Combined Science

Year 11

Knowledge Organiser

Term 2: 2020

Name: _____

GREENSHAW LEARNING TRUST

Knowledge Organiser

1 English
2 Maths
3 Science
4 Art
5 Catering
6 Computing
7 D&T
8 Dance
9 Drama
10 Engineering
11 French
12 Geography
13 Graphics
14 Health & SC
15 History
16 Media
17 Music
18 PE
19 RE

Romeo and Juliet KNOWLEDGE ORGANISER

Context – The play was written by William Shakespeare, and was first performed around 1594.

Shakespeare's Time – Shakespeare wrote his plays at the time of two monarchs: Queen Elizabeth I and James I. *Romeo and Juliet was* written relatively early in Shakespeare's career (the bulk of his tragedies were written in the 17th century) yet was extremely popular in his lifetime, as it is now. Shakespeare borrowed heavily from two texts: *The Tragical History of Romeo and Juliet* (1562) and *Palace of Pleasure (1567)*

Elizabethan England and Italy –Shakespeare frequently engaged with Italy in his plays, leading many to believe that he travelled there between the late 1580s and early 1590s. Italy was a place that Shakespeare's contemporaries would have had a keen interest in; it was already an advanced and beautiful place for travel. Shakespeare's depictions of many areas of Italian life at the time are deemed largely accurate.

Religion – The heavy religious presence is evident across several parts of *Romeo and Juliet*. This is reflective of a society across Europe that was deeply religious (predominantly catholic or protestant). Several characters demonstrate their commitment to the church, such as Romeo and Juliet who choose to marry rather than fornicate, and the Capulets, who are quick to contemplate that Juliet is in a better place (heaven) after she is found 'dead.'

Patriarchal Society –Society throughout the Middle Age and at Shakespeare's time was patriarchal – women were considered inferior to men. This was also the case in much of Europe, including Italy. Women belonged to their fathers (or brothers if their fathers had died) and then their husbands, so Juliet would be expected to obey her father. Women were not permitted to own land or enter most professions. They were instead expected to bear children, be gentle and womanly.

Astrology the Supernatural – At the time of Shakespeare, the belief in both astronomy and the supernatural was far more preeminent than in society today. The reference to 'star-cross'd lovers demonstrates the large role of horoscopes and planet positions in being used to predict fate. Also, Romeo and Juliet make reference to the fact that they feel they are being guided by a supernatural force (e.g. 'fortune's fool).

Healthcare and Medicine – Healthcare and medicine were not as advanced in Shakespeare's age as they are today – there were numerous ailments and diseases that were not yet understood. This makes it much more believable for both the Capulets and Romeo that Juliet could have died so suddenly and so young. The high death count in the play would seem slightly more common in those days!

Main Characters – Consider what Shakespeare intended through his characterisation of each of the below...

Romeo – The son and heir of Lord and Lady Montague. Romeo is handsome and intelligent, yet he is also impulsive and extremely sensitive. Romeo is a peaceful character, and is not interested in the violence that goes on around him, choosing instead to focus his energies on love. Although Romeo's love seems fickle (he loves Rosaline at the outset) his commitment can't be debated in the end!

First Scene: Act I Scene II **Final Scene:** Act V Scene III

Juliet – The daughter of Capulet and Lady Capulet. Juliet is a beautiful young girl (13 years old at the start of the play). Juliet is caring, compassionate, and at times demonstrates courage (she defies her parents in order to marry Romeo, and drinks the contents of the vial without fully trusting its effects). At times, she shows great intelligence and wit, particularly in conversations with her mother.

First Scene: Act I Scene III **Final Scene:** Act V Scene III

Prince Escalus– The most powerful character in the play, with the authority to govern the other characters and administer sentences. He is also a kinsman to Mercutio and Paris. As the seat of Verona, his main concern throughout most of his appearances are in relation to ensuring that the peace is kept. He is merciful in banishing Romeo for the death of Tybalt, as opposed to sentencing him to death.

First Scene: Act I Scene I **Final Scene:** Act V Scene III

Mercutio – A kinsman to the prince and one of Romeo's closest friends. Mercutio is an extraordinary character in that he has sparkling wit and a vivid imagination. Much of Mercutio's speeches deal in puns and word-play. He appears to see himself as being above the vices of love, choosing instead to view it as misplaced sexual appetite. His hot-headedness is eventually his downfall.

First Scene: Act I Scene IV **Final Scene:** Act III Scene I

Montague and Capulet – The patriarchs of the Montague and Capulet families, who have held a long and violent feud with one another from some time before the play begins. Both seem to deeply love their respective child, yet do not always seem appropriately aware of their emotional wellbeing. For example, Romeo chooses to walk the streets in melancholy rather than share his feelings with his father, and Capulet feels the best thing for Juliet would be a marriage with Paris.

Friar Laurence and the Nurse – Both Friar Laurence and the Nurse act as guidance counsel for Romeo and Juliet. They appear to be the two people that Romeo and Juliet trust more than any others in the world, as they are the two that they confide in. Friar Laurence is kind and civic-minded (believing the marriage may heal the feud), whilst the Nurse is kind and sentimental (yet at times vulgar). She seems as though she is more of a mother to Juliet than Lady Capulet has ever been.

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

Love – In Romeo and Juliet, love is an extremely overpowering force that supersedes all other values, emotions, and loyalties. Through their love, Romeo and Juliet conspire to go against the forces of their entire social world. Romeo returns to visit Juliet at points, even though he is well aware of the threat of death. At times, love is presented as fickle (Mercutio's speeches, Romeo + Rosaline).

Individual vs Society – Romeo and Juliet are forced to undermine the oppressive rules of society at the time. For example, rules of the patriarchal family force Juliet to be subservient to her parents, rules of religion mean that they must marry in haste, and rules of masculinity force Romeo into conflict with Tybalt.

Violence – Extreme violence takes place sporadically throughout the play. The feud between the two families is so bitter that the mere sight of each other can be the cause of a fight to the death. Unchecked violence is personified through the character of Tybalt. The violence culminates in Act 3 Scene 1, in which both Mercutio and Tybalt are murdered.

Fate – In the first address to the audience, the Chorus states that Romeo and Juliet are 'star-cross'd' lovers, meaning that fate had intended for their paths to cross, and that fate controls their actions. A series of unfortunate accidents towards the end of the play thwart Friar Laurence's plan and eventually manifest in both Romeo and Juliet committing suicide, thus adding to the sense of fate.

Scene-by-Scene Summary – Take note of the key quotations from each scene.

Prologue	The Chorus speaks of an ancient grudge between two households, from which two 'star-crossed lovers' appear.	*From forth the fatal loins of these two foes* *A pair of star-crossed lovers take their life. . .*
Act 1 Scene 1	A street brawl breaks out between the Montagues and Capulets. The Prince intervenes. He threatens the death sentence for anyone who breaks the peace again.	*To old Free-town, our common judgment-place.* *Once more, on pain of death, all men depart.*
Act 1 Scene 2	Paris speaks of his desire to marry Juliet to Capulet. They arrange a masquerade ball so that he can begin to woo her. Peter accidentally invites Romeo and Benvolio.	*One fairer than my love? The all-seeing sun* *Ne'er saw her match since first the world begun.*
Act 1 Scene 3	Lady Capulet discusses the prospect of Juliet getting married to Paris. She dutifully says that she will look upon him.	*I'll look to like if looking liking move/ But no more deep will I endart mine eye/ Than your consent gives strength to make it fly.*
Act 1 Scene 4	Before the ball, Mercutio mocks Romeo. He gives his 'Queen Mab' speech. Romeo fears the night will set fate in motion.	*O, then I see Queen Mab has been with you. . . .* *She is the fairies' midwife. . . .*
Act 1 Scene 5	Romeo and Juliet meet at the ball. They immediately fall for each other – Romeo uses metaphors to compare her to a pilgrim. Tybalt spots Romeo and wants to kill him, but Capulet stops him. Romeo and Juliet learn that they are from warring families.	*If I profane with my unworthiest hand* *This holy shrine, the gentle sin is this:* *My lips, two blushing pilgrims, ready stand* *To smooth that rough touch with a tender kiss.*
Act 2 Prologue	The chorus returns and delivers a sonnet about the new love.	*But passion lends them power, time means, to meet,*
Act 2 Scene 1	Benvolio and Mercutio search for Romeo, who has escaped them in the hope of re-finding Juliet.	*Go then, for 'tis in vain* *To seek him here that means not to be found.*
Act 2 Scene 2	The famous 'balcony scene.' Romeo decides that he cannot go home without seeing Juliet again. He trespasses into her garden, where she appears at a window. They decide that they will wed.	*If that thy bent of love be honorable,* *Thy purpose marriage, send me word tomorrow,* *By one that I'll procure to come to thee,*
Act 2 Scene 3	Romeo visits Friar Laurence to ask if he will wed him to Juliet. Whilst shocked at how fickle Romeo's love is, he agrees.	*Thy love did read by rote that could not spell.* *But come, young waverer, come go with me,*
Act 2 Scene 4	Romeo arrives to meet Mercutio and Benvolio. The Nurse and Peter then arrive, and Mercutio makes fun of the Nurse. When Mercutio leaves, Romeo arranges with the Nurse for Juliet to meet him at Friar Laurence's chamber.	*The sovereignty will fall upon Macbeth.* *Bid her devise/ Some means to come to shrift this afternoon.* *And there she shall at Friar Lawrence' cell* *Be shrived and married.*
Act 2 Scenes 5-6	The Nurse sends Juliet to Friar Laurence's cell, where they are married. The Friar warns them to love moderately.	*But come what sorrow can,/ It cannot countervail the exchange of joy/ That one short minute gives me in her sight.*
Act 3 Scene 1	Tybalt duels Mercutio. Romeo tries to make peace, but Tybalt stabs Mercutio dead under Romeo's arm. In rage, Romeo kills Tybalt. The Prince arrives and exiles Romeo.	*"A plague o' both your houses"* *"Ask for me tomorrow, and / you shall find me a grave man"*
Act 3 Scene 2	The Nurse tells Juliet of the fight. Juliet is traumatised by the idea of an exiled Romeo. The Nurse says she knows where he is hiding.	*O nature, what hadst thou to do in hell/ When thou didst bower the spirit of a fiend/ In moral paradise of such sweet flesh?*
Act 3 Scenes 3-4	Romeo despairs at hearing of being banished. The Friar makes a plan for him to visit Juliet before leaving. Elsewhere, Capulet contacts Paris and arranges for Juliet to marry him.	*There is no world without Verona walls* *But purgatory, torture, hell itself.* *Hence "banishèd" is banished from the world,*
Act 3 Scene 5	Romeo reluctantly leaves Juliet. Her mother then tells of the marriage to Paris. She rejects it. Capulet threatens to disown her.	*Hang thee, young baggage! Disobedient wretch!* *I tell thee what: get thee to church o' Thursday,*
Act 4 Scenes 1-2	Juliet meets Friar Laurence, saying that she would rather kill herself than marry Paris. Friar Laurence proposes the sleeping potion plan. She agrees, returns to her parents, and repents.	*Take thou this vial, being then in bed,* *And this distillèd liquor drink thou off,*
Act 4 Scene 3	Juliet is scared, but drinks the contents of the vial.	*Romeo, Romeo, Romeo! Here's drink. I drink to thee.*
Act 4 Scenes 4-5	The Nurse finds Juliet dead on her wedding morning. The family are distraught, but agree to make the funeral arrangements.	*O me, O me! My child, my only life,* *Revive, look up, or I will die with thee!*
Act 5 Scene 1	Romeo is told of the death by Balthasar. Romeo decides that he will return to Verona to kill himself. Before doing so, he purchases poison from an apothecary.	*Well, Juliet, I will lie with thee tonight.* *Let's see for means. O mischief, thou art swift*
Act 5 Scene 2	Friar Laurence learns that Romeo has not received his letter informing him of the plan, and is worried. He doesn't know that Romeo now thinks that Juliet is dead.	*Unhappy fortune! By my brotherhood,* *The letter was not nice but full of charge,*
Act 5 Scene 3	Romeo finds Juliet's body and kills himself. She awakens and kills herself. Montague and Capulet commit to resolve.	*For never was a story of more woe* *Than this of Juliet and her Romeo.*

Dramatic Devices in Romeo and Juliet

Dramatic Irony	Mercutio and Benvolio think Romeo is still pining over Rosaline, but the audience knows he has moved on to Juliet. A2 S1
Soliloquy	Juliet's opening speech in A3 S2 in which she pours her heart out over her love for Romeo.
Aside	Juliet secretly hopes for the 'villain' Romeo: *Villain and he be many miles asunder God pardon him!* A3 S5.
Foreshadowing	Friar Laurence: *These violent delights have violent ends, And in their triumph die, like fire and powder.* A2 S6

Features of a Tragedy in Romeo and Juliet

Tragic Hero - A main character cursed by fate and possessed of a tragic flaw (Romeo, and to an extent Juliet).

Hamartia - The fatal character flaw of the tragic hero (his passion and impulsiveness).

Catharsis - The release of the audience's emotions through empathy with the characters.

Internal Conflict - The struggle the hero engages in with his/her fatal flaw.

'A Christmas Carol' Knowledge Organiser

Tips for use: create mind-maps, flash cards, ask someone to test you, look, cover, write, check

Important Exam Information
- Paper 1 Section B
- Extract question
-No choice of question
-45 minutes

Key Themes (AO1):
-Christmas Spirit
-Redemption
-Poverty
-Social responsibility
-Supernatural
-Family
-Loneliness and isolation
-Time
-Education

Characters (AO1):

1.Ebenezer Scrooge: Miserly, mean, bitter, materialistic, unsympathetic, indifferent, cold, selfish, isolated, cynical, charitable, value driven, generous, happy, sociable, transformed.

2. Marley's Ghost: Materialistic, self-centred, terrifying, haunting, exhausted, direct, reformed, regretful, hopeful, selfless, wise

3. Bob Cratchit: Uncomplaining, tolerant, courteous, deferential, patient, civil, eager, pleasurable, good-humoured, playful, caring, tender, cheerful, loving, forgiving.

4. Fred: Warm-hearted, empathetic, cheerful, optimistic, even-tempered, insightful, determined, generous, forgiving, jovial, enthusiastic, caring

5. Ghost of Christmas Past: Contradictory, strong, gentle, quiet, forceful, questioning, mysterious

6. Ghost of Christmas Present: Compassionate, abundant, generous, cheerful, jolly, friendly, severe, sympathetic

7. Ghost of Christmas Future : Mysterious, silent, ominous, intimidating, frightening, reoslute

8. Tiny Tim: Frail, ill, good, religious

Key Quotations (AO1):

Stave One
'He was as tight-fisted as a grind stone' – about Scrooge
'His face was ruddy and handsome, his eyes sparkled' – Fred (presented as the opposite to Scrooge)
'I wear the chain I forged in life' –Ghost of Marley

Stave Two
'It wore a tunic of the purest white… from the crown of its head there sprung a bright clear jet of light' – Ghost of Christmas Past
'A lonely boy was sat reading near a feeble fire' – Scrooge as a young boy
'"Your lip is trembling,' said the Ghost, 'And what is that upon your cheek?' – first sign of emotion from Scrooge

Stave Three
'There sat a jolly Giant, who wore a glowing torch…it was clothed in one simple green robe' – Ghost of Christmas Present
'God bless us everyone!' – Tiny Tim's positive attitude
'Tell me Tiny Tim will live…' – Scrooge showing compassion.

Stave Four
'The phantom slowly, gravely, silently approached' – Ghost of Christmas Yet to Come
'I fear you more than any spectre I have seen' – Scrooge
'Tell me I may sponge away the writing on this stone!' – Scrooge desperate to change his ways
'I will honour Christmas in my heart' - Scrooge

Stave Five
'I'll raise your salary Bob and endeavour to assist your struggling family' – Scrooge changing his ways.
'to Tiny Tim, who did NOT die, he [Scrooge] was a second father' – Scrooge changing his ways
'Wonderful party, wonderful games, wonderful unanimity, won-der-ful happiness!' – repetition shows Scrooge's joy at the end.

Sentence starters:

Point (AO1): Use the words from the question and include a method used by the writer.

Evidence (AO1): For example/ This is seen when '…'

Analysis (AO2): This word/method '…' implies/suggests…
It makes us realise/think/feel/imagine…
Furthermore, the word '…' is crucial because…

Link (AO3): This could represent/symbolise the … in society/it may represent Dickens view that…

Context (AO3):

Dickens' Life
1. Charles Dickens was born on February 7, 1812 in Hampshire into a middle class family.
2. His dad was imprisoned for debt leading to poverty for the family.
3. Charles was put to work at Warren's Blacking Factory.
4. Dickens found employment as an office boy at an attorneys.
5. A Christmas Carol was written in 1843

Industrial Revolution
1. From 1780 factory owners in Britain began to use coal-fired steam engines to power the machines in big factories, bringing great fortune.
2. Transition from traditional farming methods to machinery led to Industrial revolution.
3. People flocked from the countryside to the cities. London's population between 1800 and 1900 from 1 million to 6 million people. This led to over-crowding and hunger, disease and crime. There were no proper drainage / sewage systems. Many families had to share one tap / toilet. Children suffered the most and were exploited by factory owners who forced them to work long hours in dangerous conditions.

