built, this allowed the English to move faster.

The English used fire ships to break up the Spanish fleet (ships)
Spanish mistakes: they had not prepared properly for a sea battle. For example most of their cannon were designed to be used on land once they had got to England.

The Spanish lost time getting their troops onto the ships in the Netherlands.

Weather: Many Spanish ships survived the battle with the English but were destroyed by the storms on the way home.

Bible: The Christian Holy book. Divided into two sections, the Old Testament and the New Testament

Old Testament: The first section of the Holy Bible. Is common to Christians, Jews and Muslims

New Testament: The second section of the Holy Bible. Discusses the life and teachings of Jesus and the first 100 or so years of Christianity

Genesis: The first book of the Old Testament. Deals with the story of creation

Creation: Told in the book of Genesis (first part of the Old Testament). Tells how God created the earth and everything in it in six days and rested on the seventh

The Fall: The concept in Christianity whereby man becomes able to sin because Eve, when tempted by the devil (a serpent), she ate from the tree of knowledge against God's instructions

Literal Belief: A belief that what is written in the Bible is the total and actual truth – e.g. a person could believe that God actually created everything in six days

Liberal Belief: A belief that the Bible guides Christians in how to think – e.g. a person could think that the six days of creation represent development over a 'period of time'

Original Sin: The Christian idea that, because Adam and Eve disobeyed God, all subsequent humans are born sinful and have the urge to do wrong things

Sacrifice: Taking an action which does bad to show thanks or loyalty (in the Bible, done to prove loyalty to somebody/something else)

Punishment: A sanction or negative action applied to somebody (as a consequence for doing something wrong)

Murder: The deliberate taking of another human life

Jealousy: Feeling of envy (of somebody because they have something you want)

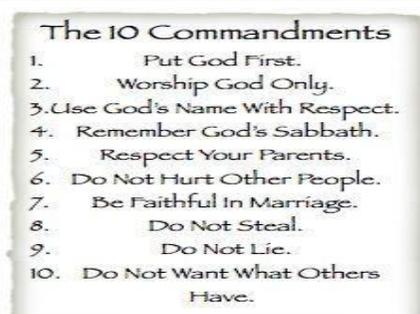
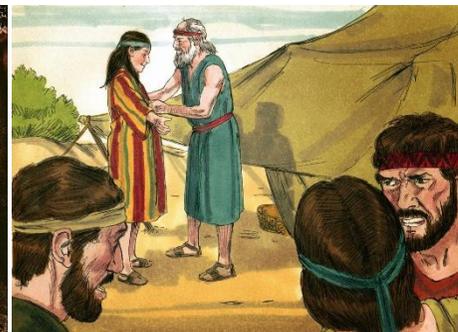
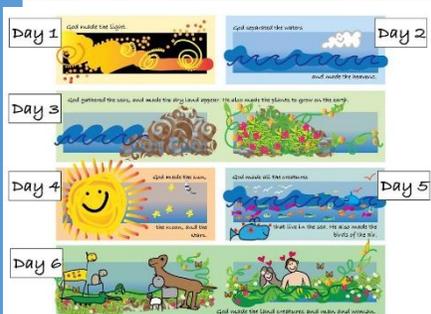
Covenant: A promise or agreement between God and man

Olive Branch: A symbol of peace. One was brought back to Noah's arc by the dove to show the waters were falling and dry land was near – i.g. God's punishment was over

Abraham: Married to Sarah, first follower to believe in just one God. At age 75, God told him to take a great journey (to Caanan) and they were rewarded with Sarah becoming pregnant. God later tested Abraham's loyalty by asking him to sacrifice his only son

Jacob and Joseph: Jacob was a wealthy nomad and Joseph his 11th and favourite son. His siblings plotted against him, sold him to slavery as they were jealous

Enslavement: The act of forcing somebody to work and exist without pay and no realistic means of escape



Religious Education - The Old Testament

Key Questions

What is the Bible?

- The Christian holy book
- Divided into two sections
- Old Testament is common for Judaism, Islam and Christianity. Deals with creation and stories about early followers
- New Testament tells of the life and beliefs of Jesus and the earliest Christians

What does the Bible tell Christians about creation?

- Created in six days (God rested on the seventh)
- The world and everything within it created by God
- The first human was Adam and God created his partner Eve out of his 'spare' parts – i.e. his rib
- Adam and Eve lived in the Garden of Eden under God's instruction
- By following God's rules, they lived an ideal life and nothing bad happened

Does 'the fall' help to explain the existence of pain and suffering?

- Despite God telling her not to, Eve ate the fruit from the Tree of Knowledge of Good and Evil and therefore committed sin. She had been tempted by the devil.
- God banished them both from the Garden of Eden as he was worried they would eat from the tree of life and become immortal
- Because all humans descended from Adam and Eve, they too all have an ability to sin and therefore do bad things to each other

Who were Cain and Abel and why are they important to Christians?

- The two sons of Adam and Eve
- Both made sacrifices to please God
- God was most pleased with Abel's sacrifice – Cain became jealous of this and murdered his brother.
- As he had sinned, God punished Abel by condemning him to a life of wandering in wilderness
- Teaches Christians that only God has to power to give/take away human life (Sanctity of Life) and that jealousy itself is a sin

What does the story of Noah and the arc teach Christians about the power of God?

- God had become annoyed by the sinning of humans; particularly the way they treated each other and the earth
- He sent a massive flood but told Noah to build an arc (boat) and take a male and female of everything into it
- The world flooded for 40 days during which time everything except what was on the boat was wiped-out
- Doves sent out and returned with an olive branch – they knew land was near and the floods were falling
- Teaches Christians that God has the power to create/destroy and their behaviour must please him

How does the story of Abraham and Sarah guide Christians today?

- Because they followed God's instruction, they had a child at the age of 75
- God instructed Abraham to kill his only child – Isaac
- Abraham begins the sacrifice, but God stops him, knowing Abraham clearly fears the power of God.
- A ram is sacrificed instead
- Guides Christians to appreciate the power of God
- Teaches Christians that they should be willing to sacrifice important things in order to best serve God (although the killing of another person was a step too far)

Who was Joseph (the nomad)?

- Joseph was the second son of Isaac
- Father of 12 children from four wives
- Favourite child was Joseph, his 11th child – gave him a special coat to prove this

What happened to Jacob?

- Sold by his brothers to a slave merchant (they were jealous that he was Joseph's favourite and suspicious of his vivid dreams). Became servant to Potiphar, a wealthy Egyptian
- Potiphar's wife seduces him, he rejects her, she had him arrested and put in prison
- Gained favour with Pharaoh by interpreting his dreams – helped Egypt prepare for a long famine that he had predicted
- His brothers come to Egypt to ask for food to survive the famine
- Joseph treats them well despite how badly they had treated him – the moral of the story to always do the good thing



Origins: Another word for beginnings – how something started

Humanity: Characteristics of humans, the qualities of being human, e.g. kindness, mercy, sympathy etc.

Dominion/stewardship: When you are in charge of something – in the case of stewardship, in charge of the earth

God as Creator: The Christian belief that God had/has the ultimate role of creator

Humans as Stewards: The role humans play, as superior beings, in being in charge of and looking after the world

Big Bang: The idea that around 14 billion years ago, there was an explosion, the outcome of which was the universe as we know it (and it is still expanding outwards from this point today)

Matter: A physical substance which exists in space and makes-up everything which can physically be touched

Energy: The force or property which can be transferred from one object to another. The energy from the Big Bang has been transferred throughout the universe

Evolution: The process by which different kinds of living organisms have developed from earlier forms

Natural Selection: The process by which the best (most competitive) species or sub-species dominates and out-survives the others

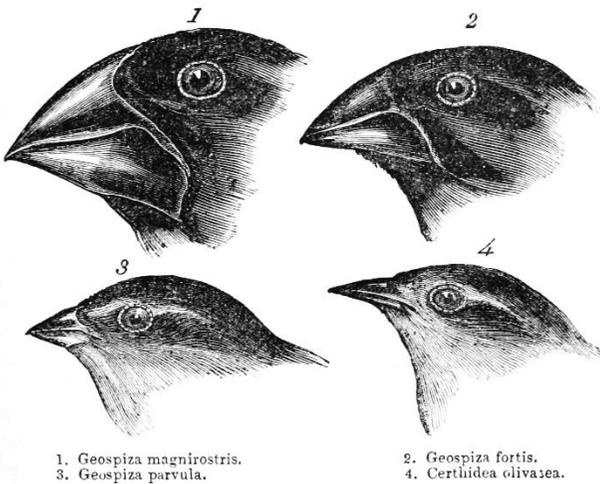
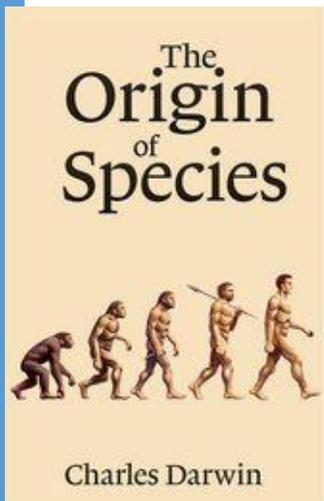
Charles Darwin: English naturalist known for his contributions to the science of evolution

Origins of the Species: Book by Charles Darwin in which he records his theories on evolution, the most important being that of natural selection

Humanist: People who do not believe in religion and accept that this life is our only life, that the universe is natural, and there is no supernatural (Godly) element to it

Atheist: A person who does not believe in God or Gods

Supernatural: Anything which we cannot explain through science or logic



What does Genesis 2 tell Christians about the origins of the universe?