Charity
1. Industrial revolution led to a gap between the rich and poor with many struggling to survive relying on the generosity of those better off than themselves.
2. Some philanthropists were keen to enhance the lives of the workers. Cadburys tried to provide quality homes and improve lifestyles of workers at their factory in Bournville.

Education
1. Dickens believed strongly in the importance of education.
2. As part of his campaign against the treatment of the poor, Dickens worked with a friend called Angela Burdett-Coutts.
3. In 1840s, Dickens and Coutts became involved in the Ragged Schools. The aim was to provide poor children with basic education.
4. Dickens believed that it is through education that one can leave poverty.

Religion
1. Christianity held a strong influence in Victorian Britain, especially amongst the middle / upper classes.
2. Good Christians believed in a strict moral code – attending church regularly, avoiding alcohol and exercise sexual restraint.
3. Dicken's view on Christianity was different. He believed that to be a good Christian people should seek out opportunities to do good deeds for other people.
4. Sabbatarianism – when people spent Sunday going to church and resting. Dickens was opposed to this because it meant that working poorer people were denied any enjoyment on their one day off – everything was shut.
5. Poorer people didn't have ovens at home so often food cooked by bakers. Sabbatarianism meant that many people couldn't get a hot meal on Sundays because the bakers were shut.

Plot (AO1):

Preface: Charles Dickens write a note to his readers to explain that he wants to introduce an entertaining idea to them.

Stave One
1. Introduced to Ebenezer Scrooge on Christmas Eve. He is a lonely miser obsessed with money. He won't pay to heat the office properly – meaning Bob Cratchit is very cold.
2. We learn Jacob Marley, Scrooge's business partner, died exactly 7 years earlier.
3. Scrooge is irritated that Christmas Day seems to be interrupting his business.
4. Scrooge is visited by his nephew Fred, who invites his uncle to Christmas dinner. Scrooge refuses.
5. Scrooge is visited by two charity workers, asking for donations. Scrooge refuses and exclaims he wants to be left alone.
6. Scrooge allows Bob to have Christmas Day off.
7. Scrooge, when he is home, is visited by the Ghost of Jacob Marley – warning him he will be visited by three more ghosts to help him change his ways.

Stave Two
1. Scrooge is visited by the Ghost of Christmas Past who takes him to witness his past.
2. Scrooge is taken first to his schoolboy years and he is reminded how his friends would go home from Christmas while he was left at school.
3. We see him with his sister, who one year took him home for the holidays.
4. Next we are shown Scrooge as a young apprentice, working for Fezziwig. Dickens describes the Christmas ball Fezziwig organised for his employees.
5. Finally, Scrooge is taken to see his ex-fiancée, Belle. We see the scene when they break up, as money has taken over Scrooge's life.
6. Scrooge cannot bear to see any more and struggles with the spirit.

Stave Three
1. Scrooge is then visited by the Ghost of Christmas Present.
2. The spirit shows Scrooge how the Cratchit family celebrate Christmas. Scrooge asked if Tiny Tim will life. The spirit explain unless there are changes, he will die. The spirit reminds Scrooge of his earlier words: 'If he is to die, he had better do it, and decrease the surplus population'
3. Scrooge is then taken to see how others celebrate Christmas: miners, lighthouse workers, sailors on a ship.
4. He is then taken to Fred's house at Christmas, where they are playing games.
5. The spirit then begins to age, and see under the spirit's robes two children: Want and Ignorance.
6. The Ghost of Christmas Future then appears.

Stave Four
1. The Ghost of Christmas Future is described.
2. The spirit takes Scrooge to see a group of businessmen discussing someone who has died.
3. Scrooge is then taken to see Old Joe, where he is in the process of buying property of the dead man – which have been stolen.
4. Scrooge then returns to Bob Cratchit's house, where it is revealed Tiny Tim has died.
5. Scrooge is then taken to the graveyard and is shown a grave stone and realises this is for him.
6. Scrooge falls to his knees and begs that he will change his ways.

Stave Five
1. Scrooge wakes up in his own bed.
2. Scrooge wonders how much time has passed and calls to a boy. He then sends the boy to the poulterer for the prize turkey to give to Bob Cratchit,
3. Scrooge meets one of the charity collectors from earlier and whispers to him that he will give a large donation.
4. Scrooge then goes to Fred's house and is welcomed in. He enjoys the dinner and party.
5. On Boxing Day, Scrooge arrives early to work, and plays a trick on Bob. Scrooge then tells him he is going to raise his salary and promises to help Bob's struggling family.
6. Scrooge is described to have completely changed and becomes a 'second father' to Tiny Tim – 'who did not die.'

Areas

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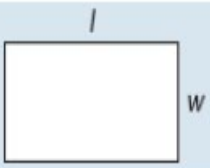

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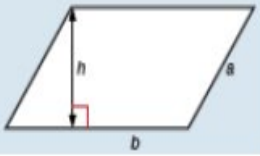

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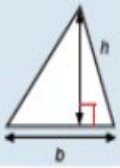

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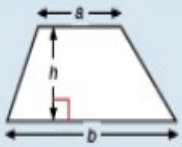

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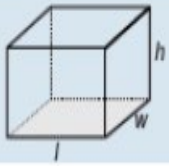

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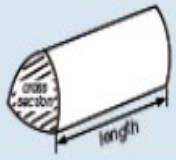


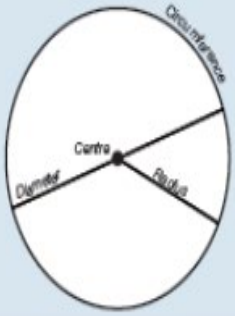
Cylinder =

Circles

Circumference =

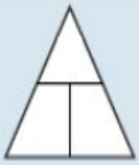
Circumference =

Area of a circle =



Compound measures

Speed



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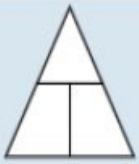

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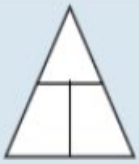
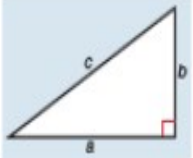


Pythagoras

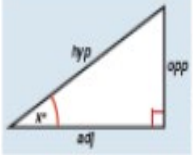
Pythagoras' Theorem

For a right-angled triangle,



Trigonometric ratios (*new to F*)

sin x^o = cos x^o = tan x^o =



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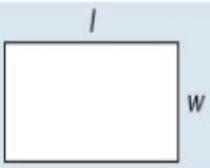

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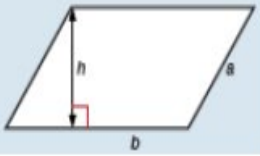

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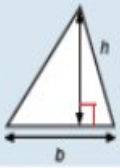
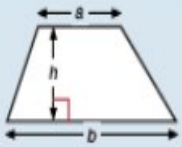
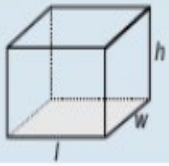


Trapezium =

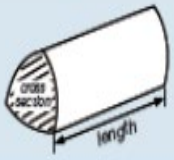


Volumes

Cuboid =



Prism =



Cylinder =

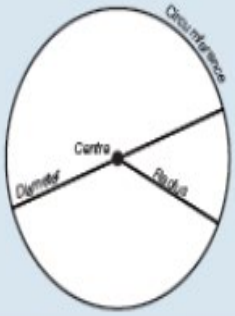
Volume of pyramid =

Circles

Circumference =

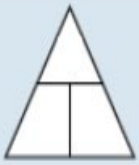
Circumference =

Area of a circle =

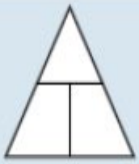


Compound measures

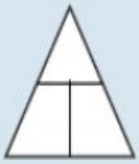
Speed



Density



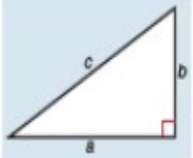
Pressure



Pythagoras

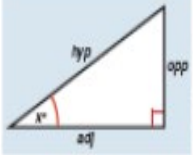
Pythagoras' Theorem

For a right-angled triangle,



Trigonometric ratios (*new to F*)

sin x^o = cos x^o = tan x^o =

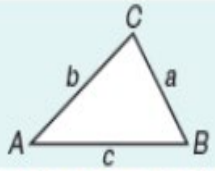


Trigonometric formulae

Sine Rule

Cosine Rule

Area of triangle =



Quadratic equations

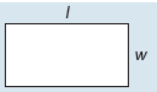
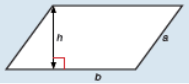
The Quadratic Equation

The solutions of

where $a \neq 0$, are given by x

Maths

Areas

Rectangle = $l \times w$	
Parallelogram = $b \times h$	
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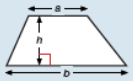
Trapezium = $\frac{1}{2}(a + b)h$	

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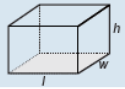
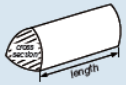
Cuboid = $l \times w \times h$	
Prism = area of cross section × length	
Cylinder = $\pi r^2 h$	
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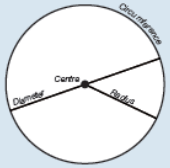
Circles

Circumference = π × diameter, $C = \pi d$	
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Area of a circle = π x radius squared $A = \pi r^2$	

Compound measures

Speed speed = $\frac{\text{distance}}{\text{time}}$	
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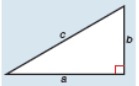
Pythagoras' Theorem

For a right-angled triangle, $a^2 + b^2 = c^2$



Trigonometric ratios (*new to F*)

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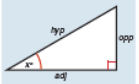

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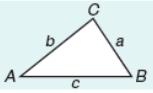

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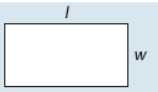
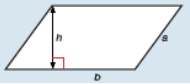
Rectangle = $l \times w$	
Parallelogram = $b \times h$	
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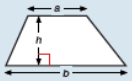
Trapezium = $\frac{1}{2}(a + b)h$	

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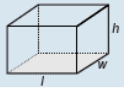
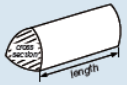
Cuboid = $l \times w \times h$	
Prism = area of cross section × length	
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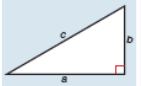

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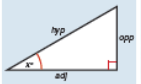

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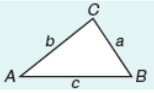

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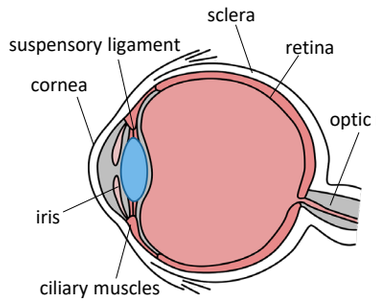
AQA GCSE HOMEOSTASIS AND RESPONSE part 1

The Eye (Bio only)

Sense organ containing receptors sensitive to light intensity and colour

The iris can dilate the pupil (aperture) to let in more light in dim conditions

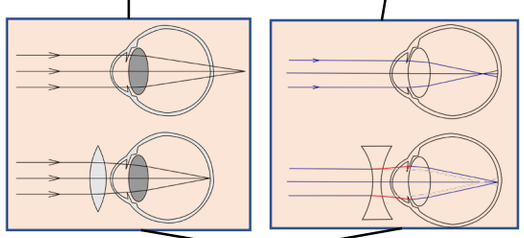
Structures of the eye	
Retina	Light sensitive cell layer.
Optic nerve	Carries impulse to brain.
Sclera	Protects the eye.
Cornea	Transparent layer that covers the pupil and iris.
Iris	Pigmented layer, controls size of pupil.
Ciliary muscles	Controls thickness of lens.
Suspensory ligaments	Connects lens to ciliary muscles.



Accommodation is the process of changing the shape of the lens to focus

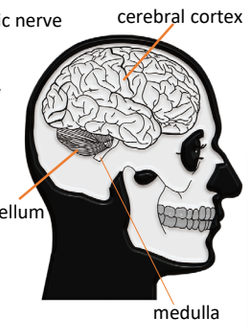
Near object	*Far object*
Ciliary muscles contract, suspensory ligaments loosed, lens get thicker, light is more refracted.	Ciliary muscles relax, suspensory ligaments pulled tight, lens pulled thin, light is only slightly refracted.

Hyperopia (long sightedness)	*Myopia (short sightedness)*
Treated using a convex lens so the light is focused on the retina.	Treated using a concave lens so light is focused on the retina.



New technologies now include hard/soft contact lens, laser surgery to change the shape of the cornea and a replacement lens in the eye.

The Brain (Bio only)



The brain controls complex behaviour. It is made of billions of interconnected neurones.

Neuroscientists have been able to map regions of the brain by studying patients with brain damage, electrical stimulation and MRI.

(HT) The complexity and delicacy of the brain makes investigating and treating brain disorders very difficult

The brain has different regions that carry out different functions.

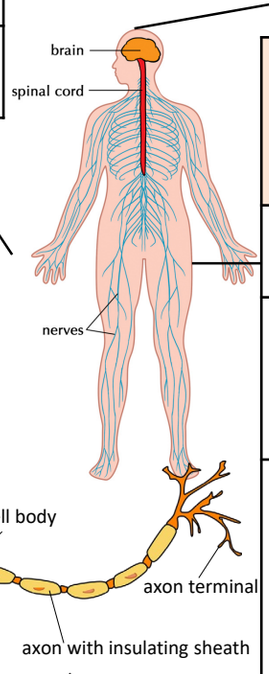
Cerebral cortex	Largest part of the human brain. Higher thinking skills e.g. speech, decision making.
Cerebellum	Balance and voluntary muscle function e.g. walking, lifting.
Medulla	Involuntary (automatic) body functions e.g. breathing, heart rate.

Treating brain damage and disease	
e.g. Lobotomy – cutting part of the cerebral cortex	**Benefit:** thought to alleviate the symptoms of some mental illnesses.
	Risks: bleeding in the brain, seizures, loss of brain function. Procedure was abandoned in the 1950s due to risk.

The human nervous system

Enables humans to react to their surroundings and to co-ordinate their behaviour

Human control systems include	
Cells called receptors	Detect stimuli (changes in environment).
Coordination centres	e.g. brain, spinal cord and pancreas that receive information from receptors.
Effectors	Muscles or glands, which bring about responses to restore optimum levels.



Information from receptors passes along cells (neurones) as electrical impulses to the central nervous system (CNS)

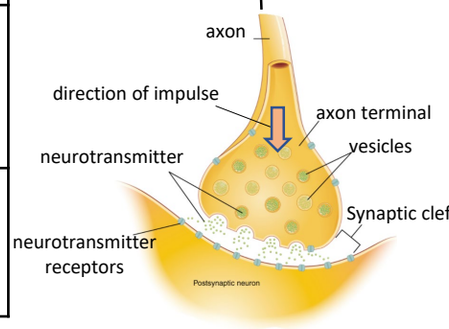
The CNS is the brain and the spinal cord.

Coordinates the response of effectors; muscles contracting or glands secreting hormones

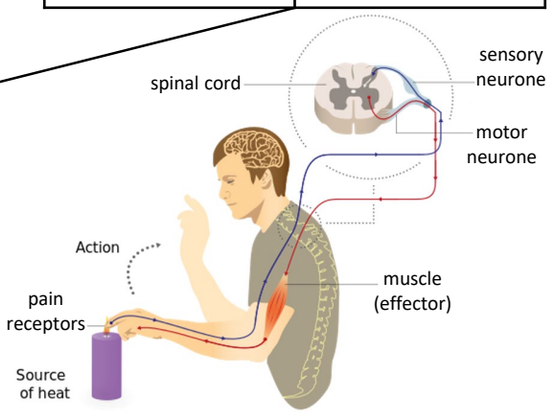
Stimulus	Lights switch on
↓	↓
Receptor	Cells in retina
↓	↓
Coordinator	CNS
↓	↓
Effector	Muscles connected to iris
↓	↓
Response	Pupils get smaller

Typical motor neurone

Synapse (gap where two neurones meet).



Reflex arc	
Receptor	Detect stimuli.
Sensory neurone	Long axon carries impulse from receptor to spinal cord.
Synapse	Gap where neurones meet. Chemical message using neurotransmitter.
Relay neurone	Allows impulses to travel between sensory and motor neurones in the spinal cord.
Motor neurone	Long axon carries impulse from receptor to effector.
Effector	Muscle or gland that carries out response.



Reflex actions are automatic and rapid; they do not involve the conscious part of the brain and can protect humans from harm.

AQA GCSE HOMEOSTASIS AND RESPONSE PART 3

The use of hormone to treat infertility (HT only)

FSH and LH are used as 'fertility drugs' to help someone become pregnant in the normal way

In Vitro Fertilisation (IVF) treatment.

Involves giving a mother FSH and LH to stimulate the maturation of several eggs

The eggs are collected from the mother and fertilised by sperm from the father in a laboratory.

↓

The fertilised eggs develop into embryos.

↓

At the stage when they are tiny balls of cells, one or two embryos are inserted into the mother's uterus (womb).

Potential disadvantages of IVF	Emotional and physical stress.
	Success rates are not high.
	Multiple births risk to mother and babies.