- Genesis 2 tells Christians more about the creation of human life – Adam being created out of the dust of the earth and Eve from his rib
- They lived in the Garden of Eden and had the responsibility to look after it (stewardship)
- It implies that humans were actually created before animals
- Many people think that Genesis 2 is a description of what happened on day six

How does Genesis 1 and Genesis 2 compare?

- There is a difference in terms of when animals were created. Genesis 1 states they were created before humans, Genesis 2 says afterwards
- Genesis 2 is more about the creations of humans in the Garden of Eden

Can Christians believe in scientific ideas of creation such as the Big Bang Theory?

- Absolutely!
- George Lemaitre, a Belgian-born Catholic Priest (also a Professor of physics and an astronomer) first came-up with the theories which eventually became the Big Bang Theory
- Roman Catholics are encouraged to use scientific knowledge to interpret Genesis in light of new understanding
- More literal believers take Genesis as being a true account of exactly how the earth and people were created

How does Darwin's theory of evolution compare to Genesis?

- Evolution describes how physical processes take place over vast periods of time in order to arrive at the present known species. Genesis covers a much shorter time span.
- The general theme of Genesis, life being created over time, is similar to that of evolution. The time span is different though.
- Both are similar in that they start with 'something less than what we have today' and end with the development of 'what we have today'

What do humanists believe about creation?

- Humanists believe that the earth was created entirely by natural processes.
- They do not believe that any part of the earth or the universe was created by a God
- They believe that scientific fact can (or will at some point) be able to explain the creation of the universe
- Humanists believe that there is just one life, and that when somebody dies, there is no afterlife/heaven etc.

In the beginning God created the heavens and the earth.
Now the earth was formless and empty,
darkness was over the surface of the deep,
and the Spirit of God was hovering over the waters.

Genesis 1:1-2





Year 8 French Term 1: Les médias et l'identité.

French	Literal ('dodgy') English
Qu'est-ce que tu regardes à la télé ?	What do you watch on tv?
J'aime regarder les documentaires	1 I like to watch documentaries
parce qu'ils sont fascinants.	2 because they are fascinating
Je ne les rate jamais !	3 I don't miss them ever !
Mes amis regardent les émissions de télé-réalité	4 My friends watch the programmes of reality-tv
mais je pense qu'elles sont stupides.	5 because I think that they (f) are stupid.
Je ne regarde jamais les infos car c'est ennuyeux.	6 I don't watch news because it's boring.
Je ne regarde plus les dessins animés	7 I don't watch anymore the cartoons
parce que c'est pour les enfants.	8 because it's for the children.
Qu'est-ce que tu aimes comme films/livres?	What do you like as films/books?
Je suis fan de comédies car à mon avis	9 I am a fan of comedies because in my opinion
elles sont plus amusantes que les films d'horreur.	10 they (f) are more fun than the films of horror.
Mon actrice préférée is Emma Watson	11 My favourite actress is Emma Watson
parce qu'elle est intelligente et belle.	12 because she is intelligent and beautiful.
J'adore les livres d'épouvante car ils sont passionnants	13 I love the books scary because they (m) are exciting
mais je ne lis plus les bande-dessinées.	14 but I no longer read the comics.
Qu'est-ce que tu fais en ligne ?	What do you do online?
Je pense que je suis accro à l'Internet !	15 I think that I am addicted to the Internet !
Je vais sur les réseaux sociaux tous les jours,	16 I go on the networks social all the days
bien que ce soit une perte de temps,	17 although it is a waste of time.
et j'envoie des messages à mes amis sur mon ordi.	18 and I send some messages to my friends on my PC.
Hier, j'ai fait des recherches pour les devoirs	19 Yesterday, I did research for the homeworks
donc je pense que c'est très pratique et utile.	20 so I think that it is very practical and useful.
Qu'est-ce que tu fais quand il fait beau ?	What do you do when it's nice weather?
Quand il fait beau, j'aime retrouver mes amis en ville.	21 When it's nice weather, I like to meet my friends in town.
De temps en temps on va au parc	22 From time to time we go to the park
et quelquefois on fait du skate ce qui est super.	23 and sometimes we do skateboarding which is super.
S'il fait froid, je préfère rester à la maison.	24 If it is cold, I prefer to stay at the house
où je joue à des jeux vidéo en ligne.	25 where I play some video games online.
Qu'est-ce que tu as fait hier soir ?	What did you do yesterday evening?
Hier soir je suis allée au cinéma. C'était fantastique !	26 Yesterday evening I went to the cinema. It was fantastic!
J'ai regardé un film fantastique et j'ai mangé du popcorn.	27 I watched a film fantasy and I ate some popcorn.
Après je suis rentrée chez moi et	28 After I returned home me and
ensuite j'ai téléchargé de la musique sur mon ordi.	29 then I downloaded of the music on my computer.
Avant de me coucher, j'ai lu un roman policier.	30 Before going to bed, I read a novel detective.



Sentence builder 1 – What you like to watch on TV & why?

VERB (OPINION)	NOUN	CONNECTIVE + VERB	ADJECTIVE
J'aime (regarder) I like (to watch)	les documentaires les jeux télévisés game shows les dessins animés cartoons les feuilletons soap operas	parce qu'ils sont because they (m) are parce qu'ils ne sont pas because they (m) are not	divertissants fascinants passionnants éducatifs (trop) sérieux ennuyeux stupides
J'adore I love	les séries series les infos the news les émissions de musique music shows les émissions de télé-réalité reality tv shows	parce qu'elles sont because they (f) are parce qu'elles ne sont pas because they (f) are not	divertissantes fascinantes passionnantes éducatives (trop) sérieuses ennuyeuses stupides
Je n'aime pas I don't like			
Je déteste I hate			

SB 2: Comparing opinions on films & books

OPINION	1 ST NOUN	VERB	ADJECTIVE	2 ND NOUN
Je pense que I think that	les films d'action	plus	excitant	les romans policiers
Je crois que I believe that	les films d'horreur	more	boring	crime stories
A mon avis In my opinion	les films fantastiques fantasy films	moins	passionnantes ennuyeuses	les romans d'amour love stories
	les comédies	less	excitant boring	les bandes-dessinées comics (les BDs)

SB 3: using the perfect tense (le passé composé) to say what you have done in the past.

PAST TIME PHRASE	SUBJECT + auxiliary verb 'AVOIR'	PAST PARTICIPLE + ACTIVITY
Hier yesterday	j'ai (I have) tu as (you have) il/elle a (he/she has) on a (we have)	écouté de la musique listened to music. fait les magasins/du sport/les devoirs done shopping/sport/homework. joué à des jeux vidéos / au foot played video games/football. lu un livre read a book. mangé au restaurant ate at a restaurant. regardé la télé watched the tv. surfé l'Internet surfed the internet. téléchargé des films downloaded films.
La semaine dernière last week	nous avons (we have) vous avez (you pl. have)	
Le week-end dernier last weekend	ils/elles ont (they have)	
	je suis allée au parc I went to the park on est allés au cinéma we went to the cinema (N.B. 'aller' is irregular because it uses être as the auxiliary verb)	
VERB	INTENSIFIER	ADJECTIVE
C'était it was	assez quite très very plutôt rather un peu a bit vraiment really	amusant fun relaxant relaxing formidable terrific génial great
		nul rubbishish barbant tedious ennuyeux boring

To extend your sentences, link several events using SEQUENCERS:
d'abord = first of all / puis = then / ensuite = next / après = afterwards

Grammar notes

PRESENT	PERFECT PAST TENSE
je joue (I play)	j'ai joué (I have played)
je regarde (I watch)	j'ai regardé (I have watched)
j'écoute (I listen)	j'ai écouté (I have listened)
je mange (I eat)	j'ai mangé (I have eaten/ate)
je lis (I read)	j'ai lu (I have read)
je fais (I do)	j'ai fait (I have done/did)
je vais (I go)	je suis allé(e) (I went)

NEGATIVE 'SANDWICHES'	
je ne lis pas	I don't read
je ne lis plus	I no longer read
je ne lis jamais	I never read

Quelle est ta personnalité ?	A	What is your personality ?
Je dirais que je suis assez drôle et je pense que je suis intelligente aussi.	1	I would say that I am quite funny and I think that I am intelligent also.
Cependant, je me trouve plutôt pessimiste et il faut que je dise que je ne suis pas patiente non plus.	2	However, I find myself rather pessimistic and I must say that I am not very patient either.
Tu t'entends bien avec tes amis/ta famille ?	B	Do you get on well with your family?
En général, je m'entends bien avec mes parents parce qu'ils sont très généreux et gentils.	6	In general, I get on well with my parents because they are very generous and kind.
Par contre, je me chamaille avec ma petite sœur parce qu'elle est casse-pieds.	7	However, I bicker with my little sister because she is annoying (lit: break-feet).
Je m'amuse bien avec mon meilleur ami bien qu'il soit trop bavard.	10	I have fun with my best friend (m) although he is too chatty.
Quand il fait beau, on va au parc.	11	When it's nice weather, we go to the park.
La semaine dernière, on a regardé la télé. C'était amusant.	12	Last week, we have watched tv. It was fun.
Quelle musique écoutes-tu ?	C	What music do you listen to?
J'écoute souvent du pop et du RnB.	14	I listen often to pop and to RnB.
Ma chanteuse préférée c'est Beyoncé parce qu'elle est très douée et j'adore ses paroles.	15	My favourite singer (f) is Beyoncé because she is very talented and I love her lyrics.
Sa musique me donne envie de danser et ça me rend heureux/se quand je suis triste.	16	Her music me gives urge to dance et it me makes happy when I am sad.
Cependant, je n'aime pas la musique classique car je trouve que c'est ennuyeux.	18	However, I don't like the music classical because I find that it's boring.
L'année dernière, je suis allée à son concert. C'était incroyable.	19	Last week, I went to her concert. It was incredible.
Décris ton style.	D	Describe your style.

J'ai un style plutôt décontracté, alors normalement je porte un jean bleu ou une jupe noire avec des baskets blanches parce que c'est confortable.	22	I have a style rather relaxed, so normally I wear a jean blue or a skirt black with some trainers white because it's comfortable.
Ce weekend on va aller à un mariage donc je vais porter une chemise rose ou une robe rouge. parce que c'est plus chic/élégant.	23	This weekend we are going to go to a wedding so I am going to wear a shirt pink or a dress red because it's more chic/legant.
Qu'est-ce que tu vas faire le week-end prochain ?	E	What are you going to do next weekend?
Le week-end prochain, s'il fait chaud, je vais aller au parc avec mes amies, et on va parler de tout.	24	Next weekend, if it is hot I am going to go to the park with my friends (f), and we are going to talk of everything.
Par contre, s'il fait froid, je vais jouer à des jeux vidéo et je vais regarder un film passionnant.	25	By contrast, if it is cold, I am going to play some video games and I am going to watch a film exciting.

PRESENT	PERFECT PAST TENSE	NEAR FUTURE
je joue (I play)	j'ai joué (I have played)	je vais jouer (I am going to play)
je regarde (I watch)	j'ai regardé (I have watched)	je vais regarder (I am going to watch)
j'écoute (I listen)	j'ai écouté (I have listened)	je vais écouter (I am going to listen)
je mange (I eat)	j'ai mangé (I have eaten/ate)	je vais manger (I am going to eat)
je lis (I read)	j'ai lu (I have read)	je vais lire (I am going to read)
je fais (I do)	j'ai fait (I did/have done)	je vais faire (I am going to do)
je vais (I go)	je suis allée (I went)	je vais aller (I am going to go)



SB 4: talking about your personality & others' personalities.

VERB PHRASE		INTENSIFIERS		ADJECTIVE	
<p>À mon avis, je suis / je ne suis pas (In my opinion I am / I am not)</p> <p>Je ne suis pas du tout (I am not at all)</p> <p>Je pense que je suis (I think that I am)</p> <p>Je dirais que je suis (I would say that I am)</p> <p>Il faut que je dise que je suis (I must say that I am)</p> <p>Je me trouve (I find myself)</p>				<p>très very</p> <p>assez quite</p> <p>plutôt rather</p> <p>un peu a bit</p> <p>toujours always</p> <p>trop too</p>	<p>agaçantes annoying</p> <p>bavardes chatty</p> <p>casse-pieds annoying</p> <p>compréhensives understanding</p> <p>débrouillards resourceful</p> <p>drôles funny</p> <p>égoïstes selfish</p> <p>généreux/ses generous</p> <p>gentilles kind</p> <p>honnêtes honest</p> <p>marrantes funny</p> <p>optimistes optimistic</p> <p>pessimistes pessimistic</p> <p>pénibles annoying</p> <p>(im)patientes (in)patient</p> <p>rigolotes funny</p> <p>sympas nice</p> <p>têtues stubborn</p> <p>travailleuses hardworking</p>
<p>REFLEXIVE VERB</p> <p>Je m'entends bien avec I get on well with</p> <p>Je m'amuse avec I have fun with</p> <p>Je me confie à I trust / confide in</p> <p>Je me chamaille avec I bicker with</p> <p>Je me dispute avec I argue with</p> <p>Je me fâche contre I get angry with</p>		<p>MASC NOUN</p> <p>mon père my father</p> <p>mon frère my brother</p> <p>mon oncle my uncle</p> <p>mon grand-père my grandfather</p> <p>mon beau-père my step-father</p> <p>mon demi-frère my step/half brother</p> <p>mon meilleur ami my best friend (m)</p> <p>FEM NOUN</p> <p>ma mère my mother</p> <p>ma sœur my sister</p> <p>ma tante my aunt</p> <p>ma grand-mère my grandmother</p> <p>ma belle mère my step-mother</p> <p>ma demi-sœur my step/half sister</p> <p>ma meilleure amie my best friend (f)</p> <p>PL NOUN</p> <p>mes parents my parents</p> <p>mes grands-parents my grandparents</p> <p>mes cousins / cousines my cousins</p> <p>mes amis / mes amies my friends (m/f)</p> <p>mes copains / mes copines my friends (m/f)</p>		<p>CONNECTIVE+VERB</p> <p>parce qu'il est because he is</p> <p>bien qu'il soit although he is</p> <p>parce qu'elle est because she is</p> <p>bien qu'elle soit although she is</p> <p>parce qu'ils sont parce qu'elles sont because they are</p> <p>bien qu'ils soient bien qu'elles soient although they are</p>	

SB 5: using the near future tense (le futur proche) to say what you are going to do.

FUTURE TIME PHRASE	WEATHER	SUBJECT + ALLER (to go)	INFINITIVE ACTIVITY
<p>Demain tomorrow</p> <p>La semaine prochaine next week</p> <p>Le week-end prochain next weekend</p>	<p>s'il faut chaud if it's hot</p> <p>s'il fait froid if it's cold</p> <p>s'il fait beau if it's nice</p> <p>weather</p> <p>s'il pleut if it rains</p>	<p>je vais I am going</p> <p>tu vas you are going</p> <p>il/elle/on va he/she is going</p> <p>on va we are going</p> <p>nous allons we are going</p> <p>vous allez you (pl) are going</p> <p>ils/elles vont they (m/f) are going</p>	<p>aller à la plage / au parc. to go to the beach / to the park.</p> <p>faire des magasins en ville to do the shops in town.</p> <p>faire mes devoirs à la maison. to do my homework at home.</p> <p>faire du sport au centre de loisirs. to do sport at the leisure centre.</p> <p>porter une jupe / un tee-shirt. to wear a skirt / a t-shirt.</p> <p>jouer à des jeux vidéos / au foot. to play video games / football.</p> <p>regarder un film au cinéma. to watch a film at the cinema</p>
<p>FUTURE VERB PHRASE</p> <p>Ça va être it is going to be</p> <p>Ce sera it will be</p>		<p>ADJECTIVE</p> <p>amusant fun</p> <p>barbant tedious</p> <p>ennuyeux boring</p> <p>formidable terrific</p> <p>génial great</p> <p>nul rubbish</p> <p>relaxant relaxing</p>	

N.B. To extend your sentences, link several events using SEQUENCERS:
d'abord = first of all / puis = then / ensuite = next / après = afterwards

Art

Colour Theory

Primary colours are the three main colours, they can't be made, but are used to mix all of the other colours

Secondary colours are made by mixing two primary colours

Tertiary colours are made by mixing a primary and a secondary colour

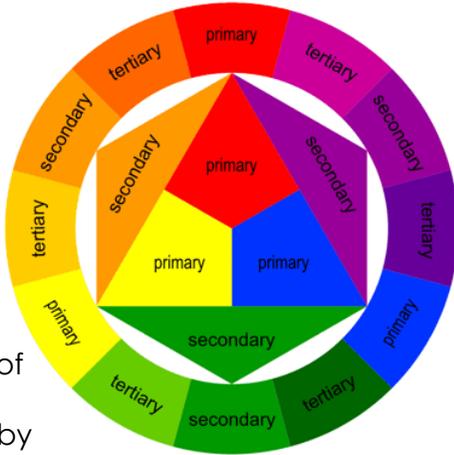
Harmonious colours are next to each other on the colour wheel

Complementary colours are opposite each other on the colour wheel

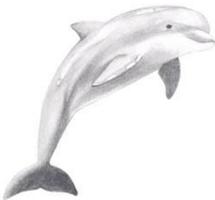
Tint – when you add white to a colour to make it lighter



Shade – when you add black to a colour to make it darker



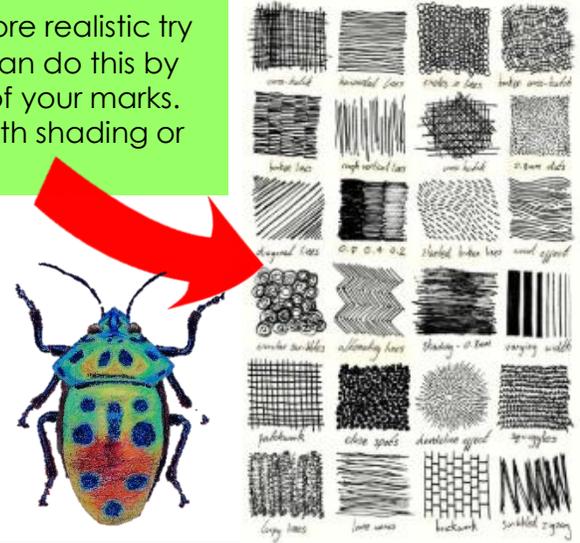
Making things look 3D:
To stop drawings looking flat use a range of tone and marks. Pressing harder and lighter and layering with your pencil creates different tones and adds depth.