Contraception

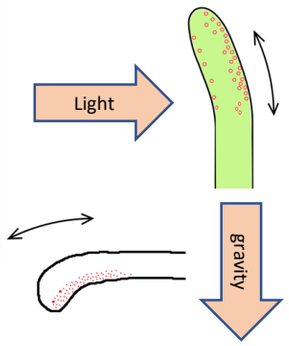
Fertility can be controlled by hormonal and non hormonal methods	***Oral contraceptives***	Contain hormones to inhibit FSH production so that no eggs mature.
	Injection, implant, skin patch	For slow release of progesterone to inhibit the maturation and release of eggs for months or years.
	Barrier methods	Condoms or diaphragms which prevent sperm reaching the egg.
	Intrauterine devices	Prevent implantation of an embryo or release a hormone.
	Spermicidal agents	Kill or disable sperm.
	Abstaining	Avoiding intercourse when an egg may be in the oviduct.
	Surgery	Male or female sterilisation.

Plant hormones

Hormones are used in modern reproductive technologies to treat infertility

Plants produce hormones to coordinate and control growth

Plant responses using hormones (auxins)	***Light (phototropism)***	Light breaks down auxins and they become unequally distributed in the shoot. The side with the highest concentration of auxins has the highest growth rate and the shoot grows toward the light.
	Gravity (geotropism or gravitropism)	Gravity causes an unequal distribution of auxins. In roots the side with the lowest concentration has the highest growth rate and the root grows in the direction of gravity.
		In new shoots from a seedling the unequal distribution of auxins causes the shoot to grow away from gravity.



(HT only) Gibberellins are important in initiating seed germination.

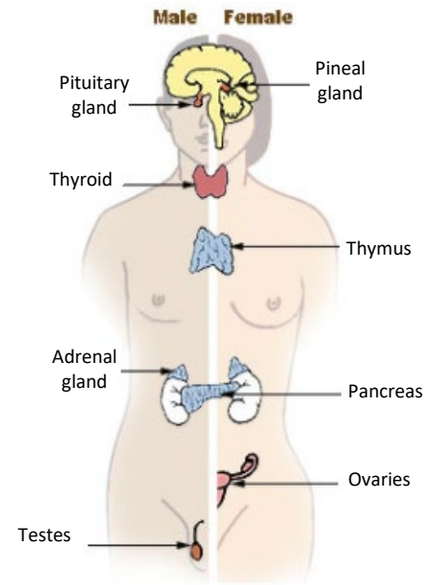
(HT only) Ethene controls cell division and ripening of fruits.

Use of plant hormones (HT only)

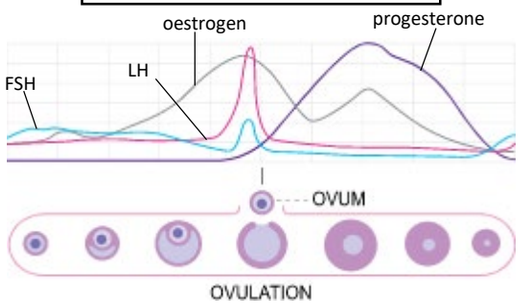
Plant growth hormones are used in agriculture and horticulture	***Auxins***	Weed killers, rooting powders, promoting growth in tissue culture.
	Ethene	Control ripening of fruit during storage and transport.
	Gibberellins	End seed dormancy, promote flowering, increase fruit size.

Hormones in human reproduction

During puberty reproductive hormones cause secondary sexual characteristics to develop	
Oestrogen (main female reproductive hormone)	***Testosterone (main male reproductive hormone)***
Produced in the ovaries. At puberty eggs being to mature releasing one every 28 days – **ovulation**.	Produced in the testes stimulation sperm production.



(HT only) a graph of hormone levels over time



Menstrual cycle			
	Follicle stimulating hormone (FSH)	Causes maturation of an egg in the ovary.	**(HT)** FSH stimulates ovaries to produce oestrogen.
	Luteinising hormone (LH)	Stimulates release of an egg.	**(HT)** Oestrogen stops FSH production and stimulates LH production in pituitary gland.
	Oestrogen and progesterone	Maintain uterus lining.	

BHS Science

AQA GCSE INHERITANCE, VARIATION AND EVOLUTION Part 1

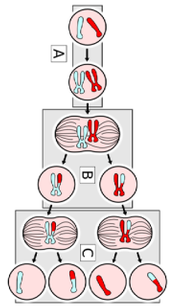
Meiosis

Meiosis halves the number of chromosomes

Gametes are made in reproductive organs (in animals ovaries and testes)

Cells divide by meiosis to form gametes

- Copies of the genetic information are made.
- The cell divides twice to form four gametes each with single set of chromosomes.
- All gametes are genetically different from each other.



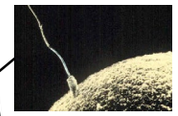
Gametes join at fertilisation to restore the number of chromosomes

The new cell divides by mitosis. The number of cells increase. As the embryo develops cells differentiate.

Meiosis leads to non-identical cells being formed while mitosis leads to identical cells being formed

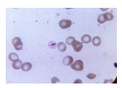
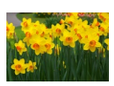
Sexual and asexual reproduction

Sexual reproduction involves the fusion of male and female gametes.	***Sperm and egg in animals.***	Produced by meiosis. There is mixing of genetic information which leads to a variety in the offspring.
	Pollen and egg cells in flowering plants.	
Asexual reproduction involves only one parent and no fusion of gametes.	***e.g. cloning of females only in an aphid population.***	Only mitosis is involved. There is no mixing of genetic information. This leads to genetically identical clones.



Advantages and disadvantages of sexual and asexual reproduction (Biology only)

Reproduction advantages/disadvantages	
Sexual	***Asexual***
Needs two parents.	Only one parent needed (quicker).
Produces variation in the offspring.	Identical offspring (no variation).
If the environment changes variation gives a survival advantage by natural selection.	Vulnerable to rapidly changing conditions due to lack of variation.
Negative mutations are not always inherited.	Negative mutation can affect all offspring.
Natural selection can by speeded up using selective breeding to increase food production.	Food/medicine production can be extremely quick.

Some organisms use both methods depending on the circumstances	***Malarial parasites***		Asexually in the human host but sexually in a mosquito.
	Fungi		Asexually by spores, sexually to give variation.
	Plants		Produce seeds sexually, asexually by runners in strawberry plants, bulbs division in daffodils.

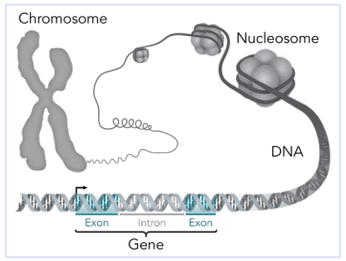
DNA and the genome

Genetic material in the nucleus is composed of a chemical called DNA.

DNA structure

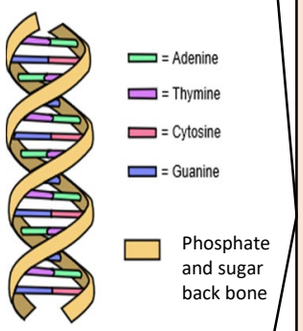
Polymer made up of two strands forming a double helix.

Contained in structures called chromosomes. A gene is a small section of DNA on a chromosome. Each gene codes for a sequence of amino acids to make a specific protein.



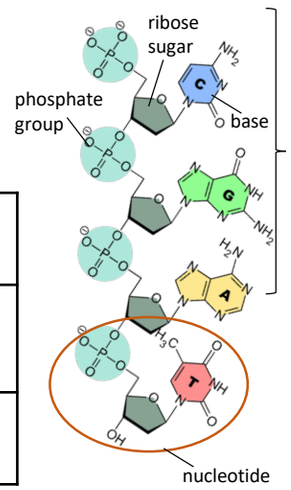
The genome is the entire genetic material of an organism.

DNA structure (Biology only)



DNA is polymer made from four different nucleotides. Each nucleotide consists of a common sugar, phosphate group and one of 4 different bases A, C, G & T

Repeating nucleotide units.



(HT only) Not all parts code for proteins. Non-coding parts can switch genes on and off. Mutations may affect how genes are expressed.

The whole human genome has now been studied.	***It is of great importance for future medical developments***	Searching for genes linked to different types of disease.
		Understanding and treatment of inherited disorders.
		Tracing migration patterns from the past.

Mutations occur continuously (HT only)

Most do not alter the protein so that its appearance or function is not changed.

Some change the shape and affect the function of proteins e.g. and enzyme active site will change or a structural protein loses its strength

Protein synthesis (HT only)

In DNA the complementary strands C, A, T, G always link in the same way. C always linked to G on the opposite strand and A to T.

When the protein chain is complete it folds to form a unique shape. This allows proteins to do their job as enzymes, hormones or new structures such as collagen.

(HT) Making new proteins (protein synthesis)

Composed of chains of amino acids. A sequence of 3 bases codes for a particular amino acid.

DNA in the nucleus unravels.

⇩

Enzymes make a copy of the DNA strand called mRNA.

⇩

mRNA moves from the nucleus to ribosome in the cytoplasm.

⇩

Ribosomes translate each 3 bases into amino acids according to mRNA template

⇩

Ribosomes link amino acids brought by carrier proteins.

⇩

A long chain of amino acids form. Their specific order forms a specific protein.

A sequence of 3 bases is the code for a particular amino acid. The order of bases controls the order in which each amino acid is assemble to produce a specific protein.

AQA GCSE INHERITANCE, VARIATION AND EVOLUTION PART 2

Variation

Variation: difference in the characteristics of individuals in a population may be due to

Genetic causes (inheritance)	There is usually extensive genetic variation within the population of a species e.g. hair colour, skin colour, height that can also be affected by environment e.g. nutrition, sunlight.
Environmental causes (condition they have developed in)	
A combination of genes and environment	

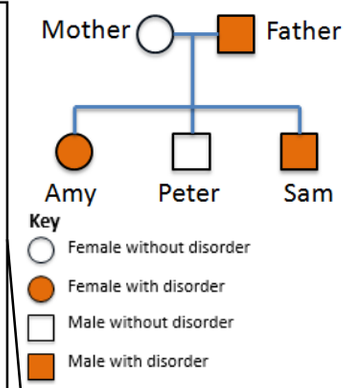
Mutations occur continuously

Very rarely a mutation will lead to a new phenotype which if is suited to environmental change can lead to rapid change in the species.

All genetic variation arises in mutation, most have no effect on phenotype, some influence but very few determine phenotype.

The genome and its interaction with the environment influence the development of phenotypes

Using a family tree: If the father was homozygous dominant then all of the offspring would have the disorder. He must be heterozygous



Inherited disorders

Embryo screening and gene therapy may alleviate suffering

Embryo screening: small piece of developing placenta removed to check for presence of faulty genes

Gene therapy: replacing the faulty allele in somatic cells with a normal allele

Embryo screening /gene therapy issues		
	Economic	Costly and not 100% reliable.
	Social	Not available to everyone (due to cost).
	Ethical	Should only 'healthy' embryos be implanted following screening.

Some disorders are inherited. They are caused by the inheritance of certain alleles

Polydactyly	***Cystic fibrosis***
Caused by inheriting a dominant allele.	Caused by inheriting a recessive allele (both parents have to at least carry it).
Causes a person/animal to have extra toes or fingers.	A disorder of the cell membrane. Patients cannot control the viscosity of their mucus.

Ordinary human body cells contain 23 pairs of chromosomes

One pair of chromosomes carry the genes that determine sex

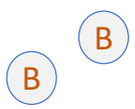
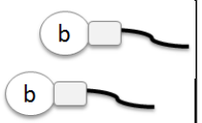
Female	***Male***
XX	XY

Gametes	X	Y
X	XX	XY
X	XX	XY

The probability of a male of female child is 50%. The ratio is 1:1

Sex determination

Using a punnet square (using mouse fur colour as an example)

Parent phenotype	Black fur 	White fur 
Parent genotype	BB	bb
What gametes are present	In each egg 	In each sperm 

Gametes	b	b
B	Bb	Bb
B	Bb	Bb

The probability of black fur offspring phenotype is 100%. All offspring genotypes are heterozygous (Bb).

Crossing two heterozygous mice (Bb)

Gametes	B	b
B	BB	Bb
b	Bb	bb

The probability of black fur is 75% and white fur 25%. The ratio of black to white mice is 3:1

Genetic inheritance

Define terms linked to genetics

Gamete	Sex cells produced in meiosis.
Chromosome	A long chain of DNA found in the nucleus.
Gene	Small section of DNA that codes for a particular protein.
Allele	Alternate forms of the same gene.
Dominant	A type of allele – always expressed if only one copy present and when paired with a recessive allele.
Recessive	A type of allele – only expressed when paired with another recessive allele.
Homozygous	Pair of the same alleles, dominant or recessive.
Heterozygous	Two different alleles are present 1 dominant and 1 recessive.
Genotype	Alleles that are present for a particular feature e.g. Bb or bb
Phenotype	Physical expression of an allele combination e.g. black fur, blonde hair, blue eyes.

Some characteristics are controlled by a single gene e.g. fur colour, colour blindness.

The alleles present, or genotype operate at a molecular level to develop characteristics that can be expressed as a phenotype.

Most characteristics are as a result of multiple genes interacting.

The concept of probability in predicting results of a single gene cross.

Dominant and recessive allele combinations

Dominant	***Recessive***
Represented by a capital letter e.g. B.	Represented by a lower case letter e.g. b.

3 possible combinations:
Homozygous dominant BB
Heterozygous dominant Bb
Homozygous recessive bb

AQA GCSE INHERITANCE VARIATION AND EVOLUTION PART 3

Evolution

A change in the inherited characteristics of a population over time through the process of natural selection.

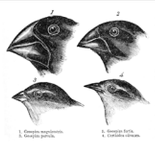
Over time this results in the formation of new species.

The theory of evolution by natural selection.

Species of all living things have evolved from simple life forms that first developed 3 billion years ago.

Through natural selection of variants (genotypes) that give rise to phenotypes best suited to their environment or environmental change e.g. stronger, faster. This allows for variants to pass on their genotype to the next generation.

If two populations of one species become so different in phenotype that they can no longer interbreed to produce fertile offspring they have formed two new species.

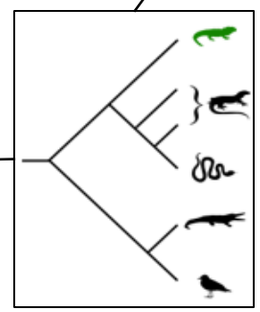


Darwin's finches

Classification of living organisms

Evolutionary trees are a method used by scientists to show how organisms are related

Use current classification data for living organisms and fossil data for extinct organisms



Selective breeding

The process by which humans breed plants/animals for particular genetic characteristics

Humans have been doing this for thousands of years since they first bred food from crops and domesticated animals.

Selective breeding

Choosing parents with the desired characteristics from a mixed population

Chosen parents are bred together.

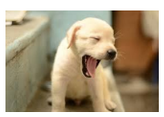
↓

From the offspring those with desired characteristics are bred together.

↓

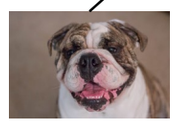
Repeat over several generations until all the offspring show the desired characteristics.

Concern: effect of GMO on human health not fully explored

Choosing characteristics	
Desired characteristics are chosen for usefulness or appearance	
Disease resistance in food crops.	
Animals which produce more meat or milk.	
Domestic dogs with a gentle nature.	
Large or unusual flowers.	

Selective breeding can lead to 'inbreeding' where some breeds are particularly prone to disease or inherited defects e.g. British Bulldogs have breathing difficulties.

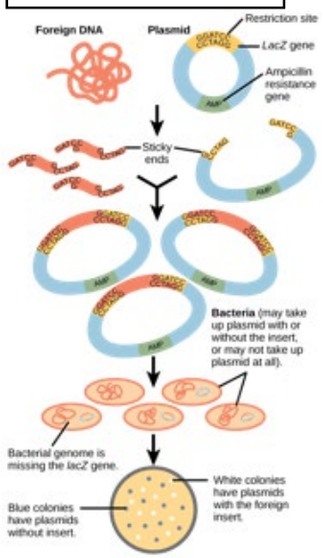
Concern: effect of GMO on wild populations of flowers and insects.



Genetic engineering

Modern medical is exploring the possibility of GM to over come inherited disorders e.g. cystic fibrosis

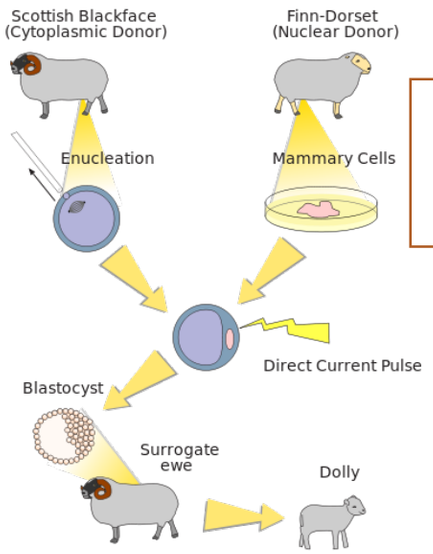
Genes from the chromosomes of humans or other organisms can be 'cut out' and transferred to the cells of other organisms.