Mark Making: To make drawings look more realistic try to use different marks on the surface. You can do this by changing the direction, pressure or length of your marks. Mark making can be used in conjunction with shading or separately.

The Formal elements of Art	
Tone	How light or dark something is
Line	A mark which can be long, short, wiggly straight etc...
Colour	What you see when light reflects off something. Red, blue and yellow are primary colours
Texture	How something looks or feels e.g. smooth or rough
Pattern	A symbol or shape that is repeated
Shape	A 2D area which is enclosed by a line e.g. a triangle
Form	Something which has 3 dimensions e.g. a cube, sphere or a sculpture

Technique Keywords	
Media/Medium	The materials and tools used by an artist to create a piece of art
Technique	The way an artist uses tools and materials to create a piece of art
Composition	Where you place objects on the page
Highlight	The bright or reflective area on an object or piece of art, this area is closest to the light source
Shadow/Shade	The darker areas within a piece of art or object
Proportion	The size relationship between different parts e.g. height compared to width



Art - Ocean & Plastic

In this topic you will be looking at the Ocean environment and plastic. You will explore the impact the effect this has on ocean animals and how to respond to this as an artist and create a meaningful piece of environmental art.

During this project you will be exploring the work of

Alfred Basha: an artist that creates surreal hybrid creatures using their habitat and outline to create original artworks.

Andreas Lie: this artist uses double exposure to manipulate photographs combining animals and their habitat

Double Exposure: is a photographic technique that mainly involves combining two exposures (pictures) to create a single image



Grades of pencil

Pencils come in different grades, the softer the pencil, the darker the tone.

H=Hard B=Black

In art the most useful pencils for shading are 2B and 4B. If your pencil has no grade, it is most likely HB(hard black) in the middle of the scale.



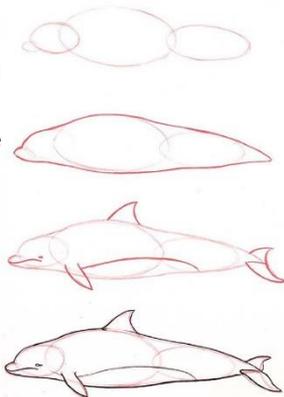
Activist art is a term used to describe art that is grounded in the act of 'doing' and addresses political or social issues.

Habitat	this is the natural environment of an animal/creature
Environment	the surroundings or conditions in which a person, animal, or plant lives. We must protect the environment from pollution
Pollution	this is a huge issue at the moment as waste is incorrectly disposed of
Recycling	we must do more of this to protect our oceans and the creatures that live within
Plastic	these items are often disposed of incorrectly and end up in the oceans and harm wildlife

Constructing a drawing

It is important to remember to build a drawing in stages:

1. Plot out rough shapes (to ensure everything is in proportion) start with the bigger structures,
2. Refine line work (put the correct lines in)
3. Add details and smaller shapes
4. Plot out and apply shading or mark making



Space refers to the area within, around, above or below an object or objects. It is important to creating and understanding both two dimensional or three dimensional works of art.

① OVERLAP

② SHADING

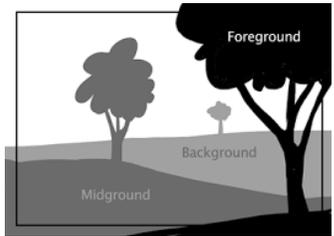
③ PLACEMENT

④ SIZE

⑤ VALUE and FOCUS

⑥ LINEAR PERSPECTIVE

Art - Insects

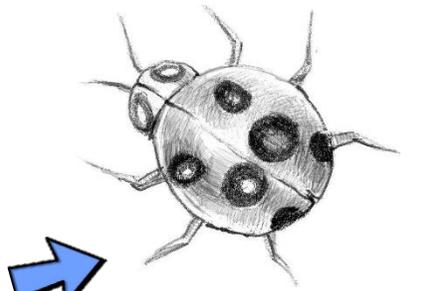


It is important to be able to identify the different layers in an image. When creating your own piece you will be building from background to middleground to foreground.

In this project you will develop compositional skills and learn how to build up a background and image based on the stimulus of insects. You will be exploring colour theory and colour groups in this project.



Directional shading is shading that follows the contours of an object. Using this method makes your work appear more realistic. Look at the insect, see how the shading changes direction and curves with the shape of the insect. Directional shading should be used all the time =, it is not exclusive to pencil shading, look at the way the oil pastel has been used.



Things to help:

Books

- **How to Draw Almost Everything: An Illustrated Sourcebook** – Chika Miyata
- **Keys to Drawing** – Bert Dodson
- **Drawing for the Absolute Beginner: A Clear & Easy Guide to Successful Drawing (Art for the Absolute Beginner – Mark and Mary Willenbrink**

YouTube Tutorials

- **Drawing & Painting – The Virtual Instructor**
- **The Basics of Oil Pastels - How to use Oil Pastels (Lets create something)**

Oil Pastel are a new medium we will be using during this project. They are like wax crayons and produce a rich bright colour, they can be a little tricky to blend.

BALANCE

Symmetrical
I create symmetrical balance when I evenly place images on both sides of a mid-line.

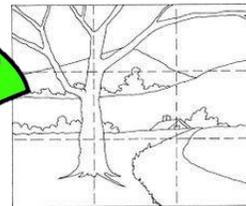
Asymmetrical
I create asymmetrical balance when I balance by size and weight in a variety of images, but not evenly from the mid-line.

Radial
I create radial balance when I repeat shapes and images evenly from the center outward.

Three diagrams illustrating different types of balance: symmetrical (a butterfly and a girl's face), asymmetrical (a colorful abstract shape and a landscape), and radial (a sun-like pattern and a star-like pattern).

Composition is the way that you place or position your objects, there are several rules that can be used.

- **Rule of thirds:** You divide your paper horizontally and vertically into 9 equal sections, and by placing the focus on your image where the lines intersect you create a balanced composition.
- **The Rule of odds** suggests that an odd number of subjects in an image is more interesting to look at than an even number.
- **Balance** is where you ensure an image is 'balanced' look at the diagram to see different types of balance.



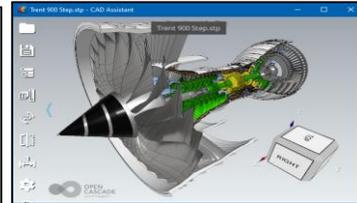
Dominic Vonbern is a designer, artist and author. Vonbern Has been active in the Swiss street art scene for over 24 years. He takes inspiration from street and pop art. He works today predominantly in the medium of spraying and colourful digital arts.





Design and Technology
Knowledge Organisers – Bee
Box.

2D Design - CAD, CAM and CNC
CAD Computer-Aided-Design



Nets- A pattern that you can cut and fold to make a model of a solid shape

Tolerances

Tolerance is the allowable variation for any given size in order to achieve a proper function

Example: If I ask for a piece of wood to be cut to 500mm long and there is a tolerance of +/- 2mm, it can be 502mm or 498mm long!
This is what is known as a tolerance

TOLERANCING 00 = ±0.2 00.0 = ±0.1 00.00 = ±0.05 angular = ± 0°30	SCALE 1:1	SIZE A4
ALL DIMENSIONS IN MM		
<p>3rd ANGLE PROJECTION DO NOT SCALE</p>		



CAM Computer-Aided-Manufacture

CNC means Computer-Numerical-Control

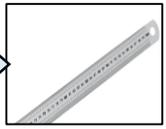


Net of a cube!

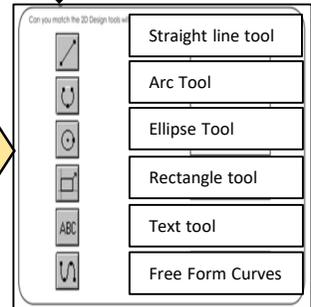
Tools and Equipment

Graphical tools

Steel Ruler-
Used to draw very precise and accurate straight lines

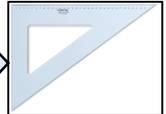


2D Design Tools Explained!
These are the most common tools you will use in 2D Design

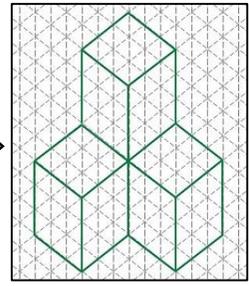


Hazard- Something that has the potential to cause harm, untidy cables between work spaces is a good example

Set Square-
Use for drawing 30 or 60 degree diagonal lines



Isometric drawing paper.
Used to help you create drawings in 3D. Lines are 30 degrees



Isometric Drawing-
Isometric projection is a method for visually representing three-dimensional objects in two dimensions in technical and engineering drawings



Design and Technology
Knowledge Organisers – Bee
Box.

Graphic Design -
The art or skill
of combining
text and
pictures in
advertisements,
magazines, or
books.



Pine Wood- Used
indoor and outdoors
for a range of
cheap applications

Plywood- Strong
man made board,
made from layers
glued together

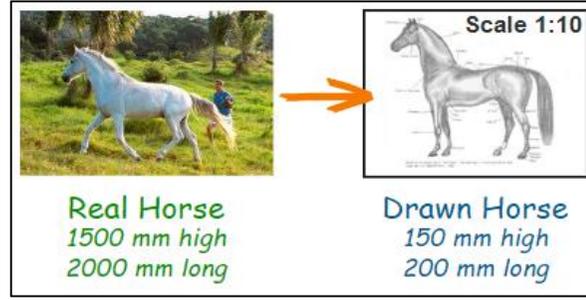
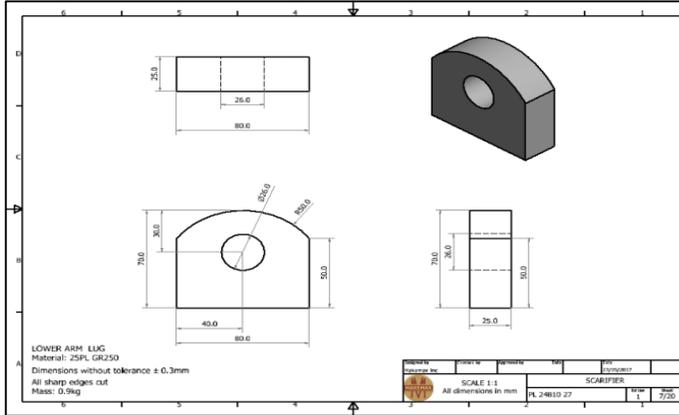
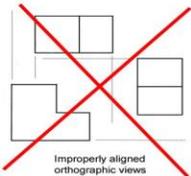
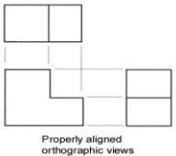


A Bug Hotel

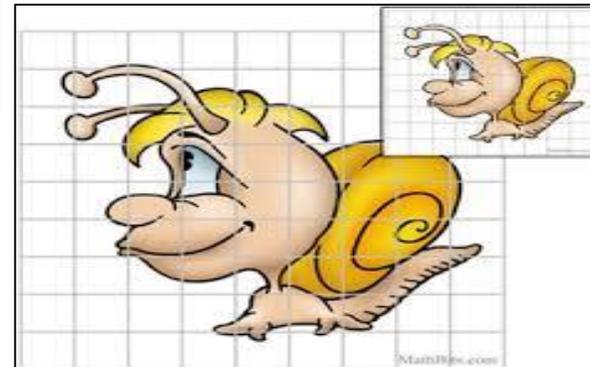
Scaled Drawings- Why
use scaled drawings ?
A **drawing** that shows a
real object with accurate
sizes reduced or enlarged.
We cant design a building
as big as the Eifel tower
so we have to draw it
smaller. This is called a
scaled drawing.

Orthographic Projection

Views are aligned with one another (features
project from one view to the next)



Orthographic projection is a means of representing three-dimensional
objects in two dimensions. It is a form of parallel projection, in which all the
projection lines are orthogonal to the projection plane, resulting in every
plane of the scene appearing in affine transformation on the viewing surface.



Design and Technology
Knowledge Organisers –
[Bee Box.](#)



Product analysis involves investigating a **products** features, costs, availability, quality and other aspects. **Product analysis** is carried out by people who want to buy the product, by **product managers** attempting to understand competitors and by people who need inspiration to design and develop a new product. At school we use **ACCESS FM** to help us analyse a product. Below is an example of how it used.

Market Research- The action or activity of gathering information about consumers' needs and preferences.

Customer- What would you customer think of the product? Is it suitable for them? Does it fulfil their needs?

Aesthetics- Describe what the object looks like, you can discuss its colour, texture, features and more

Cost- Discuss the cost of the product, is it too expensive? too cheap? Would your client be happy with the price? Is it good value for money?

Environment- What location will your product be suitable for? Is your product environmentally friendly?



Size- What are the dimensions of your product? Is it just right? Too big? Too small?

Function- How does your product work? Are there any moving parts? What is it intended to do?

Shape- Describe the shape of your product, Is the shape suitable for your client? Could it be improved?

Materials- Describe the materials, What is the product made of? Are the materials suitable?

ACCESSFM- This is a useful tool used to analysis a product in detail

Design and Technology
Knowledge Organisers – Bee Box.

Sustainability

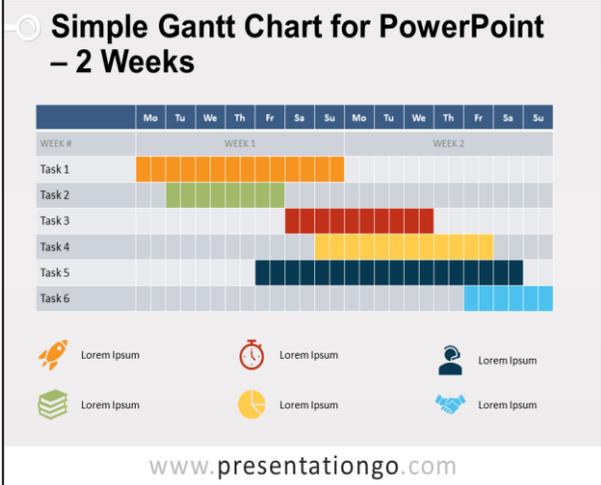
Sustainability- A way to avoid running out of natural resources in order to exist forever!



Project Planning Tools

The Gantt Chart- A chart in which a series of horizontal lines shows the amount of work done or production completed in certain periods of time in relation to the amount planned for those periods.

Project Planning Tools



The 6R's

Reduce Re-use Recycle Refuse Repair Refuse

Units of Measurement:

In the UK and Europe we use mm which is know as the metric system, Across America they use imperial measurements which are feet and inches.

Length 100millimetres (mm) = 10centimetres (cm) 1centimetre (cm) = 10mm 100cm = 1metre (m)
1000metres (m) = 1kilometre (km)

Weight 1gram (g) = 1000mg 0.1kilogram (kg) = 100grams (g) 1kilogram (kg) = 1000grams (g)
1tonne = 1000kilograms (kg)

Capacity 1litre = 1000millilitres (ml) 1litre (l) = 100centilitres (cl) 1centilitre (cl) = 10millilitres (ml)
0.1litre (l) = 100millilitres (ml)

Skills & Processes Used In Year 8



Kneading Bread Dough- Bread

Strong flour used for bread dough is high in a protein called gluten. This must be kneaded by hand to make it elastic and stretchy.



Proving Bread Dough – Cinnamon Rolls

Once the dough has been kneaded, it must be left to prove. This is where the yeast (a biological raising agent) ferments, creating carbon dioxide gas which makes the dough grow and rise.



Frying off – Bolognese, chicken tikka, chicken and bacon pasta

A method for cooking raw meat until it is sealed and cooked through. It should be brown on the outside with no pink left on the inside.



Blind Baking – Savoury Flan/Quiche

Baking a pastry case before adding a filling to dry it out and stop a soggy bottom (baking beads to weigh it down). Coagulation of egg.



Rubbing In – Jam Tarts, Savoury Flan

Combining fat and flour by 'rubbing in' with your fingertips before binding together with water to make pastry dough



Binding, Coating, Shaping – Fish cake

Combining all ingredients together, shaping into a patty, coating in flour, egg and breadcrumbs before cooking.



Melting method – Flapjack and cheesecake

Melting is a physical process that results in the phase transition of a substance from a solid to a liquid. We boil a small amount of water in a saucepan and place a glass bowl with the ingredients we want to melt above.