Genetic engineering process (HT only)
1. Enzymes are used to isolate the required gene.
2. Gene is inserted into a vector – bacterial plasmid or virus.
3. Vector inserts genes into the required cells.
4. Genes are transferred to plants/animals/microbes at an early stage of development so they develop the required characteristics.

Genetically modified crops (GMO)	***Crops that have genes from other organisms***	To become more resistant to insect attack or herbicides.
		To increase the yield of the crop.

Cloning (Biology only)



Adult cell cloning
1. Nucleus is removed from an unfertilised egg.
2. Nucleus from body cell is inserted into egg cell.
3. An electric shock stimulates the egg to divide into an embryo
4. Embryo cells are genetically identical to adult cells.
5. When embryo has developed into ball of cells it is inserted into host womb.

Cloning techniques in plants/animals	
Tissue culture	Small groups of cells to grow new plants. Important for preservation of rare plants and commercially in nurseries.
Cuttings	Part of a plant is cut off and grown into full plant.
Embryo transplants	Splitting apart cells from animals embryo before they become specialised. New clone embryos are inserted into womb of adult female.

Concern: some people have ethical objections to adult cell cloning e.g. welfare of the animals.

BHS Science

AQA GCSE INHERITANCE VARIATION AND EVOLUTION PART 4

Charles Darwin	*Theory of evolution by natural selection.*	Individual organisms within a particular species show a wide range of variation for a characteristic.
		Individual most suited to the environment are more likely to breed successfully.
		Characteristics enable individuals to survive are then passed on to the next generation.

Developed since its proposal from information gathered by other scientists.

Did much pioneering work on speciation but more evidence over time has lead to our current understanding.

Allows biologists to understand the diversity of species on the planet.

Evidence from around the world, experimentation, geology, fossils, discussion with other scientists (Alfred Wallace) lead to:

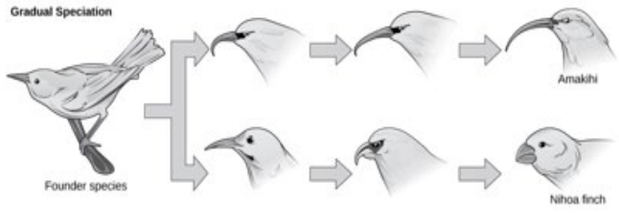
Theory of evolution (Biology only)

Charles Darwin 'On the Origin of the Species' (1859)	*Published the theory of evolution by natural selection*	Slowly accepted; challenged creation theory (God), insufficient evidence at time, mechanism of inheritance not yet known.

Other theories e.g. Lamarckism are based on the idea that changes occur in an organism during its lifetime which can be inherited. We now know that in the vast majority of cases this cannot occur.

Speciation (Biology only)

Alfred Wallace	*Independently proposed the theory of evolution by natural selection*	Published joint writings with Darwin in 1858.
		Worked worldwide gathering evidence.
		Best know for work on warning colouration in animals and his theory of speciation.



Speciation

Due to isolation of a population of a species e.g. species are split across far apart islands.

Environmental conditions differ for populations e.g. types of food available, habitat.

⇩

Individuals in each population most suited to their environments are more likely to breed successfully.

⇩

Over long periods of time each population will have greater differences in their genotype.

⇩

If two populations of one species become so different in phenotype that they can no longer interbreed to produce fertile offspring they have formed two new species.

Classification of living organisms

The full human classification

Carl Linnaeus classified living things		
	Kingdom	Animalia
	Phylum	Chordata
	Class	Mammalia
	Order	Primates
	Family	Hominidae
	Genus	*Homo*
	Species	*sapiens*

Organisms are named by the binomial system of genus and species. Humans are *Homo sapiens*

Due to improvements in microscopes, and the understanding of biochemical processes, new models of classification were proposed.

Carl Woese	
3 domain based on chemical analysis.	
Archaea (primitive bacteria), true bacteria, eukaryota.	

Evidence for evolution

Fossils and antibiotic resistance in bacteria provide evidence for evolution.

Antibiotic resistant bacteria	*Mutations produce antibiotic resistant strains which can spread*	Resistant strains are not killed.
		Strain survives and reproduces.
		People have no immunity to strain and treatment is ineffective.

Evolution is widely accepted. Evidence is now available as it has been shown that characteristics are passed on to offspring in genes.

Extinction
When no members of a species survive
Due to extreme geological events, disease, climate change, habitat destruction, hunting by humans.

Fossils tell scientists how much or how little different organisms have changed over time.

Fossils
'remains' of ancient organisms which are found in rocks
Parts of organism that have not decayed as necessary conditions are absent.
Parts of the organism replaced by minerals as they decay.
Preserved traces of organisms such as footprints, burrows and rootlet traces.

Early forms of life were soft bodied and few traces are left behind and have been destroyed by geological activity, cannot be certain about how life began.

Led to gene theory being developed but not until long after Mendel died.

The understanding of genetics (biology only)

Gregor Mendel	*In the mid 19th century carried out breeding experiments on plants*	Inheritance of each characteristic is determined by units that are passed on to descendants unchanged.

Further understanding of genetics
Improving technology allowed new observations.
Late 19th century: behaviour of chromosomes in cell division.
Early 20th century: chromosomes and Mendel's 'units' behave in similar ways. 'units' now called genes must be located on chromosomes.
Mid 20th century: structure of DNA determined. Mechanism of gene function worked out.

Forces and their interactions

AQA FORCES – part 1

Gravity

Gravitational field strength	*Gravity exerted around an object.*	Earth's gfs = 9.8N/kg

Each Kg has a gravitational pull of 9.8N.

Weight = mass X gravitational field strength — W = m X g

Weight	*Force acting upon an object due to gravity*	Newton (N)
Mass	*How much matter*	Kilograms (Kg)

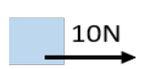
Unit	*Newton (N)*	1N
Kilo	*Kilonewton (KN) = 1000*	1X 10^3
Mega	*Meganewton (MN) = 1000,000*	1 X 10^6

Centre of mass	*The weight of an object acts through a single point*

Scalar and vector quantities

Scalar	*A quantity that only has magnitude (size)*	e.g. mass, time, speed, temperature, energy,
Vector	*A quantity that only has magnitude and direction*	e.g. force, velocity, momentum

An arrow can be used to show vectors: *Length of arrow = magnitude of vector*; *Direction of arrow = direction of vector*



Velocity	*Speed + direction*	The speed of a car is 30m/s. A car moves forward with a velocity of 30m/s
Distance	*How far*	The table is 1m long
Displacement	*Distance + direction*	The beach is 1km due east of the town

Area — *Metres squares (m^2)*
Weight — *Newton (N)*
Mass — *Kilograms (kg)*
Gravitational field strength — *Newton per kilogram (N/Kg)*
Force — *Newton (N)*
Work done — *Joules (J)*
Distance — *Metres (m)*
Moment — *Newton-metres (Nm)*

Pressure = height X density X gfs

Moments, levers and gears

PHYSICS ONLY

M = F X d

Moment = force X distance

Moment	*Turning effect of a force about a pivot*
Lever	*A small force exerted with a long lever applies a large force*

Principle of moments: *In a balanced system, the sum of the clockwise moments = the sum of the anti-clockwise moments*

Gears	*Increase or decrease the rotational effect of a force*

Pressure

HIGHER ONLY

Pressure = Force ÷ Area

P = F ÷ A

Pressure and depth: *Pressure on divers depends on weight of water above*

Upthrust	*Resultant force exerted by a fluid*

Fluid	*A liquid or gas*

Flows and changes shape to fill a container.

Hydraulic machine	*Use liquids to transmit pressure*

Atmospheric pressure: *Caused by billions of air particles colliding with a surface.*

Contact and Resultant forces

Force	*Push or pull*	Stretch, squash, turn.
Contact force	*Exerted between two objects when they touch*	Friction, air resistance, tension.
Non-contact force	*Exerted between two objects without touching*	Gravity, electrostatic forces, magnetic forces.

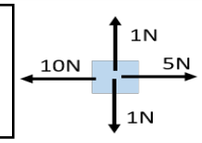
Resultant force	*The overall effect of all of the forces acting upon an object*	Two forces acting in the same direction are added.
		Two forces acting in the opposite direction are taken away.

HIGHER ONLY

Work done against frictional forces, temperature of object rises.

Free body diagram	*Show magnitude and direction of all forces upon an object*

Object moves left with a force of 5N



If force is at right angles to direction of movement, NO work is done.

Work done and energy transfer

Work done	*When work is done, energy is transferred*	Work done = force X distance moved W = F X s
		1J of work is done when 1N of force moves an object through a distance of 1m, in the direction of the force.

Forces and elasticity

One force	*The object changes speed or direction*
More than one force	*The object changes shape*

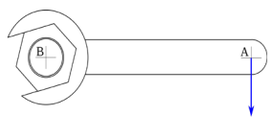
Two balanced forces can stretch a object.

Two balanced forces can compress an object.

Three balanced forces can bend an object.

Elastic deformation	*The object has been stretched but returns to its original length*
Inelastic deformation	*The object has been stretched but does not return to its original length*
Extension	*The difference between stretched and unstretched lengths*

Limit of proportionality: *Beyond this point the spring is permanently deformed*



Stretching a spring	Force = spring constant X extension, F = k X e
	EPE = ½ X spring constant X (extension)^2, EPE = ½ ke^2

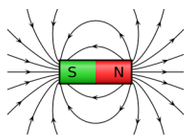
Elastic Potential energy (EPE) — *Energy stored in a stretched spring*

Force	*Newton (N)*
Spring constant	*Newton per metre (N/m)*
Extension	*Metres (m)*
EPE	*Joules (J)*

AQA MAGNETISM AND ELECTROMAGNETISM

Permanent and Induced Magnetism

Magnets



Magnetic	*Materials attracted by magnets*	Uses non-contact force to attract magnetic materials.
North seeking pole	*End of magnet pointing north*	Compass needle is a bar magnet and points north.
South seeking pole	*End of magnet pointing south*	Like poles (N – N) repel, unlike poles (N – S) attract.
Magnetic field	*Region of force around magnet*	Strong field, force big. Weak field, force small. Field is strongest at the poles.
Permanent	*A magnet that produces its own magnetic field*	Will repel or attract other magnets and magnetic materials.
Induced	*A temporary magnet*	Becomes magnet when placed in a magnetic field.

Motor effect

HIGHER only

Magnetic fields from the permanent magnet and current in the foil interact. This is called the motor effect.

Reverse the current , foil moves upwards.

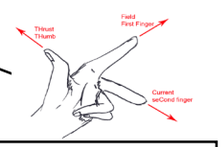
Aluminium foil placed between two poles of a strong magnet, will move downwards when current flows through the foil.

Size of force acting on foil depends on magnetic flux density between poles, size of current, length of foil between poles.

F = B X I X l

Force = magnetic flux density X current X length

If current and magnetic field are parallel to each other , no force on wire.



Fleming's left-hand rule

To predict the direction a straight conductor moves in a magnetic field.

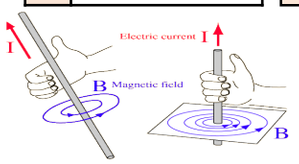
Thumb	Direction of movement.
First finger	Direction of magnetic field.
Second finger	Direction of current.

Magnetic flux	*Lines drawn to show magnetic field*	Lots of lines = stronger magnets.
Magnetic flux density	*Number of lines of magnetic flux in a given area*	Measures the strength of magnetic force.

Force	*Newton (N)*
Magnetic flux density	*Tesla (T)*
Current	*Amperes (A)*
Length	*Metres (m)*
Power	*Watts (W)*
p.d.	*Voltage (V)*

Right hand rule

Thumb	Direction of current.
Fingers	Direction of magnetic field.

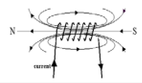


Electric current flowing in a wire produces a magnetic field around it.

Magnetic field around a wire

Electromagnet	*Lots of turns of wire increase the magnetising effect when current flows*
	Turn current off, magnetism lost.

Increase strength of magnetic field	*Use larger current*
	Use more turns of wire
	Put turns of wire closer together
	Use iron core in middle



Solenoid	*A long coil of wire*	Magnetic field from each loop adds to the next.

Reverse current, magnetic field direction reverses.

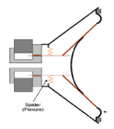
Further away from the wire, magnetic field is weaker.

Current large enough, iron filings show circular magnetic field.

If current is small, magnetic field is very weak.

Split-ring commutator	*Split ring touching two carbon brush contacts*	

Loud speakers	*Converts variations in electrical current into sound waves .*	Varying current flows through a coil that is in a magnetic field. A force on the wire moves backwards and forwards as current varies. Coil connected to a diaphragm. Diaphragm movements produce sound waves.



Generators	*Coil of wire rotating inside a magnetic field. The end of the coil is connected to slip rings.*	Produces altering current.

Microphones	*Converts pressure variations in sound waves into variations in current in electrical circuits.*

Electric motor	*Coil of wire rotates about an axle*	Current flows through the wire causing a downward movement on one side and an upward movement on the other side.

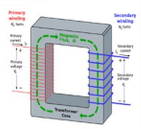
Induced potential, transformers and National Grid

National Grid	*Distributes electricity generated in power stations around UK*

PHYSICS HIGHER only

Transformer	*Two coils of wire onto an iron core*	Alternating current supplied to primary coil, making magnetic field change. Iron core becomes magnetised, carries changing magnetic field to secondary coil. This induces p.d.

Step-up transformers	Step-down transformers
Increase voltage, decrease current	*Decrease voltage, increase current*
Increases efficiency by reducing amount of heat lost from wires.	Makes safer value of voltage for houses and factories.



Power lost = Potential difference X Current

Power supplied to primary coil = power supplied to secondary coil

$V_p \times I_p = V_s \times I_s$

Voltage across the coil X number of coils (primary) = Voltage across the coil X number of coils (secondary)

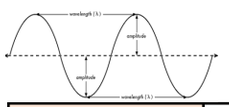
$V_p \div V_s = n_p \div n_s$

Induced potential	*When a conducting wire moves through a magnetic field, p.d. is produced*	

Generator effect	*Generates electricity by inducing current or p.d.*

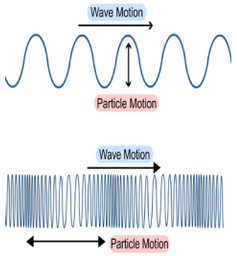
Uses of the generator effect	*Dynamo, Microphones*

BHS Science



Wave speed	Wave speed = frequency X wavelength	V = f X λ
Wave period	Wave period = 1 ÷ frequency	T = 1 ÷ f
Speed	Speed = distance ÷ time	v = d ÷ t

Wavelength	***Distance from one point on a wave to the same point of the next wave***
Amplitude	***The maximum disturbance from its rest position***
Frequency	***Number of waves per second***
Period	***Time taken to produce 1 complete wave***



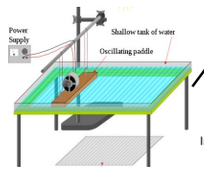
Transverse wave	***Vibration causing the wave is at right angles to the direction of energy transfer***	Energy is carried outwards by the wave.	Water and light waves, S waves.
Longitudinal wave	***Vibration causing the wave is parallel to the direction of energy transfer***	Energy is carried along the wave.	Sound waves, P waves.

Transverse and Longitudinal waves

Waves in air, fluids and solids

AQA Waves

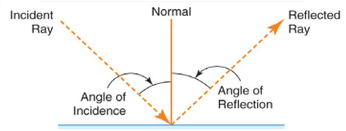
Properties



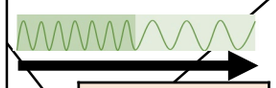
In water, use a ripple tank.

In air, use echoes.

Measuring speed



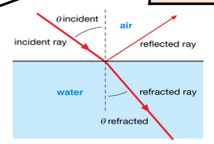
Sound waves travelling through different mediums, the frequency stay constant.



Angle of incidence = angle of reflection (i) = (r)

PHYSICS ONLY

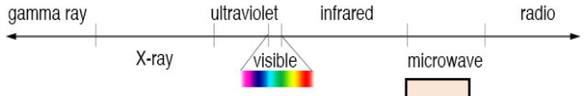
Reflection	Wave bounces off the surface.
Refraction	Waves changes direction at boundary.
Transmitted	Passes through the object.
Absorbed	Passes into but not out of, transfers energy and heats up the object.



Light refracts as it slows down in a denser substance

Electromagnetic waves

Electromagnetic wave	***Continuous spectrum of transverse waves***



e.g. Gamma

Short wavelengths have high frequency and high energy.

Absorbed light changes into thermal energy store.

Black body radiation

PHYSICS ONLY

Earth and Global warming

Ultraviolet, visible light, infra-red radiation penetrate atmosphere and heat up Earth's surface.

Longer wavelengths are radiated back, trapped by atmosphere.

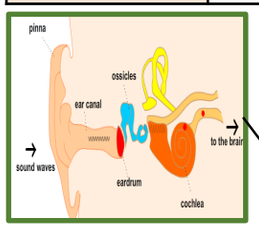
Energy lost is not at the same rate as energy being absorbed so Earth heats up.

Black body radiation	***All objects absorb or reflect infrared radiation***	Hotter objects emit more infrared radiation.
Constant temperature	***Rate of absorption = rate of radiation***	Intensity and wavelength of energy affects temperature.