Keyword	Meaning
Aeration	Adding air/gas to a mixture, e.g. by whisking.
Blind Baking	A method of baking pastry without any filling to dry it out.
Coagulation	When liquid protein foods are cooked and turn from liquid to solid. E.g. egg in quiche.
Convenience Foods	Ready made foods that can be used to save time. E.g. puff pastry. More expensive than making from scratch though.
Glazing	Brushing with egg or milk before baking to give a shine. E.g. scones, pastry.
Simmering	When water or food in a saucepan bubbles gently (stays below boiling point).
Kneading	Working bread dough with the hands to stretch the gluten so it is elastic (helps the yeast to make bread rise).
Lamination	Thin layers of fat and dough in puff/flaky pastry. These separate when baked to form the flaky layers.
Proving	Leaving bread dough to develop and rise.
Yeast	A biological raising agent used in bread and beer.

Equipment

Pastry brush used for glazing



Electric whisk used to mechanically aerate mixtures



Baking beans used for blind baking pastry

Frying pan used for frying off meat (can also be done in a saucepan)



Garlic crusher



Colour Coded Chopping Boards



Chefs Knife - a large all purpose knife



Vegetable Knife - a small knife for preparing fruits and vegetables



The government recommends **8 top tips for healthy eating**. Following these guidelines you will give you a **balanced diet**, which leads to **good health**.



All the **foods** on the **Eatwell Guide** give us a range of **different nutrients** which all do **different jobs** in our body.
Remember lots of foods provide more than 1 nutrient.

eatwell 8 TIPS for HEALTHY EATING

- 1** Base your meals on starchy foods
- 2** Eat lots of fruit and veg
- 3** Eat more fish – including a portion of oily fish each week
- 4** Cut down on saturated fat and sugar
- 5** Eat less salt – no more than 6g a day for adults
- 6** Get active and try to be a healthy weight
- 7** Drink plenty of water
- 8** Don't skip breakfast

Nutrient	Food Examples	Main Function in Body
Macronutrients - We need these in large amounts.		
Starchy Carbohydrates	Cereals, bread, rice, potatoes, pasta etc.	Give us slow release energy. (wholegrain versions are higher in fibre).
Protein	Meat, fish, eggs, nuts, seeds, pulses, lentils.	Growth, repair and maintenance of muscles.
Fat	Butter, lard, margarine, sunflower oil, olive oil etc.	Insulates our vital organs (heart, lungs etc) and keeps us warm.
Micronutrients - We need these in small amounts.		
Vitamins	Fruits and vegetables.	Help our immune system fight off illnesses and help us release energy from other foods.
Minerals		
Other Essential Nutrients		
Dietary Fibre (NSP)	Wholegrain cereals, fruit/vegetables, nuts/seeds etc	Helps our digestive system remove waste and avoid constipation.
Water	Keeps us hydrated, controls body temperature, helps digestion, gets rid of waste.	

Healthy Food Swaps



Changing just a few eating habits can make a big difference to your diet and is the healthiest way to lose weight. Eat less fat, salt, sugars, processed foods and high calorie foods. Swap them for something healthier, such as more fruit and vegetables (5 a day).

Find out more: www.nhs.uk/change4life/food-facts

Main Major Health Issues Linked to Poor Diet	
Anaemia	Too few red blood cells caused by a lack of iron in the diet.
Diabetes (Type 2)	Caused by too much processed sugar , obesity and lack of exercise.
Heart Disease (CHD)	Arteries get blocked by fatty deposits. Linked to saturated fats and obesity .
Obesity	Having too much body fat because of an incorrect energy balance .
Osteoporosis	Bone disease. Brittle bones due to a lack of calcium . Affects elderly people.
Tooth Decay	Plaque builds up on the teeth. Made worse by eating too much sugar .

Where does our food come from, how is it produced and why do we need to know?



Red Tractor is a food assurance scheme showing the food has been farmed, processed and packed in the **UK**. It is **traceable**, safe to eat and has been produced responsibly.

- Foods:**
Milk, cheese, yoghurt, poultry



The **animals** have access to outdoor space and can live naturally. The **welfare** standards are high.

- Foods:**
Eggs, meat



Foods that have this label mean the **animals** have had a good life and have been treated with respect

- Foods:**
Eggs, meat & fish



This means the food has been produced without using any chemicals. Only **natural fertilisers and pesticides** are used to help the crops grow.

- Foods:**
Eggs, chicken, fruit and vegetables



The **farmer** gets a **fair price** for his produce and fair working and living conditions.

- Foods:**
Sugar, bananas, coffee, tea



Using **sustainable methods** of fishing to prevent the decline in number of **fish** in our seas.

- Foods:**
Fish, seafood

The school food standards



- Fruit and vegetables**
- One or more portions of vegetables or salad as an accompaniment every day.
 - One or more portions of fruit every day.
 - A dessert containing at least 50% fruit two or more times each week.
 - At least three different fruits and three different vegetables each week.



- Starchy food**
- One or more wholegrain varieties of starchy food each week.
 - One or more portions of food from this group every day.
 - Three or more different starchy foods each week.
 - Starchy food cooked in fat or oil no more than two days each week.*
 - Bread - with no added fat or oil - must be available every day.



- Milk and dairy**
- A portion of food from this group every day.
 - Lower fat milk must be available for drinking at least once a day during school hours.



- Healthier drinks**
- Free, fresh drinking water at all times. The only drinks permitted are:
 - Plain water.
 - Lower fat milk or lactose reduced milk.
 - Fruit or vegetable juice.
 - Plain soya, rice or oat drinks enriched with calcium; plain fermented milk drinks.
 - Combinations of fruit or vegetable juice with plain water.
 - Combinations of fruit juice and lower fat milk or plain yoghurt, plain soya, rice or oat drinks enriched with calcium; cocoa and lower fat milk; flavoured lower fat milk, all with less than 5% added sugars or honey.
 - Tea, coffee, hot chocolate.
- Combination drinks are limited to a portion size of 330ml.



- Foods high in fat, sugar and salt**
- No more than two portions of food that has been deep-fried, batter-coated, or breadcrumb-coated, each week.*
 - No more than two portions of food which include pastry each week.*
 - No snacks, except nuts, seeds, vegetables and fruit with no added salt, sugar or fat.*
 - Savoury crackers or breadsticks can be served at lunch with fruit or vegetables or dairy food.
 - No confectionery, chocolate or chocolate-coated products.*
 - Desserts, cakes and biscuits are allowed only at lunchtime.
 - They must not contain any confectionery.
 - Salt must not be available to add to food after it has been cooked.*
 - Any condiments must be limited to sachets or portions of no more than 10g or one teaspoonful.*



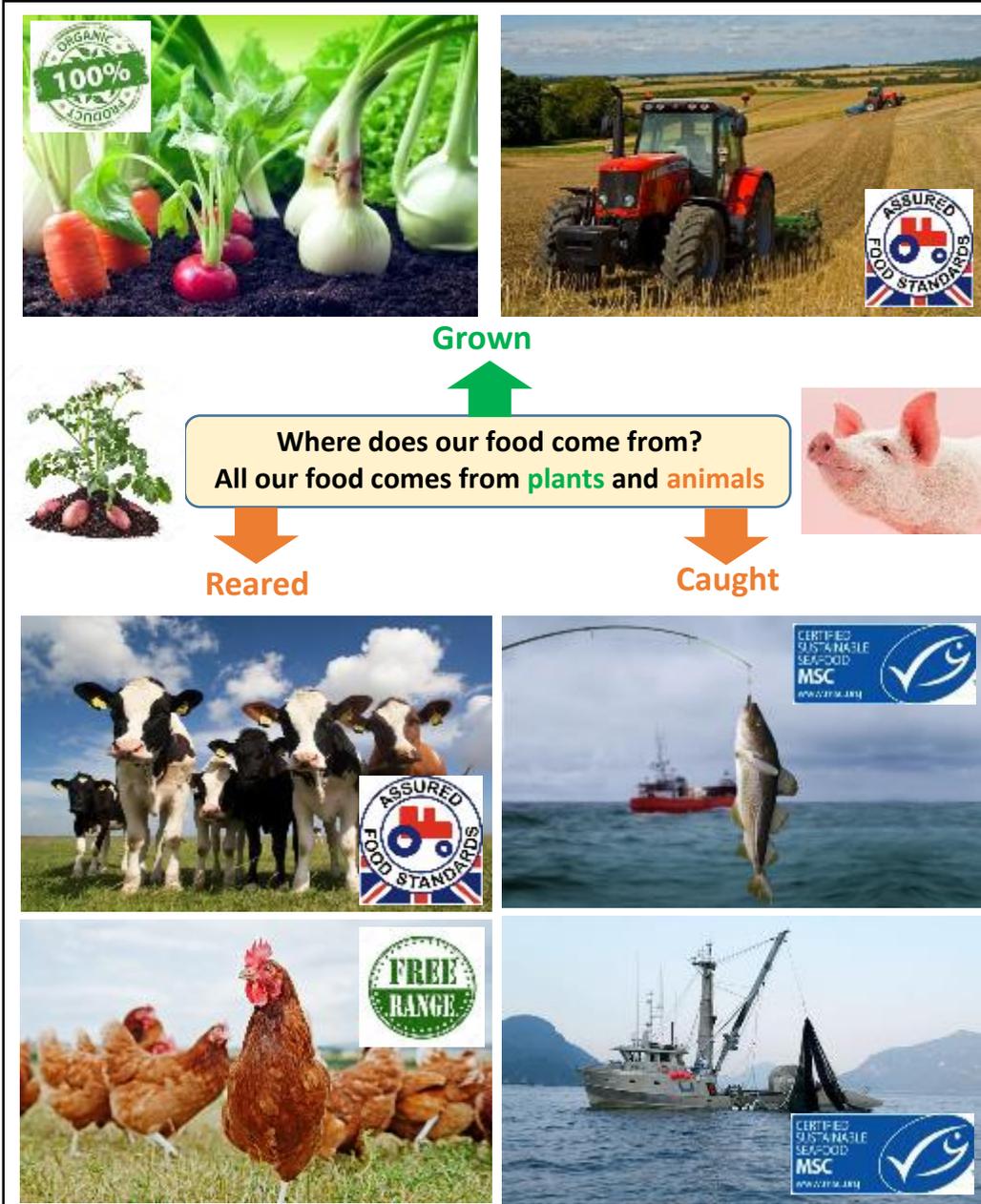
- Meat, fish, eggs, beans and other non-dairy sources of protein**
- A portion of food from this group every day.
 - A portion of meat or poultry on three or more days each week.
 - Oily fish once or more every three weeks.
 - For vegetarians, a portion of non-dairy protein on three or more days each week.
 - A meat or poultry product no more than once each week in primary schools and twice each week in secondary schools*.

Food provided outside lunch

- Fruit and/or vegetables available in all school food outlets.
- No savoury crackers and breadsticks.
- No cakes, biscuits, pastries or desserts.

* This Standard applies across the whole school day, including breakfasts, morning breaks, tuck shops, and after school clubs. Information from 'The School Food Plan' website.





Food miles - The distance food travels from **Farm To Fork**



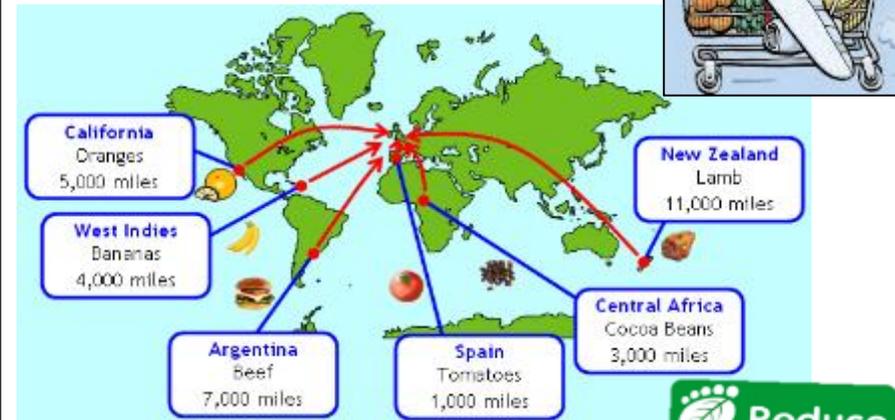
Some is local

Some comes by lorry from all over the UK or Europe

Food miles

How far does our food travel to get to us?

Some is flown here from all over the world



The higher the **food miles** the bigger the environmental issues for our planet



4 C's Food hygiene is necessary in order to make food which is safe to eat. This involves

more than just being clean. A simple way to remember all the important areas where safety could be an issue are the **4Cs**:

- **Cooking**
- **Cleaning**
- **Chilling**
- **Cross Contamination**



Keyword	Meaning
Ambient Foods	Foods that can be safely stored at room temperature.
Aeration	Adding air to a mixture to help it rise (e.g. cakes, batters, yorkshire puddings).
Bacteria	A micro-organism that grows on food. Some of these are harmless but pathogenic bacteria can cause food poisoning.
Coagulation	When heat is applied to a liquid protein food making it become solid. E.g. Egg.
Cross Contamination	When bacteria passes from one food to another or from people to food. Can lead to food poisoning.
Food Spoilage	When bacteria causes food to decay. Food will start to smell, lose texture or flavour.
Food Poisoning	Caused by eating food infected with bacteria. Symptoms include sickness, fever and diarrhoea.
High Risk Foods	Foods where bacteria grows quickly and can lead to food poisoning. The majority of high risk foods are animal protein foods (meat, fish, dairy, meat stocks/gravies). The only exception is cooked rice.
Mould	A type of micro-organism. Grows on foods such as berries when they are starting to decay. Also used in food production to make foods such as blue cheese or soy sauce.

Food Packaging Date Marks

Date Mark	Description	Food Examples
<p>Use By</p>	A safety date. Used on high risk foods that usually need to be stored in the fridge. If you eat the food after this date you risk food poisoning.	<p>Meat Fish Seafood Cheese Milk Cream</p>
<p>Best Before</p>	A quality date. Food can still be eaten after but the quality will be reduced. E.g. cereals or biscuits will not be as crunchy.	<p>Bread Cereals Sugar Flour Pasta</p>

Raising Agents

Biological – Yeast, used in bread making.



Mechanical – folding, beating, whisking, sieving, creaming, rubbing in.



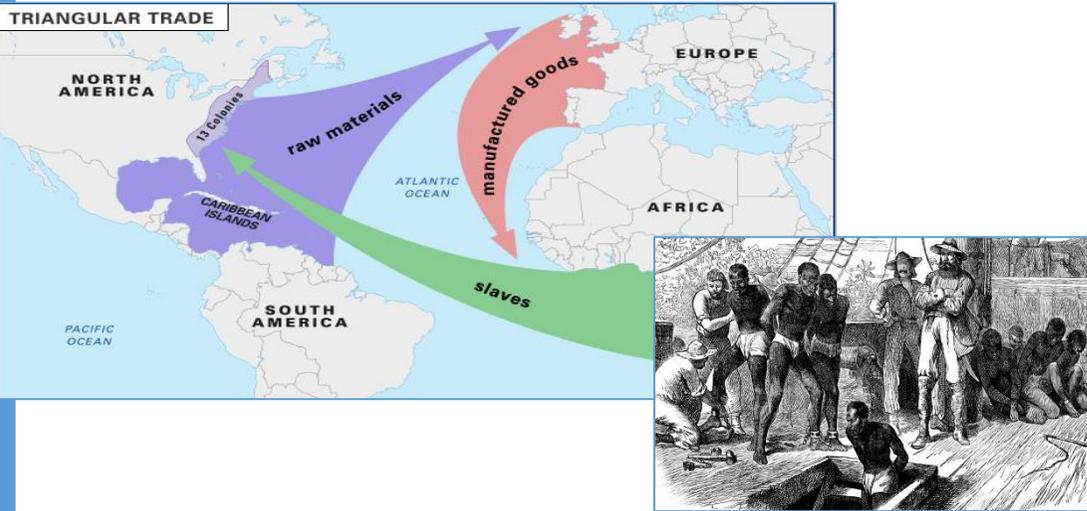
Chemical - Bicarbonate of soda, baking powder, S.R.flour.





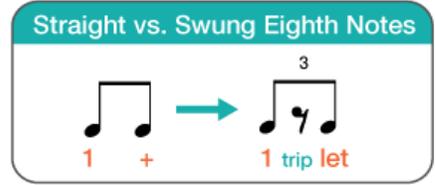
Music – Blues & Improvisation

Where did Blues come from?



Key Terms	Definitions
12 BAR BLUES	A chord progression based on the I, IV, and V chords of a key.
CHORD	2 or more notes played together at the same time
CHORD PROGRESSION	A succession/pattern of chords
IMPROVISATION	Playing without preparation
SWUNG RHYTHMS	Alternating the length of the first and second consecutive notes in the two part pulse-divisions in a beat (see example)
Blues Scale	A scale used in the blues, generally consisting of tonic, major second, minor third, fourth, fifth, major sixth and minor seventh, in which notes, particularly the third, fourth and fifth may be bent.
TRADE TRIANGLE	The slave trade journey involving England, Africa and America where slaves and products were transported and traded.

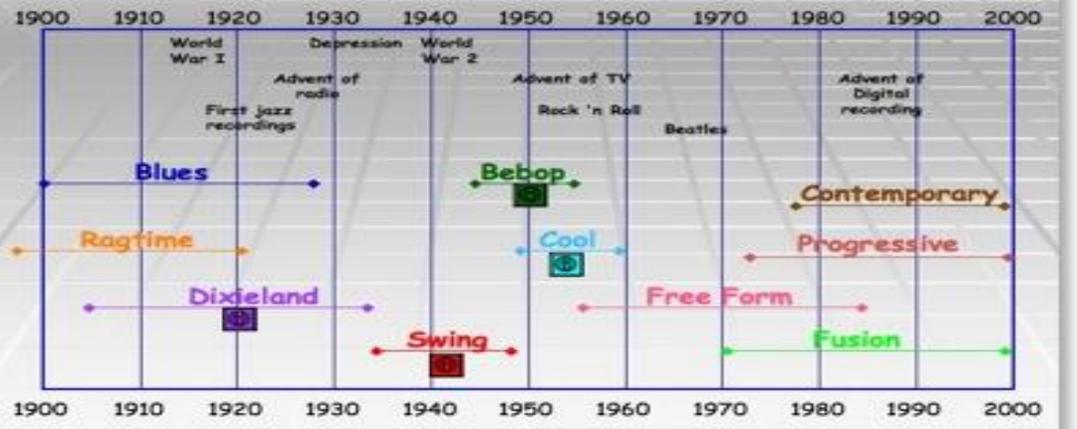
Swung Rhythms



Straight eighth notes **Swung eighth notes**

The musical notation shows a 4/4 time signature. The first four measures show straight eighth notes: 1 + 2 + 3 + 4 +. The next four measures show swung eighth notes: 1 trip let 2 trip let 3 trip let 4 trip let. Each swung eighth note is beamed to the next eighth note in the triplet.