PHYSICS ONLY

Magnification = image size ÷ object size

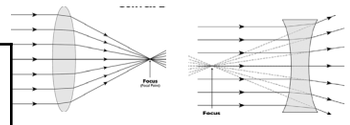
	Units
Distance	***Metres (m)***
Wave speed	***Metres per second (m/s)***
Wavelength	***Metres (m)***
Frequency	***Hertz (Hz)***
Period	***Seconds (s)***



PHYSICS HIGHER ONLY

Hearing	***Frequencies between 20 – 20,000 Hz***	Longitudinal waves cause ear drum to vibrate, amplified by three ossicles which creates pressure in the cochlea.

HIGHER: Lenses



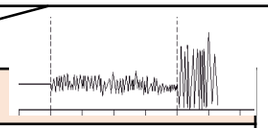
HIGHER: Properties

Convex	Real or virtual images.
Concave	Only virtual images.

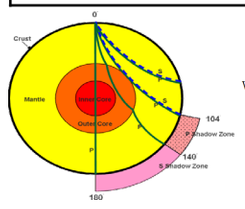
2F	Image same size, upside down, real.
2F - F	Image larger, upside down, real.
< F	Image bigger, right way, virtual.

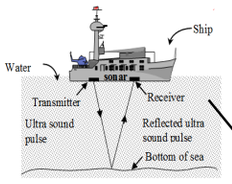
Specular	Flat surface reflection.
Diffuse	Rough surface reflection.

Seismic waves



P wave	S wave	Seismograph
Longitudinal	***Transverse***	***Shows P and S waves arriving at different times.***
Fast	***Slow***	
Travel through solids and liquids	***Travels through solids***	By using the times the waves arrive at the monitoring centres, the epicentre of earthquake can be found. (v = x ÷ t).
Produced by earthquakes.		





Ultra sound	***Partially reflected off boundary***	Used for medical and foetal scans.
Sonar	***Reflected off objects***	Used to determine depth of objects under the sea.

Black surfaces	***Good emitters, good absorbers***	
White surfaces	***Poor emitters, poor absorbers***	
Shiny surfaces	***Good reflectors***	

EM waves refract

EM wave	Danger	Use
Radio	Safe.	Communications, TV, radio.
Microwave	Burning if concentrated.	Mobile phones, cooking, satellites.
Infrared		Heating, remote controls, cooking.
Visible	Damage to eyes.	Illumination, photography, fibre optics.
Ultra violet	Sunburn, cancer.	Security marking, disinfecting water.
X-ray	Cell destruction, mutation, cancer.	Broken bones, airport security.
Gamma		Sterilising, detecting and killing cancer.

Low frequency, long wavelength.

White	Wave lengths reflected
Black	Wave lengths absorbed

High frequency, short wavelength

BHS Science

GCSE ART AND DESIGN *WHAT YOU NEED TO KNOW for your CONTROLLED TEST*

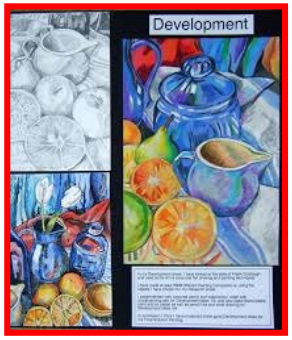
You will start your controlled test (your final exam) In January. As with your coursework, in Art and Design there are 4 assessment objectives that you will be graded against for the exam. To maximise your grade you need to complete all 4 steps of the project. Each one is worth 25% of your final grade. Your exam is worth 40% of your overall grade.

You will be given an exam paper with 8 possible questions. With the help of your teacher choose just one.

A01 ARTIST ANALYSIS, MAKING LINKS AND IDEAS

What artists are you looking at for this project? How does your own work link or connect to that of the artist you have looked at? Have you developed some of your own ideas?

TIP: Complete an 'Artists analysis' sheet. Collect examples of their work and related work that inspires you. **25% of your marks.**



A02 REFINEMENT AND MATERIALS

Refine your ideas through experimenting and selecting appropriate resources, materials, techniques and processes.

TIP: if you are studying the work of a printmaker who uses lino prints then have a go at carving out a lino design!

25% of your marks.

A03 DRAWING AND RECORDING

Always make sure you have recorded ideas, observations and insights relevant to your theme. For each project you should include high quality pencil drawings that show a full tonal range.

TIP: Try other exciting materials to draw with such as biro, inks or unusual materials. **25% of your marks.**

A04 PRODUCING A FINAL PIECE

At the end of the exam you will have 10 hours to present a personal, informed and meaningful final piece. This could be a painting, a ceramic piece, a series of prints, a sculpture, a piece of textiles or a mixed media piece. TIP: This should demonstrate how you have made connections with the artists you have studied. **25% of your marks.**

TOP TIPS FOR MAXIMUM MARKS

- Annotate your sheets explaining your ideas? Describe the process you have gone through of producing your work. Describe why you have made decisions.
- Just like in maths you should keep everything and show all you workings. Think of your project as a journey.
- You will pick up marks for showing how you got from A to B!

YR 11 HOSPITALITY AND CATERING Level 1/2 *KNOWLEDGE ORGANISER*

Terms 2.1 and 2.2 - In Catering you are assessed on everything you do in class. There are 2 assessment objectives.

Assessment one (L01 + L02 + L03 + L04 Unit one) Recall and Revise previous topics

- **Understand the environment in which hospitality and catering providers operate**
- **Understand how Hospitality and catering provision operates**
- **Understand how hospitality and catering provision meets health and safety requirements**
- **Know how food can cause ill health**

KEYWORDS AND KEY TERMS

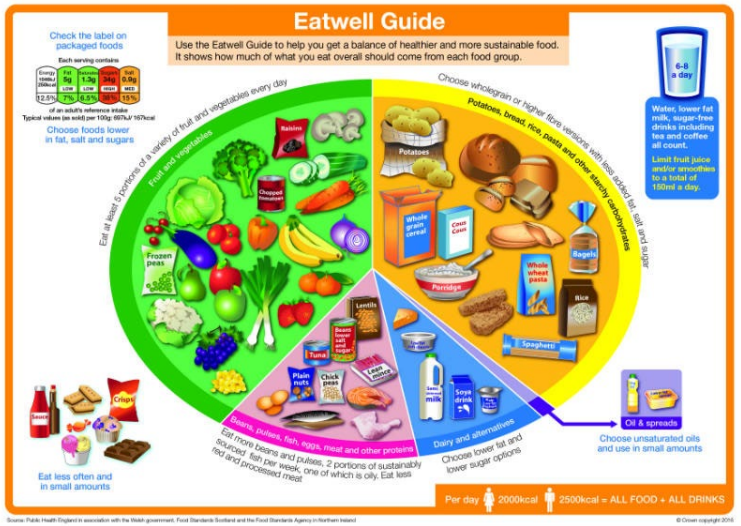
HOSPITALITY – Industry branch which aims to provide accommodation, food, entertainment, transportation and other services for tourists and travellers.
CATERING – Provision of Food and Drink.
PROFIT – The positive difference between expenses and incomes of a business
NON-COMMERCIAL ORGANISATION – Types of establishment which does not intend to make a profit.
COMMERCIAL –Type of establishment which aims to gain profit
ECONOMY – Term used to describe the volume of production and consumption of goods in a given state or country, or their monetary value.
PRIMARY HOSPITALITY PROVIDER – Establishment whose main aim is to provide accommodation and catering.
SECONDARY HOSPITALITY SECTOR – Establishments whose main aim is different than providing accommodation and food, but which offers other hospitality services.
CUSTOMER – Client – a person who buys, and consumes goods and services
FOOD SAFETY- refers to handling, preparing and storing food in a way to best reduce the risk individuals becoming sick from foodborne illnesses.
FOOD SAFETY LEGISLATION - outlines food safety requirements for businesses processing or preparing food and selling food to the public. The health authorities are responsible for approving, permitting, inspecting and responding to complaints about food premises under this regulation
ENVIRONMENTAL HEALTH OFFICERS - make sure people's surroundings are safe, healthy and hygienic.

Recipes:

International cuisine
Cheesecake
Chicken Chasseur
Vegetable Curry
Meat curry
Beef burgers
Yeast doughs
Pastries
Methods of cooking
Poaching
Steaming
Roasting & Baking.
Grilling & Broiling.
Sautéing & Pan-Frying.
Deep-Frying

Useful websites to embed learning

- https://www.eduqas.co.uk/qualifications/hospitality-and-catering/WJEC-Level-1-2-Award-in-Hospitality-and-Catering-Unit-2-iSAM%20%20from%202016.pdf?language_id=1
- http://www.foodafactoflife.org.uk/
- **https://lovefoodhatewaste.com/**
- http://www.bbc.co.uk/education/subjects/z48jmp



LEVEL 1 / 2 AWARD IN HOSPITALITY AND CATERING unit 1

AO1
Understand the environment in which hospitality and catering providers operate

AC3.1 personal safety responsibility

Abbreviation	Full name
HASAWA	Health and safety at work act 1974
RIDDOR	Reporting of injuries diseases and dangerous occurrences regulations 1995
COSHH	Control of substances hazardous to health regulations 2002
PPER	Personal protective equipment at work regulations 1992 http://www.hse.gov.uk/pubns/indg174.pdf
MHR	Manual handling operations regulations 1993

Health and safety at Work Act 1974

- This act covers all aspects of health and safety at work.
- All employers must take care of their own health and safety and not endanger others.
- The health and safety executive (HSE) exists to protect peoples health and safety by ensuring risks are properly controlled.
- HASWA also protects other people from risks to their health and safety arising out of the activities of people at work.
- The law applies to everyone at work and anyone can be prosecuted if they do not act safely

Environment

- There must be sufficient space to work safely and enough lighting and ventilation
- Workplaces must be kept generally clean and tidy
- Chairs must be safe and comfortable
- Temperature – must be "reasonable"
  - Reasonable means at least 16°C for office work and 13°C where there is physical work
  - In very hot weather, employers only need to provide local cooling e.g. fans

Moving and Handling

- You may be asked to lift, carry push or pull a load at work
- You should always follow safe practice when doing any moving and handling
- You should never attempt to move anything that is too heavy or difficult – ask for help
- Employers should provide equipment to help you to move heavy or difficult loads



Duties of employers HASAWA

- To protect the health, safety and welfare of staff
- Carry out risk assessments
- To provide and maintain safe equipment and safe systems of work
- Safe use, handling, storage and transport of articles and substances
- Provide a safe workplace with a safe entrance and exit
- Provide information, instruction, training and supervision on how to work safely
- Provide a written safety policy

H.S.E Health and Safety Executive.

- H.S.E stands for the **Health and Safety Executive.**
- The H.S.E will investigate any complaints and safety incidents.
- The H.S.E employ Health and Safety Enforcement Officers who will inspect safety procedures being used.
- They have the power to serve notice and/or issue legal proceedings over safety incidents.
- It is compulsory to contact the H.S.E if an operative has an absence of more than three days following an accident at work.

Enforcement

- Inspectors from the Health and Safety Executive (HSE)
  - Manufacturers; schools and colleges; repairers; specialist places like hospitals and power stations
- Environmental Health Officers
  - Places where the public go like shops, offices, leisure facilities
- Fire Officers
  – just enforce the bits relating to fire safety

Magistrate's court
- £20,000 per offence
- Up to 6 months in prison

Crown court serious offences
- Unlimited fines
- Imprisonment for up to 2 years

COSHH

SUBSTANCES COVERED BY COSHH:
1. Chemicals including cleaning chemicals
2. Micro-organisms
3. Dusts
4. Medicines, pesticides, gases
5. HSE list (Health and safety executive)

Duties of employees HASAWA

- To take care of themselves and others
- To follow safety advice and instructions
- Not interfere with any safety device
- To report accidents
- To report hazards and risks

HSE
Health & Safety Executive

Duties of employers HASAWA

- Make sure there are toilets, places to wash and drinking water for workers
- Make sure that there is first aid provision
- Provide PPE for jobs if needed
- Have insurance to cover injury or illness at work
- Ventilation lighting and emergency exits

- provide a health and safety law poster entitled "Health and Safety law: What you should know" displayed in a prominent position and containing details of the enforcing authority.

Accidents at work

- All accidents, however minor, should be reported to your supervisor
- Similarly, all incidents of ill-health (caused from work) should also be reported
- Accidents include those that resulted in injury or damage and "near misses" – those which COULD have resulted in injury or damage
- Your supervisor will decide if the incidents needs to be recorded in the accident records
- Violent incidents are included (this includes verbal threats)

Employees responsibilities under COSHH

1. Use control measures and facilities provided by the employer
2. Ensure equipment is returned and stored properly
3. Repor defects in control measures
4. Wear and store personal protective equipment (PPE)
5. Removing PPE that could cause contamination before eating or drinking
6. Proper use of washing, showering facilities when required
7. Maintaining a high level of personal hygiene
8. Complying with any information, instruction or training that is provided

LEVEL 1 / 2 AWARD IN HOSPITALITY AND CATERING unit 1

AO1
Understand the environment in which hospitality and catering providers operate

First Aid

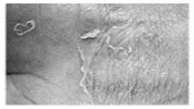
- Employers have to provide first aid facilities at work
- As a minimum, there should be a fully stocked green first aid box and a person appointed to take charge in an emergency
- Some workplaces have qualified first aiders and first aid rooms
- Green and white notices should inform you where the first aid box is kept and who the first aider(s) or appointed person(s) is/are

Every substance that is a hazard has a COSHH safety sheet

This sheet deals with opening, tipping sieving flour and making dough
Why could this be a hazard?

Possible health problems

1. Contact causing irritation
2. Sensitising substances
3. Toxic fumes
4. Carcinogenic
5. Infectious
6. Fire, explosion
7. Environmental harm problems


Common substances and controls

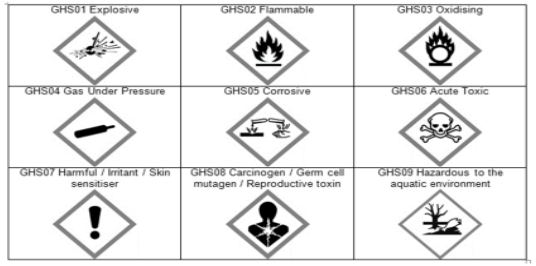
- Cleaning chemicals
- Washing up liquid
- Cooking fumes
- Smoke
- Oils
- Gas

- Wear gloves
- Extractors over cookers
- Face mask


Prevention of Falls

- Employers must ensure that any working areas above the ground or below (e.g. inspection pits) are guarded or protected
- If you have to work above ground level you must be kept safe e.g. by wearing a safety harness if it is an area such as a flat roof which is not guarded
- Stepladders should only be used for jobs that do not take long and they must be safe and stable when in use
- Slips prevention with non slip floors or shoes

COSHH symbols on containers



Safety data sheet

This is a safety data sheet for Fairy washing up liquid. It may not be a hazard to you if you only wash up once a day but if you washed up for long periods of time as part of your job it could become an irritant or hazard

What is RIDDOR?

- RIDDOR is the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013.
- The law requires employers and other people in control of work premises (known as the 'responsible person') to report to the Health and Safety Executive (HSE) and keep records of the following:

- work related fatalities
- work related accidents causing certain serious injuries (known as reportable injuries)
- certain work related diagnosed occupational diseases

Fire safety

- Employers must have arrangements in place
  - to prevent fires
  - To raise the alarm
  - To fight fires (fire extinguishers)
  - Emergency evacuation (including a pre-arranged meeting place for staff to assemble following evacuation)
- Notices showing the safe evacuation routes from buildings should be green and white

Employees responsibilities under COSHH

1. Use control measures and facilities provided by the employer
2. Ensure equipment is returned and stored properly
3. Repor defects in control measures
4. Wear and store personal protective equipment (PPE)
5. Removing PPE that could cause contamination before eating or drinking
6. Proper use of washing, showering facilities when required
7. Maintaining a high level of personal hygiene
8. Complying with any information, instruction or training that is provided

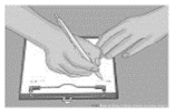
Employers responsibilities under COSHH

1. Implement control measures to protect workers from hazardous substances.
2. Preventing or controlling exposure to hazardous substances.
3. Providing employees with information, instruction and training, and appropriate protective equipment
4. Ensuring that control measures are maintained, kept in full working order, and in a clean condition
5. Drawing up plans and procedures to deal with accidents and emergencies involving hazardous substances.
6. Ensuring that any employees exposed to hazardous substances whilst at work are under suitable health surveillance.
7. Carrying out a COSHH risk assessment.

Who should report an Accident

1. An employer or person in charge of the premises
2. A self employed person
3. A member of the public
4. An injured person or their representative





LEVEL 1 / 2 AWARD IN HOSPITALITY AND CATERING unit 1

AO1
Understand the environment in which hospitality and catering providers operate

What must be reported

- An accident is a separate, identifiable, unintended incident that causes physical injury.
- Also includes acts of violence to people at work.
- Not all accidents need to be reported, a RIDDOR report is required only when the accident is work-related;
- and it results in an injury of a type which is reportable When deciding if the accident that led to the death or injury is work-related,
- the way the work was organised, carried out or supervised;
- machinery,substances or equipment used for work;

Occupational diseases

- carpal tunnel syndrome
- severe cramp of the hand or forearm
- occupational dermatitis
- hand-arm vibration syndrome
- occupational asthma
- tendonitis or tenosynovitis of the hand or forearm
- any occupational cancer
- any disease attributed to an occupational exposure to a biological agent.

Personal Protective Equipment at Work Regulations 1992 (PPER)

- PPE is equipment that will protect the user against health or safety risks at work. Includes clothing and other items worn by staff to protect themselves from work hazards
- It can include items such as Gloves, goggles, hard hats, hearing protectors, warm clothing (in cold conditions), safety shoes or boots, respirators etc
- Hearing protection and respiratory protective are not covered by these Regulations there are specific regulations that apply to them. these items need to be compatible with any other PPE provided.

Employees responsibilities under PPER

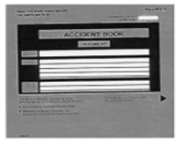
- You **must** wear the p.p.e. if it has been provided for you. You could be held personally liable if you had an accident which could have been prevented by you wearing your p.p.e.;
- You must care for it, store it and clean it as necessary;
- You must report any defects.

What records need to kept?

If you do not keep a copy of the online form your records must include :

- the date and method of reporting;
- the date, time and place of the event; personal details of those involved;
- and a brief description of the nature of the event or disease.

Record other accidents resulting in injuries where a worker is absent from work or is incapacitated for more than 3 days.



How do you report an accident

Accidents are reported to the **HSE** Health and Safety Executive

- This is most easily done by reporting online.
- Alternatively, for fatal accidents or accidents resulting in specified injuries to workers **only**, you can phone 0345 300 9923.
- NB: A report must be received within 10 days of the incident.

PPE in catering situations

The requirements are set out in the **PPE Regulations 1992**. In addition, the Food Safety (General Food Hygiene) Regulations 1995 require every person working in a food handling area to wear suitable, clean, and (where appropriate) protective clothing.

- non-slip shoes where there is a slipping risk;
- 100% cotton garments (for example, chefs' whites) where there is a risk that the material may aggravate burns in the event of a fire
- where caustic cleaning substances are used, long-sleeved vinyl gloves, goggles, a visor and possibly respiratory equipment.

Employers responsibilities under PPER

- Provide the PPE (free) if a risk assessment has shown it to be necessary
- It must be exclusively for you and fit you comfortably
- Provide somewhere to store it
- Provide facilities for it to be cleaned and maintained
- Replace it when necessary
- Provide training (if necessary) in how to wear/use it properly

What has to be reported to HSE

- Death
- Injuries resulting in over 7 days off work (7 day injuries)
- fractures (except fingers, thumbs and toes);
- amputation of limbs or digits
- loss or a reduction of sight;
- crush injuries
- serious burns (over 10%)
- unconsciousness caused by a head injury or asphyxia;
- any other injury needing admittance to hospital for more than 24 hours.Hypothermia

Penalties

- An employer who fails to comply with RIDDOR may be liable on conviction to:
- a fine not exceeding level five on the standard scale, currently £5,000 in a magistrate's court
- an unlimited fine in a Crown Court.
- Note: Accidents or incidents may have been caused by breaches of other health and safety legislation. The penalties for breaching other legislation may be heavier than those for failing to comply with RIDDOR.

Not all reportable incidents will be investigated by HSE
All incidents should be analysed and lessons learned and shared

PPE in catering situations

When selecting **PPE**

- choose good quality products which are CE marked in accordance with the PPE Regulations 2002
- choose equipment that suits the wearer – consider the size, fit and weight; you may need to consider the health of the wearer, eg if equipment is very heavy,
- let users help choose it, they will be more likely to use it.

Using and distributing PPE to your employees:

- instruct and train people how to use it;
- tell them why it is needed, when to use it and what its limitations are;
- never allow exemptions for jobs that 'only take a few minutes';
- if something changes check the PPE is still appropriate

GCSE Computer Science: Python Programming Commands

Interacting with the user:

Print a message

```
print('Hello, world!')
```

Print multiple values (of different types)

```
ndays = 365
print('There are', ndays, 'in a year')
```

Asking the user for a string

```
name = input('What is your name? ')
```

Asking the user for a whole number (an integer)

```
num = int(input('Enter a number: '))
```

Deciding between options:

Decide to run a block (or not)

```
x = 3
if x == 3:
  print('x is 3')
```

Decide between two blocks

```
mark = 80
if mark >= 50:
  print('pass')
else:
  print('fail')
```

Decide between many blocks

```
mark = 80
if mark >= 65:
  print('credit')
elif mark >= 50:
  print('pass')
else:
  print('fail')
```

- `elif` can be used without `else`
- `elif` can be used many times

Are two values equal?

```
x == 3
```

⚠ two equals signs, not one

Are two values not equal?

```
x != 3
```

Less than another?

```
x < 3
```

Greater than another?

```
x > 3
```

Less than or equal to?

```
x <= 3
```

Greater than or equal to?

```
x >= 3
```

The answer is a *Boolean*: `True` or `False`

Repeating (Loops/Iteration)

Repeat a block 10 times

```
for i in range(10):
  print(i)
```

Sum the numbers 0 to 9

```
total = 0
for i in range(10):
  total = total + i
print(total)
```

Repeat a block over a string

```
for c in 'Hello':
  print(c)
```

Keep printing on one line

```
for c in 'Hello':
  print(c, end=' ')
print('!')
```

Repeat a block over list (or string) indices

```
msg = 'I grok Python!'
for i in range(len(msg)):
  print(i, msg[i])
```

Count from 0 to 9

```
range(10)
```

⚠ range starts from 0 and goes up to, *but not including*, 10

Count from 1 to 10

```
range(1, 11)
```

Count from 10 down to 1

```
range(10, 0, -1)
```

Count 2 at a time to 10

```
range(0, 11, 2)
```

Count down 2 at a time

```
range(10, 0, -2)
```

String manipulation:

Compare two strings

```
msg = 'hello'
if msg == 'hello':
  print('howdy')
```

Less than another string?

```
if msg < 'n':
  print('a-m')
else:
  print('n-z')
```

⚠ strings are compared character at a time (*lexicographic order*)

Is a character in a string?

```
'e' in msg
```

Is a string in another string?

```
'ell' in msg
```

Convert to uppercase

```
msg.upper()
```

also `lower` and `title`

Count a character in a string

```
msg.count('l')
```

Replace a character or string

```
msg.replace('l','X')
```

Delete a character or string

```
msg.replace('l','')
```

Is the string all lowercase?

```
msg.islower()
```

also `isupper` and `istitle`

Variables:

Creating a variable

```
celsius = 25
```

Using a variable

```
celsius*9/5 + 32
```

Whole numbers (integers):

Addition and subtraction

```
365 + 1 - 2
```

Multiplication and divisio

```
25*9/5 + 32
```

Powers (*2 to the power of*

```
2**8
```

Convert integer to string

```
str(365)
```

Text (strings):

Single quoted

```
'perfect'
```

Double quoted

```
"credit"
```

Multi-line

```
'''Hello,
World!'''
```

Add (*concatenate*) strings

```
'Hello' + 'World'
```

GCSE Computer Science

Paper 2: Programming with Python

Keyword	Definition	Keyword	Definition
Python	A high level programming language that is easy to understand for humans as it contains words.	**Programming Constructs**	Three ways to write and build a program: **Sequence, Selection, Iteration**

Selection (Uses IF, ELIF, ELSE)	Used to make decision in programs.
	
	`Age=input("your age")`
	`If myage> 17:`
	`  print("old enough to drive")`
	`Elif myage == 17:`
	`  print("one year!...")`
	`else:`
	`  print("too young")`
		Iteration (Uses FOR or WHILE)	Repeating a program more than once.
			
			For loop (repeat a set number of times)
			Repeat code a set number of times
			`for num in range (5):`
			`  print(num)`
			
			While loop (repeat until the condition is met)
			`while answer != "quit":`
			`  print(answer)`

Data types	Data is stored as a type.
	• **Integer** (whole number)
	• **Real/float** (decimal)
	• **Character** (one letter)
	• **String** (text)
	• **Boolean** (True or False)
	• **Casting** (convert data type)
		Comments	Used by programmers to leave notes about the purpose of each section of code.
			
			`# Ask user a question`
			`Question=input("How are you?")`

Arithmetic Operators	• **+ / - *** • **%** Modulus (finds the remainder when two numbers are divided) • ****** Exponent (finds a number to the power of another)	**Comparison operators**	• **==** equal to • **!=** not equal to • **>** greater than • **>=** greater than or equal to • **<** less than • **<=** less than or equal to

Variable	A value stored in memory that can be changed while the program is running. It is stored as a data type.	**Input and Output**	`print("Hello World")`
			
			`Myage=input("Enter age")`
			`print("Your age:,", Myage)`

Validation	Check if the data input is sensible **Check digit**: The last digit is checked to see if all others are correct. **Format check**: checking format e.g. a date is dd/m/yyyy **Length check**: amount of characters. **Presence check**: data is entered. **Range check**: numbers fit into a specified range.	**Errors**	• **Syntax error** (error in the rules of the language e.g. missing comma) • **Logic error** (Program runs but doesn't work as planned e.g. wrong operator)

Knowledge Organiser: Year 11 BTEC Dance




Unit title: Exploring the Performing Arts

Learning Aims:

A: Examine professional practitioners' performance work
B: Explore the interrelationships between constituent features of existing performance material

Key words

Choreography - the making of a dance. The dance

Choreographer - the creator of the dance

Motif - A series of dance actions put together to create a phrase

Improvisation - Making movements up on the spot

Repetition - to perform an action again

Transitions - links between dance phrases or sections

Stylistic feature - a characteristic technique that makes it stand out from other styles of Dance

Stimulus - something that inspires you to create a dance.

Visual stimuli - This can take the form of pictures, sculptures, objects, patterns, shapes.

Auditory - includes music which is the most usual accompaniment for dances. Often the choreographer begins with a desire to use a certain piece of music.

Kinesthetic - It is possible to make a dance about movement itself.

The Ingredients of Dance (RADS)

R

Relationships
WITH WHOM you are dancing with

The interaction between a group of dancers

Examples of relationships:

UNISON: Dancing the same action at the same time

CANON: Dancing one after the other, creating an overlap or ripple effect

A

Actions

WHAT the body is doing

A movement

Six categories:
Gesture
Locomotion/travel
Elevation/Jump
Falling/Weight transference
Turning
Stillness/Balance

D

Dynamics
HOW the body is moving

The force and speed of a movement

Examples of different dynamics:
Fast
Slow
Sharp
Mechanical
Explosive

S

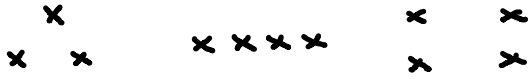
Space
WHERE the body is moving

The area around a dancer. This could be personal or general space

Examples of space:

LEVELS: The height of the action. E.g. High, medium and low

FORMATIONS: Where the dancers stand in a shape.



DIRECTIONS: Where the dancers goes. E.g. forwards, backwards, right, left, up, down and diagonally

PATHWAYS: The patterns created on the floor.

Tactile - The smooth feel of a piece of velvet may suggest smoothness as a movement quality, which could then be used as the basis for a dance. The feel and flow of a full skirt may provoke turning, swirling, free flow movements which could then become the main impetus for the choreographer.

Ideational - Here the movement is stimulated and formed with the aim of conveying an idea or to tell a story.

Contemporary dance - Tends to combine the strong but controlled legwork of ballet with modern that stresses on the torso. It also employs contract-release, floor work, fall and recovery, and improvisation characteristics of modern dance.

Purposes of performance – To educate. To inform. To entertain. To celebrated. To challenge viewpoints, to provoke, to raise awareness.

Examples of Dance Relationships

UNISON – at the same time

CANON – one after each other

MIRROR IMAGE – dancers use the other side of the body to create a symmetrical effect

COMPLEMENTARY – movements that are similar but not exactly the same as your partner

CONTRAST – movements that have different dynamics or different shapes

CONTACT – where dancers lift, lean on or support one another

QUESTION AND ANSWER – movement response to another dancers' movement

COUNTERPOINT – dancers perform individual movement sequences at the same time

REPETITION – perform the original motif again

ACTION AND REACTION – a direct physical response/reaction to other dancers

RETROGRADE – perform the original motif backwards

FRAGMENTATION – an original motif is broken into separate parts and put into a random order

ACCUMULATION - This is like follow the leader, where one dancer begins a series of movements and other dancers join to all end at the same moment.

FOREGROUND AND BACKGROUND - This device is where one or more dancers perform the main material with the other dancers behaving rather like backing singers performing in the background with simpler material or repeated actions.

Performance Skills

TECHNICAL SKILLS (to do with the body)	
POSTURE	The way the body is held when sitting, standing or lying.
FLEXIBILITY	The range of movement around the joints
CONTROL	Performing the movements with strength to hold positions and not fall out of them
CO-ORDINATION	Moving two different body parts at the same time in opposite directions
MOVEMENT MEMORY	Remembering the order of the movements
SPATIAL AWARENESS	Knowing where you are in the space and not colliding with anyone
STAMINA	Being able to keep high energy throughout without tiring
STRENGTH	The force your muscles exert to hold a position for a long time
BALANCE	Put weight on a specific part of the body without falling or wobbling

EXPRESSIVE SKILLS (how you perform it)	
FOCUS	Use of the eyes looking in a specific direction
PROJECTION	Extending the movement with energy
MUSICALITY	Being in time with the beat in the music and the other dancers
FLUIDITY	Smooth transitions from one movement to another to allow them to flow effectively together
SENSE OF STYLE	This is about the dancer trying to emulate the distinctive actions and qualities of the dance

COMPONENT 1 BTEC TECH PERFORMING ARTS (ACTING)

LEARNING AIM A

A write up consisting of the following criteria for **EACH** of the plays:

- Key characteristics
- Creative intentions and purpose (purpose of the play, target audience, themes, how themes are communicated in the play, context of play (political, social, historical)
- Synopsis of play
- Initial reactions after watching the play Production elements
- Link opinions and theories together with justifications as to why the director/writer/actor may have made particular choices

Roles and responsibilities of an actor/director/various designers **THEN** specific roles and responsibilities of an actor/director/designer that are tailor made for **EACH** of the plays

LEARNING AIM B

1) The processes, techniques and approaches used by practitioners

1 –Participate in workshop rehearsals in the style of each company
2 – Recreate short snippets from the play using these techniques
3 - Reflect on the roles and responsibilities of an actor and director from these workshops
4- Research the rehearsal time line of each play (**from page to stage**)

2) The interrelationships between constituent features

Interrelationships – the way in which two or more things are linked together
Constituent features - e.g. the script, performers involved, techniques used in performance and design (e.g. lighting, sound set) relationship between performer and audience etc

Play: Dead Dog in a Suitcase
Company: Kneehigh
Genre: Epic Theatre
Rehearsal techniques:
Games and fun
Physical warm up
Key Features: Multi-roling
Multi use set
Puppetry
Visible costume changes
Songs.
Stimulus: The Beggars Opera
A New York Urban Legend

Play: Everybody's Talking About Jamie
Company: The Crucible Theatre, Sheffield
Genre: Book Musical
Rehearsal techniques:
Dance warm-up
Vocal Warm-up
Repetition
Key Features:
Story is told through song
Choreography
Humors
Multi- use set
Mixture of minimal and realistic set
Stimulus: BBC3 Documentary about a teenage drag queen.

Play: Frankenstein
Physical Theatre/ Naturalism
Rehearsal techniques:
Intense physical warm up
Improvisation
Repetition
Key Features:
Highly Physical
Naturalistic acting
Minimalistic set
Stimulus:
Mary Shelley's Frankenstein

COMPONENT 3 BTEC TECH PERFORMING ARTS (ACTING)

Devise a performance in response to a stimulus provided by the exam board. Both parts of the task (written and performance) will be completed under supervision. There is a 12 week window for all parts to be completed. The component is marked out of 60.

Assessment objectives

AO1 - Understand how to respond to a brief. Discuss and practically **EXPLORE** the stimulus considering: target audience, performance space, planning and managing resources, running time and style of work.
Develop ideas considering: structure of work, style and genre used, skills required, creative intentions.
Work effectively as a member of the group making an individual contribution and responding to the contribution of others.

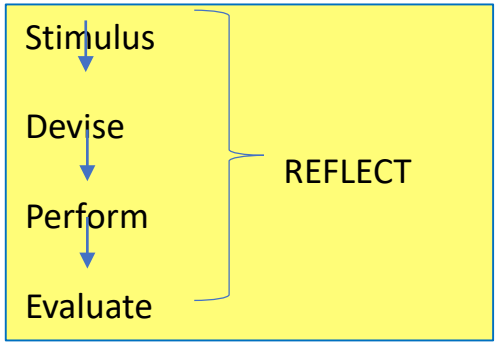
AO2 – Select and develop skills and techniques in response to a brief. Demonstrate **HOW** to select and develop skills and techniques that are needed for the performer and whole group and take part in the rehearsal process.

AO3 – Apply skills and techniques in a workshop performance in response to a brief
Contribute to a workshop performance using: vocal, physical and interpretative skills. (18 marks)
This performance will last

AO4 – **Evaluate the development process and outcome in response to a brief**
Evaluate the process and performance. Consider: the brief, stimulus and contribution from other group members. Reflect on: selection of skills used, individual strengths/areas for improvement, overall and individual contribution to the group, impact of the groups work.