Timeline of Jazz Styles





Music – Blues & Improvisation

12-bar-blues

I	I	I	I
IV	IV	I	I
V	IV	I	V

CHORDS –
G = GBD
C = CEG
D = DF#A

12 Bar Blues – Chord Progression

G blues scale

G B \flat C D \flat D F G

C D E F G A B C D E F

KEY TERM:
 Enharmonic
 Equivalent

A# = B \flat

Blues Scale for Guitar using TAB

Badminton



Singles

- The player who wins the point serves.
- If the server is on an even number, they serve from the right. If they are on an odd number they serve from the left.



Service line - the serve must land on or past this line

Doubles

- The team that win the point serve.
- If the serving team are on an even number, it is the player who is in the right box who serves. That player keeps serving until that team lose a point. E.G if a team are on 2, the player on the right serves, if they win the next point, that player changes side and serves from the left box because 3 is odd.

The back tramlines are out on the serve in doubles but in for the rest of the point

A game of badminton is played to 21 points (This can sometimes be shortened to 15 or 11). If the game is tied at 20-20 the game must be won by two clear points. For example 22-20 or 25-23. If the game isn't won by 2 clear points it's the first player to reach 30.

If a player's body or racquet touches the net before the shuttle lands it is the other player's point.

Lesson Overview

1. Forehand/Backhand serve
2. Midcourt hit
3. Forehand/Backhand net shot
4. Overhead dropshot
5. Overhead clear
6. Smash
7. Singles play
8. Doubles play



The Grips

Forehand Grip

Tips: Like shake hand with the racket

A deep v here

Index Finger ◀ ● ▶ Side of Thumb

Backhand Grip

Slightly move down you index finger

Thumb here

Tips: Like a facebook thumb

Thumb here ●

Smash Grip

Tips: Like holding a stick

●

Panhandle Grip

Tips: Like holding a handy mirror

Side of Index Finger ◀ ● ▶ Side of Thumb

Key terminology

- Forecourt** - The front third of the court
- Midcourt** - The middle third of the court
- Rearcourt** - The back third of the court
- Clear** - A shot hit deep into the opponent's court
- Dropshot** - A shot that just drops over the net
- Smash** - A powerful overhead shot
- Net shot** - A shot hit from the forecourt that just drops over the net
- Midcourt hit** - A flat, attacking shot that goes from midcourt to midcourt.

The Netball Court

Lesson Overview

1. Footwork
2. Passing and receiving
3. Timing of pass
4. Attacking play
5. Shooting
6. Defensive play
7. Assessment

Netball

Player Positions



KS3



Footwork

A player can receive the ball...

1. With both feet grounded or jump to catch the ball and land with both feet at the same time. The player can then choose one foot to move (not both).
2. Landing on one foot then the other. The first foot is the landing foot and this foot cannot be moved, other than to pivot on the spot. The second foot can move.

If you break the footwork rule, a free pass will be awarded to the other team.

Key Vocabulary



Passing - sending the ball

Receiving - catching the ball

Footwork - how you land when in control of the ball

Dodging - a way to change direction quickly

Defending - preventing the other team from gaining possession of the ball and scoring

Attacking - making an attempt to score

Marking - a way to prevent your opponent from receiving or passing the ball or shooting

Shoot - attempt to score a goal

Offside - moving into an area where you're not permitted

Interception - preventing a pass between players

Throw in - a free pass taken off court

Centre Pass - taken to start or restart the game

Free Pass - awarded when there is an infringement of the rules by a player

Penalty Pass - as above, when two players are involved

Goal Third & Centre Third - areas of the court

- Goal Shooter (GS)** - To score goals and to work in and around the circle with the GA.
- Goal Attack (GA)** - To feed and work with the GS and to score goals.
- Wing Attack (WA)** - To support the circle players, giving them shooting opportunities.
- Centre (C)** - To take the centre pass and to link the defence and the attack.
- Wing Defence (WA)** - To look for interceptions and prevent the WA from feeding the circle.
- Goal Defence (GD)** - To win the ball and reduce the effectiveness of the GA.
- Goal Keeper (GK)** - To work with the GD and to prevent the GA/GS from scoring goals.

Rules of the Game

Held ball - A player is only allowed to hold the ball for 3 seconds. A free pass is awarded to the opposing team if the ball is held for longer than 3 seconds.

Obstruction - A player attempting to intercept the ball must be at least 3ft away from the player with the ball. The distance is measured from the landing foot of the player with the ball. If you are closer than 3ft, a penalty pass will be awarded.

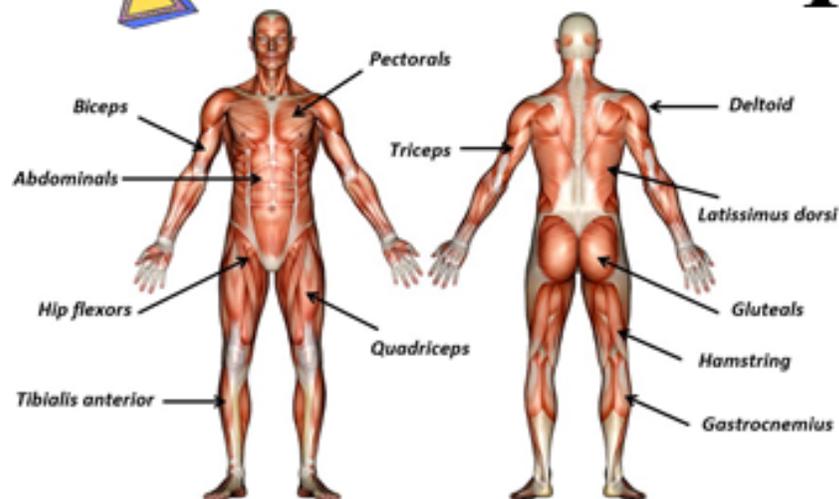
Contact - This occurs when a player's actions interfere with an opponent's play, this can be accidental or deliberate. This includes; physical contact, using any part of the body to limit an opponent's ability to move freely (pushing, tripping or holding), placing a hand on the ball held by an opponent, removing it from an opponent's possession or pushing the ball in to an opponent when holding it.

Over a third - The ball cannot be thrown over a complete third without being touched or caught by a player. A free pass shall be taken from where the ball crossed the second line (i.e. where the ball shouldn't have been)

Replayed ball - A player can not; toss the ball in to the air and catch it again without it being touched by another player, catch a rebound from a shot on goal if it has not touched the post or another player, or pick it up again after losing control if it has not been touched by another player.

Offside - A player with or without the ball cannot move into an area of the court that is not designated for their position. This will result in a free pass to the other team.

The Muscles



Fitness

Components of Fitness

Agility - The ability to move and change direction quickly, at speed, whilst maintaining control.

Balance - The ability to keep the body stable by maintaining the centre of mass over the base of support. There are two types of balance:
 Static: A balance is performed with little or no movement. E.G a handstand.

Dynamic: A balance is performed when movement takes place. E.G a cartwheel.

Cardiovascular endurance - The ability of the heart and lungs to supply oxygen to the working muscles.

Flexibility - The range of movement possible at a joint.

Muscular endurance - The ability of a muscle or muscle group to undergo repeated contractions, avoiding fatigue.

Power - Strength X Speed

Reaction time - The time taken to start responding to a stimulus.

Speed - Distance ÷ time.

Strength - The ability to overcome resistance

Coordination - The ability to use two or more different parts of the body together, smoothly and efficiently.

Types of Training

Circuit Training Involves completing a series of exercise, called stations, which are completed one after another, with a brief period of rest inbetween.

Interval Training Involves alternating between periods of work and periods of rest.

Static Stretching Involves holding a stretch for up to 30 seconds.

Plyometric Training Involves high-impact exercises that teach the muscles to perform their maximum contractions faster; to be more powerful. E.G jumping, hopping and bounding.

Fartlek Training Fartlek is a Swedish word meaning 'speed play'. It involves periods of fast work with intermittent periods of slower work.

Continuous Training Involves working for a sustained period of time without rest.

Weight Training Weight training involves the use of weights or resistance to cause adaptations to the muscles.

Repetitions The number of times an individual activity is performed.

Sets A group of repetitions.

Maximum heart rate =
 $220 - \text{age}$

Aerobic

Anaerobic