Key vocabulary

Target audience – who you will perform to and why
Performance space – choosing where the performance will take place if not on the stage and why
Running time – length of the performance
Style of work – genre or practitioner who will influence your work
Vocal skills – ability to adapt voice to suit a character
Physical skills – movement, gestures, body language, facial expressions
Interpretative skills – presenting yourself to the audience and creating emotion
Commitment –how much effort you put in individually and as a group
Rehearsal – practicing the performance
Blocking – deciding where an actor should stand
Performance – Showing of the piece of work to the target audience
Evaluate – identify strengths and areas for improvement of both the rehearsal and performance
Characterisation - creating a character through your movement and dynamic choices



YR 11 Engineering *KNOWLEDGE ORGANISER – R105, R106, R107,R108*

In Design & Technology you are assessed on both the Practical and Theory work.

R105: Design briefs, design specifications and user requirements
Students explore the requirements of design briefs and specifications for the development of new products and how consumer requirements and market opportunities inform these briefs. They develop their understanding of the design cycle, the requirements for a design brief and design specification, and the importance of research data in developing a design solution. **EXAMINATION**

R106: Product analysis and research
Students find out how to perform effective product analysis through both research and practical experience of product assembly and disassembly procedures. This helps them develop skills in critical analysis and an understanding and appreciation of manufacturing processes, design features, materials used and the principles behind good design.

R107: Developing and presenting engineering designs
Students develop their knowledge and skills in communicating 2D and 3D design ideas, including effective annotation and labelling. They use detailed hand rendering as well as computer-based presentation techniques and computer-aided design (CAD) software

R108: 3D design realisation
Students produce a model prototype and test design ideas in a practical context. They evaluate the prototype against the product specification and consider potential improvements to features, function, materials, aesthetics and ergonomics in the final product

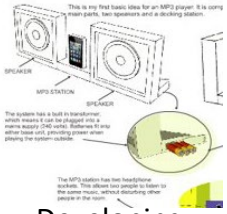
KEYWORDS AND KEY TERMS FOR THIS PROJECT

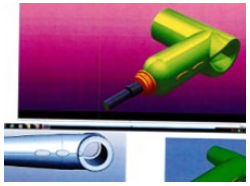
Design cycle

IDENTIFY - Brief , research, process planning
DESIGN – Specification, plan, manufacturing plan
OPTIMISE – Prototyping, error proofing
VALIDATE – Test, evaluate

Scenario for the Assignment

A new portable docking station is to be produced for use with MP3 devices or phones.


Developing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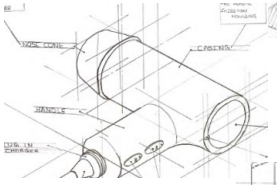
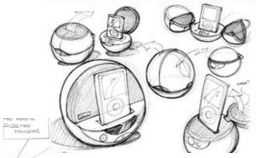
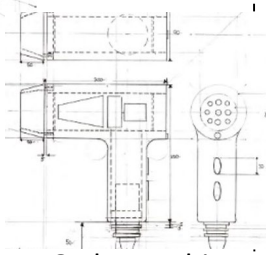

Isometric


Sketching


Orthographic

Coursework (R107)will involve;
Sketching, developing ideas using CAD, Isometric and Orthographic projections of design drawn correctly by hand. All work must be annotated, labelled or dimensions added.

The specification given by OCR for the product is;

- Where will the batteries be put/ accessed
- How will they be secured
- Where will the jack lead/plug be positioned
- 2 Speakers – size, shape, design, position
- On/off switch/button
- Power indicator (light)
- How will you control volume
- What materials will it be made from
- How will it be manufactured
- Can you access components

R107 Developing and presenting engineering designs

Learning Outcome 1 Be able to generate design proposals using a range of techniques

Learning Outcome 2 Know how to develop designs using engineering drawing techniques and annotation

Learning Outcome 3 Be able to use Computer Aided Design (CAD) software and techniques to produce and communicate design proposals

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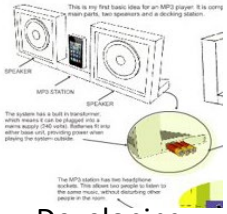
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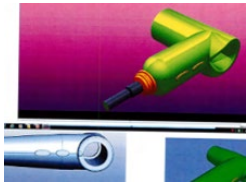
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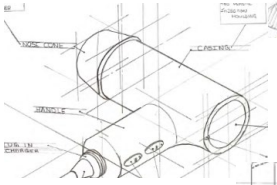
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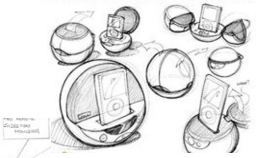
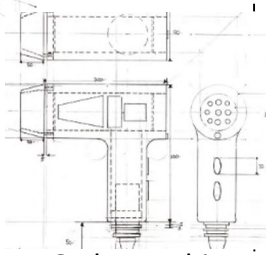

Sketching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- Where will the jack lead/plug be positioned
- 2 Speakers – size, shape, design, position
- On/off switch/button
- Power indicator (light)
- How will you control volume
- What materials will it be made from
- How will it be manufactured
- Can you access components

R107 Developing and presenting engineering designs

Learning Outcome 1 Be able to generate design proposals using a range of techniques

Learning Outcome 2 Know how to develop designs using engineering drawing techniques and annotation

Learning Outcome 3 Be able to use Computer Aided Design (CAD) software and techniques to produce and communicate design proposals

Know these words for listening and reading

Negatives
ne… pas – not
ne… rien – nothing
ne… plus - no longer
ne… jamais – never
ne… personne – nobody
ne… guère – hardly
ne… que – only
ne… ni…ni – neither/ either… nor/ or

Game changers
avec - with
sans - without
sauf – except
déjà – already

Contrasting connectives
mais - but
cependant - however
pourtant - however
par contre – on the other hand
bien que – although

Synonyms
rentrer/ retourner – to return
le travail/ le boulot – work
habiter/ vivre – to live
la nourriture/ l'alimentation – food
parler/ bavarder – to talk
laid/ moche – ugly
casse-pieds/ embêtant – annoying
stupide/ bête - stupid
amusant/ marrant/ drôle/ rigolo – funny

Question words

These are key to you understanding and being able to respond to questions in French.

Comment – How
Est-ce que – do/does (starts a question)
Lequel/laquelle – which
Où - where
Pourquoi - why
Quand - when
Qu'est-ce que - what
Qui - who

ALSO REFER TO THE FOLLOWING RESOURCES AS PART OF YOUR REVISION AND PREPARATION

1 *ROLE PLAY BOOKLET*
2 *PHOTO CARD BOOKLET*
3 *CONVERSATION MODEL ANSWERS*
4 *LISTENING BOOKLET & KERBOODLE*
5 *TOPIC BASED VOCABUALRY BOOKLET*

Useful structures when writing and speaking **French**

Après avoir + past particple *after having …*	Après avoir mangé, j'ai lu. *After having eaten, I read.*
Après être + past particple *after having …*	Après être rentré(e), j'ai mangé. *After having returned home, I ate.*
Avant de… *before…*	Avant de sortir, j'ai fait mes devoirs. *Before going out, I did my homework.*
Ayant… *having…*	Ayant faim, j'ai mangé une pizza. *Having hunger, I ate a pizza.*
Étant… *being…*	Étant très fatigué(e), je suis allé(e) au lit. *Being very tired, I went to bed.*
J'ai décidé de… *I decided to…*	J'ai décidé d'étudier l'anglais. *I've decided to study English*
J'ai toujours aimé… *I've always liked…*	J'ai toujours aimé la culture française. *I've always loved French culture.*
J'ai toujours rêvé de *I've always dreamed of…*	J'ai toujours rêvé de visiter le Japon. *I've always dreamed of visiting Japan.*
Je dois… *I must..*	Je dois faire mes devoirs. *I must do my homework.*
Je peux… *I can…*	Je peux sortir le weekend. *I can go out at the weekend.*
Je veux… *I want…*	Je veux aller à un concert. *I want to go to a concert.*
J'espère… *I hope…*	J'espère aller à l'université. *I hope to go to university.*
Je me passionne pour… I've a passion for…	Je me passionne pour la musique. *I've a passion for music.*
On m'a dit que… *I've been told that…*	On m'a dit que c'est un pays incroyable. *I've been told that it's an incredible country.*
moins..que… *less …than…*	Il est moins bavard que moi. *He is less chatty than me.*
plus…que… *more…than…*	L'histoire est plus facile que les sciences. *History is more easy than science.*
Pronouns (it, them etc.)	Je le trouve intéressant. *I find him/it interesting*
Si, present, future *If….*	Si j'ai de bonnes notes, je vais aller au lycée. *If I get good marks, I'm going to go to college.*
Si, imperfect, conditional *If…*	Si j'étais riche, j'irais en Australie. *If I were rich, I would go to Australia.*

Describing a photo in speaking or writing.

To start off:

Dans l'image …	In the image
Dans la photo…	In the photo
Il y a…	There is/ are
Je vois…	I see
Je peux voir…	You can see
La photo montre…	The photo shows…

Be specific!

Au premier plan…	In the foreground
Au deuxième plan…	In the background
À gauche…	to the left
À droite…	to the right
Près de..	close to
Devant..	In front of

Weather

Il y a du soleil	it's sunny
Il fait beau	it's nice weather
Il fait mauvais	It's bad weather
Il pleut	it's raining
Il y a du vent	it's windy

What's there?

un homme/une femme a man/woman
un garçon a boy
une fille a girl
un enfant a child
des personnes some people
beaucoup de personnes lots of people
des édifices some buildings
des arbres some trees

Describing people

Il/elle a l'air …	he/she seems…
Ils/elles ont l'air…	they seem…
Il/elle est…	he/she is…
Ils/elles sont…	they are…
content(e)(s)	happy
énervé(e)(s)	angry
fatigué(e)(s)	tired
triste(s)	sad

Opinion phrases

Je crois que… I think that
Je pense que… I think that…
J'imagine que… I imagine that…
Je suppose que… I suppose that…
Je dirais que… I would say that
Il me semble que.. It seems to me that..

Using verbs TOP TIP!

If you are unsure of the correct form of the verb, learn the following phrases then add on any infinitive you need.
Il est / Elle est **en train de…**
Ils sont/ Elles sont **en train de…**

e.g. ***Il est en train de manger***
He is (in the process of) eating.
Elles sont en train de jouer…
They are (in the process of) playing…

YEAR 11 TERM 2

Know your key verbs in different tenses.

Infinitive **Can be used after:** -opinions *e.g. j'aime…* -conditional *e.g. je voudrais…* -future *e.g. je vais…*	**Present tense** **Signposts:** Normalement D'habitude Quelquefois Le weekend Tous les lundis Après le collège	**Future tense** **Signposts:** Hier Hier soir Le weekend dernier La semaine dernière L'année dernière L' été dernier	**Perfect tense** **Signposts:** Demain Ce soir Le weekend prochain La semaine prochaine L'année prochaine Cet été
acheter *to buy*	J'achète	J'achèterai	J'ai acheté
aller *to go*	Je vais	J'irai	Je suis allé
avoir *to have*	J'ai	J'aurai	J'ai eu
boire *to drink*	Je bois	Je boirai	J'ai bu
écouter *to listen to*	J'écoute	J'écouterai	J'ai écouté
faire *to do, make*	Je fais	Je ferai	J'ai fait
jouer *to play*	Je joue	Je jouerai	J'ai joué
lire *to read*	Je lis	Je lirai	J'ai lu
manger *to eat*	Je mange	Je mangerai	J'ai mangé
porter *to wear*	Je porte	Je porterai	J'ai porté
regarder *to watch*	Je regarde	Je regarderai	J'ai regardé
rester *to stay*	Je reste	Je resterai	Je suis resté (e)
sortir *to go out*	Je sors	Je sortirai	Je suis sorti(e)
travailler *to work*	Je travaille	Je travaillerai	J'ai travaillé

Unit 1b Geography AQA

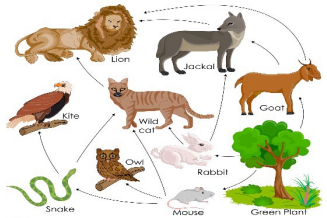
The Living World

What is an Ecosystem?

An ecosystem is a system in which organisms interact with each other and with their environment.

Ecosystem's Components

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 or time.
Fauna	**Animal life** of any particular region or time.



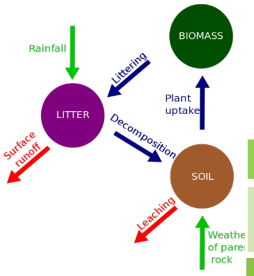
Food Web and Chains

Simple **food chains** are useful in explaining the basic principles behind ecosystems. They show only one species at a particular trophic level. **Food webs** however consists of a network of many food chains interconnected together.

Nutrient cycle

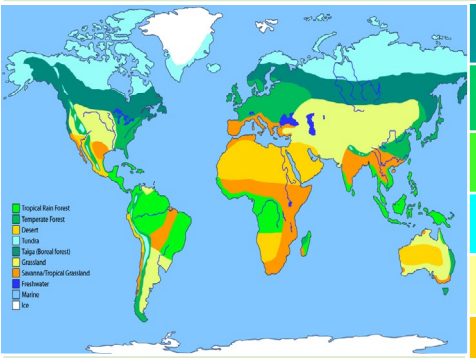
Plants take in **nutrients** to build into new organic matter. Nutrients are taken up when animals eat plants and then returned to the soil when animals die and the body is broken down by **decomposers**.

Litter	This is the **surface layer** of vegetation, which over time breaks down to become **humus**.
Biomass	The total **mass of living organisms** per unit area.



Biomes

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.



	Coniferous forest
	Deciduous forest
	Tropical rainforests
	Tundra
	Temperate grasslands
	Tropical grasslands
	Hot deserts.

The **most productive biomes** – which have the greatest biomass- grow in climates that are **hot and wet**.

Biome's climate and plants

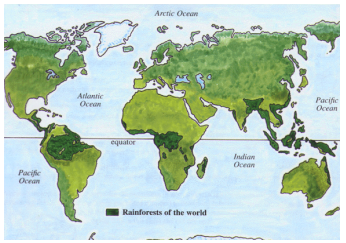
Biome	Location	Temperature	Rainfall	Flora	Fauna
Tropical rainforest	Centred along the Equator.	Hot all year (25-30°C)	Very high (over 200mm/year)	Tall trees forming a canopy; wide variety of species.	Greatest range of different animal species. Most live in canopy layer
Tropical grasslands	Between latitudes 5°- 30° north & south of Equator.	Warm all year (20-30°C)	Wet + dry season (500-1500mm/year)	Grasslands with widely spaced trees.	Large hoofed 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.
Temperate forest	Between latitudes 40°- 60° north of Equator.	Warm summers + mild winters (5-20°C)	Variable rainfall (500-1500m /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.

Tropical Rainforest Biome

Tropical rainforest cover about **2 per cent** of the Earth's surface yet they are home to **over half of the world's plant and animals**.

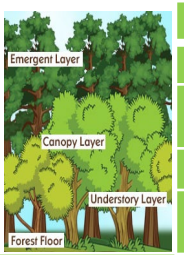
Interdependence in the rainforest

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-up effects** for the entire ecosystem.



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

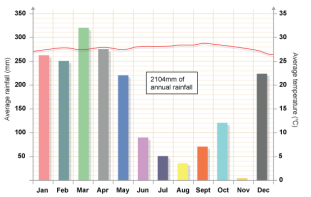
Emergent	Highest layer with trees reaching **50 metres.**
Canopy	Most life is found here as It receives **70% of the sunlight** and **80% of the life.**
U-Canopy	Consists of trees that reach **20 metres high.**
Shrub Layer	Lowest layer with **small trees** that have adapted to living in the **shade.**

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.



Pond ecosystem

Can you connect these living organisms together?

What does each need to exist that **is not** on the board?

Tropical Rainforests: Case Study Malaysia

Malaysia is a LIC country is south-east Asia. 67% of Malaysia is a tropical rainforest with 18% of it not being interfered with. However , Malaysia has the fastest rate of deforestation compared to anywhere in the world

Adaptations to the rainforest

Orangutans	Large arms to swing & support in the tree canopy.
Drip Tips	Allows heavy rain to **run off leaves easily**.
Lianas & Vines	**Climbs** trees to reach sunlight at canopy.

Rainforest inhabitants

Many tribes have developed sustainable ways of survival. The rainforest provides inhabitants with…

- **Food** through hunting and gathering.
- **Natural medicines** from forest plants.
- **Homes and boats** from forest wood.

Issues related to biodiversity

Why are there high rates of biodiversity?

- **Warm and wet climate** encourages a wide range of vegetation to grow.
- There is **rapid recycling of nutrients** to speed plant growth.
- Most of the rainforest is **untouched.**

Main issues with biodiversity decline

- **Keystone species** (a species that are important of other species) are extremely important in the rainforest ecosystem. Humans are threatening these vital components.
- **Decline in species** could cause tribes being unable to survive.
- **Plants** & **animals** may become **extinct.**
- Key medical **plants** may become **extinct.**

Impacts of deforestation

Economic development

+ Mining, farming and logging creates employment and tax income for government.
+ Products such as palm oil provide valuable income for countries.
- The loss of biodiversity will reduce tourism.

Soil erosion

- Once the land is **exposed by deforestation,** the soil is more **vulnerable to rain**.
- With **no roots to bind soil together**, soil can easily **wash away.**

Climate Change

-When rainforests are cut down, the climate becomes **drier.**
-Trees are **carbon 'sinks'**. With greater deforestation comes more greenhouse emissions in the atmosphere.
-When trees are burnt, they **release more carbon in the atmosphere**. This will enhance the **greenhouse effect.**

What are the causes of deforestation?

Logging

- Most widely reported cause of destructions to biodiversity.
- Timber is harvested to create **commercial items** such as furniture and paper.
- **Violent confrontation** between indigenous tribes and logging companies.

Agriculture

- Large scale **'slash and burn'** of land for ranches and palm oil.
- Increases **carbon emission**.
- **River saltation** and **soil erosion** increasing due to the large areas of **exposed land.**
- Increase in **palm oil** is making the **soil infertile**.

Mineral Extraction

- **Precious metals** are found in the rainforest.
- Areas **mined** can experience **soil and water contamination**.
- **Indigenous people** are becoming **displaced** from their land due to roads being built to transport products.

Tourism

- **Mass tourism** is resulting in the building of hotels in extremely **vulnerable areas**.
- Lead to **negative relationship** between the government and indigenous tribes
- Tourism has **exposed animals** to human **diseases.**

Energy Development

- The **high rainfall** creates ideal conditions for **hydro-electric power (HEP).**
- The **Bakun Dam** in Malaysia is key for creating energy in this developing country, however, both people and environment have suffered.

Road Building

- **Roads** are needed to bring supplies and **provide access** to new mining areas, settlements and energy projects.
- In Malaysia, logging companies use an **extensive network of roads** for heavy machinery and to transport wood.

Sustainability for the Rainforest

Uncontrolled and unchecked exploitation can cause irreversible damage such as loss of biodiversity, soil erosion and climate change.

Possible strategies include:

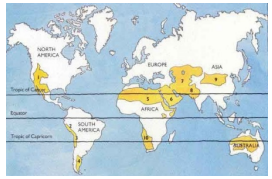
- **Agro-forestry** - Growing trees and crops at the same time. It prevents soil erosion and the crops benefit from the nutrients.
- **Selective logging** - Trees are only felled when they reach a particular height.
- **Education** - Ensuring those people understand the consequences of deforestation
- **Afforestation** - If trees are cut down, they are replaced.
- **Forest reserves** - Areas protected from exploitation.
- **Ecotourism** - tourism that promotes the environments & conservation

Hot Desert: Case Study Thar Desert – India/Pakistan

The Thar Desert is located on the border between India and Pakistan in Southern Asia. With India soon becoming the most populated country in the world in the next five years. With this, more people will plan to live in the desert.

Distribution of the world's hot deserts

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 worlds major deserts.



Major characteristics of hot deserts

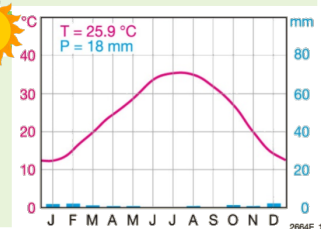
- **Aridity** – hot deserts are extremely dry, with annual rainfall below **250 mm**.
- **Heat** – hot deserts rise over **40 degrees.**
- **Landscapes** – Some places have dunes, but most are **rocky** with **thorny bushes.**

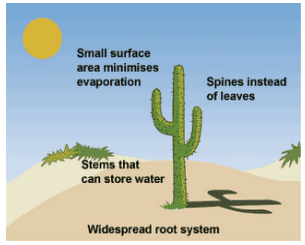
Hot Deserts inhabitants

- People often live in large **open tents** to **keep cool.**
- Food is often **cooked** slowly in the **warm sandy soil.**
- **Head scarves** are worn by men to provide **protection from the Sun.**

Climate of Hot Deserts

- **Very little rainfall** with less than **250 mm per year.**
- It might only **rain once every two to three years.**
- Temperate are **hot in the day** (45 °C) but are **cold at night** due to little cloud cover (5 °C).
- In winter, deserts can sometimes receive occasional frost and snow.





Adaptations to the desert

Cactus	• **Large roots** to absorb water soon after rainfall. • **Needles** instead of leaves to reduce surface area and therefore **transpiration**.
Camels	• Hump for storing **fat (NOT water).** • **Wide feet** for walking on sand. • **Long eyelashes** to protect from sand.

Desert Interdependence

Different parts of the hot desert ecosystem **are closely linked together and depend on each other**, especially in a such a harsh environment.

Opportunities and challenges in the Hot desert

Opportunities

- **There are valuable minerals for industries and construction.**
- **Energy resources such as coal and oil can be found in the Thar desert.**
- **Great opportunities for renewable energy such as solar power at Bhaleri.**
- **Thar desert has attracted tourists, especially during festivals.**

Challenges

- **The extreme heat makes it difficult to work outside for very long.**
- **High evaporation rates from irrigation canals and farmland.**
- **Water supplies are limited, creating problems for the increasing number of people moving into area.**
- **Access through the desert is tricky as roads are difficult to build and maintain.**

Causes of Desertification

Desertification means the turning of semi-arid areas (or drylands) into deserts.

Climate Change
Reduce rainfall and rising temperatures have meant less water for plants.

Fuel Wood
People rely on wood for fuel. This removal of trees causes the soil to be exposed.

Overgrazing
Too many animals mean plants are eaten faster than they can grow back. Causing soil erosion.

Over-Cultivation
If crops are grown in the same areas too often, nutrients in the soil will be used up causing soil erosion.

Population Growth
A growing population puts pressure on the land leading to more deforestation, overgrazing and over-cultivation.

Strategies to reduce Desertification

- **Water management** - growing crops that don't need much water.
- **Tree Planting** - trees can act as windbreakers to protect the soil from wind and soil erosion.
- **Soil Management** - leaving areas of land to rest and recover lost nutrients.
- **Technology** – using less expensive, sustainable materials for people to maintain. i.e. sand fences, terraces to stabilise soil and solar cookers to reduce deforestation.

Unit 2a Geography AQA

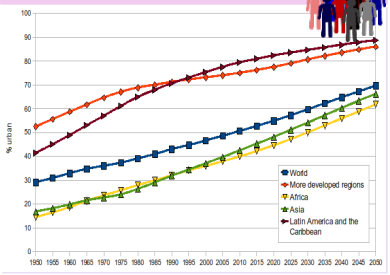
Urban Issues & Challenges

What is Urbanisation?

This is an increase in the amount of people living in urban areas such as towns or cities. In 2007, the UN announced that for the first time, more than 50 % of the world's population live in urban areas.

Where is Urbanisation happening?

Urbanisation is happening all over the word but in LICs and NEEs rates are much faster than HICs. This is mostly because of the rapid economic growth they are experiencing.



Causes of Urbanisation

Rural - urban migration (1) — **The movement of people from rural to urban areas.**

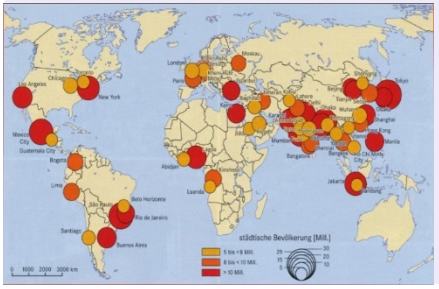
Push	Pull
• Natural disasters • War and Conflict • Mechanisation • Drought • Lack of employment	• More Jobs • Better education & healthcare • Increased quality of life. • Following family members.

Natural Increase (2) — **When the birth rate exceeds the death rate.**

Increase in birth rate (BR)	Lower death rate (DR)
• High percentage of population are child-bearing age which leads to high fertility rate. • Lack of contraception or education about family planning.	• Higher life expectancy due to better living conditions and diet. • Improved medical facilities helps lower infant mortality rate.

Types of Cities

Megacity — An urban area with over **10 million people** living there.



More than two thirds of current megacities are located in either NEEs (Brazil) and LICs (Nigeria). The amount of megacities are predicted to increase from 28 to 41 by 2030.

Sustainable Urban Living

Sustainable urban living means being able to live in cities in ways that do not pollute the environment and using resources in ways that ensure future generations also can use then.

Water Conservation

This is about reducing the amount of water used.

- Collecting rainwater for gardens and flushing toilets.
- Installing water meters and toilets that flush less water.
- Educating people on using less water.

Energy Conservation

Using less fossil fuels can reduce the rate of climate change.

- Promoting renewable energy sources.
- Making homes more energy efficient.
- Encouraging people to use energy.

Creating Green Space

Creating green spaces in urban areas can improve places for people who want to live there.

- Provide natural cooler areas for people to relax in.
- Encourages people to exercise.
- Reduces the risk of flooding from surface runoff.

Waste Recycling

More recycling means fewer resources are used. Less waste reduces the amount that eventually goes to landfill.

- Collection of household waste.
- More local recycling facilities.
- Greater awareness of the benefits in recycling.

Sustainable Urban Living Example: Freiburg

Background & Location	Sustainable Strategies
Freiburg is in west Germany. The city has a population of about 220,000. In 1970 it set the goal of focusing on social, economic and environmental sustainability.	• The city's waste water allows for rainwater to be retained. • The use of sustainable energy such as solar and wind is becoming more important. • 40% of the city is forested with many open spaces for recreation, clean air and reducing flood risk.

Integrated Transport System

This is the linking of different forms of public and private transport within a city and the surrounding area.

Brownfield Site

Brownfield sites is an area of land or premises that has been previously used, but has subsequently become vacant, derelict or contaminated.

Traffic Management

Urban areas are busy places with many people travelling by different modes of transport. This has caused urban areas to experience different traffic congestion that can lead to various problems.

Environmental problems

- Traffic increases air pollution which releases greenhouse gases that is leading to climate change.

Economic problems

- Congestion can make people late for work and business deliveries take longer. This can cause companies to loose money.

Social Problems

- There is a greater risk of accidents and congestion is a cause of frustration. Traffic can also lead to health issues for pedestrians.

Congestion Solutions

- Build ring roads and bypasses to keep through traffic out of city centres. 2+ car share lane Bristol
- Introduce park and ride schemes to reduce car use.
- Encourage car-sharing schemes in work places.
- Have public transport, cycle lanes & cycle hire schemes.
- Having congestion charges discourages drivers from entering the busy city centres.

Traffic Management Example: Bristol

In 2012 Bristol was the most congested city in the UK. Now the city aims to develop it's integrated transport system to encourage more people to use the public transport. The city has also invested in cycle routes and hiring schemes. And the new Metrobus (linking north and south Bristol?

Greenbelt Area

This is a zone of land surrounding a city where new building is strictly controlled to try to prevent cities growing too much and too fast.

Urban Regeneration

The investment in the revival of old, urban areas by either improving what is there or clearing it away and rebuilding.

Urban Change in a Major UK City: Bristol Case Study

Location and Background

Bristol is situated in the south-west of England with a population of 400,000. It was a major port and is now a centre for finance and engineering

City's Importance

- 8th most popular city for foreign visitors
- Has the largest concentration of silicon chop manufacturing companies outside California.
- Two big universities with good reputations – Bristol and UWE.
- Situated on the junction of the M$ and M5 with easy access to London, Wales, and Birmingham

Impacts of national and international migration on the character of the city

Migrants contribute taxes towards the economy of Bristol, supporting public services (schools, waste disposal, roads, sewage system).

Migrants mainly work in the low paid, unskilled jobs that Bristolians do not want to do eg restaurants and hotels.

Pressure on house prices means that the average rent in Bristol is £800 and the average house price is £514,000.
Due to migration Bristol is a multicultural city with many cultural festivals – such as St Paul's Carnival

How urban growth has created city's opportunities

Social: 2 large footballs teams, 1 rugby team and major cricket ground. Great Shopping opportunities – Cribbs Causeway and Cabot Circus. Bristol Hippodrome welcomes west end musicals regularly

Economic: 50 electronic and IT companies have been attracted to Bristol in recent years. Big employers such as Airbus, Rolls Royce and Lloyds TSB have their HQs in Bristol

Environmental: Bristol has 300 parks and 1/3 of the city is set aside for open space.
In 2015 Bristol was awarded European Green Capital. It was heralded for its commitment to clean transport and energy, and its role as a low-carbon hub of industry.

Urban change has created challenges

Social: Inner city Bristol still suffer from dereliction – Stoke's Croft and the Harbourside following the decline of industry.
Inequalities in health- high rates of obesity and cancer in Filwood due to lack of income and education

Economic: In parts of the city deprivation is high. Filwood is in the top 10% of most deprived areas in England.

Environmental: Bristol is the most congested city in England. Urban sprawl has lead to more congestion and loss of the countryside (Bradley Stoke)

Bristol Harbourside urban regeneration

Why was it needed: The old Harbour was once thriving and busy but the River Avon was too narrow and tidal for boats to fit down. SO the port moved to Avonmouth

Main features: Brownfield sites and derelict buildings pulled down, replaced with office blocks, apartments, museums, restaurants and pubs.
3000 jobs created from a £300 million investment. BUT
High cost of property – av price £600,000 and the area would suffer in a recession.

Urban Change in a Major NEE City: RIO DE JANEIRO Case Study

Location and Background

Rio is a coastal city situated in the South East region of Brazil within the continent of South America. It is the second most populated city in the country (6.5 million) after Sao Paulo.

City's Importance

- Has the second largest GDP in Brazil It is headquarters to many of Brazil's main companies, particularly with Oil and Gas.
- Sugar Loaf mountain is one of the seven wonders of the world.
- One of the most visited places in the Southern Hemisphere.
- Hosted the 2014 World Cup and 2016 Summer Olympics.

Migration to Rio De Janeiro

The city began when Portuguese settlers with slaves arrived in 1502. Since then, Rio has become home to various ethnic groups.

However, more recently, millions of people have migrated from rural areas that have suffered from drought, lack of services and unemployment to Rio. People do this to search for a better quality of life.

This expanding population has resulted in the rapid urbanisation of Rio de Janeiro.

City's Opportunities

Social: Standards of living are gradually improving. The Rio Carnival is an important cultural event for traditional dancing and music. 19 out of the 50 top schools are in Rio. Life expectancy is 78 in Rio whereas it is 73 in Brazil

Economic: Rio has one of the highest incomes per person in the country. The city has various types of employment including oil (Petrobras, retail and manufacturing.

Environmental: The hosting of the major sporting events encouraged more investment in sewage works and public transport systems.

City Challenges

Social: There is a severe shortage of housing, schools and healthcare centres available. Large scale social inequality, is creating tensions between the rich and poor.

Economic: The rise of informal jobs with low pay and no tax contributions. There is high unemployment in shanty towns called Favelas

Environmental: Shanty towns called Favelas are established around the city, typically on unfavourable land, such as hills. Congestion on mountain roads. Pollution in Guanabara Bay

Self-help schemes - Favela, Bairro Project

- 100% mortgages available for people to buy their homes
- Government has demolished houses and created new estates.
- Community policing has been established, police pacification (UPP) along with a tougher stance on gangs with military backed police.
- Cable car built for locals to access the city . People given one free ticket a day.

Unit 2c Geography AQA

The Challenge of Resource Management

Resource Challenges

Resources are things that humans require for life or to make our lives easier. Humans are becoming increasingly dependent on exploiting these resources, and as a result they are in high demand.

Significance of Water

Resources such as food, energy and water are what is needed for basic human development.

FOOD

Without enough nutritious food, people can become **malnourished**. This can make them ill . This can prevent people working or receiving education.

WATER

People need a supply of **clean and safe water** for drinking, cooking and washing. Water is also needed for food, clothes and other products.

ENERGY

A good supply of energy is needed for a basic standard of living. People need **light and heat** for cooking or to stay warm. It is also needed for industry.

Demand outstripping supply

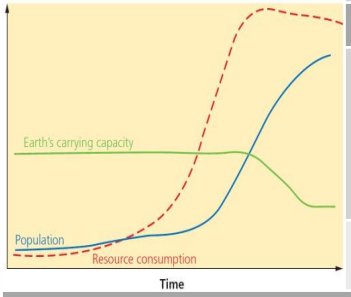
The demand for resources like food, water and energy is rising so quickly that supply cannot always keep up. Importantly, access to these resources vary dramatically in different locations

1. Population Growth

- Currently the global population **is 7.3 billion**.
- Global population has risen **exponentially** this century.
- Global population is expected to reach **9 billion by 2050**.
- With more people, the **demand** for food, water, energy, jobs and space **will increase**.

2. Economic Development

- As **LICs** and **NEEs** develop further, they require **more energy** for industry.
- **LICs** and **NEEs** want similar lifestyles to **HICs**, therefore they will need to **consume more resources**.
- Development means **more water is required** for food production as diets improve.



Resource Reliance Graph

Consumption – The act of using up resources or purchasing goods and produce.
Carry Capacity – A maximum number of species that can be supported.

Resource consumption exceeds Earth's ability to provide!

3. Changing Technology and Employment

- The demand for resources has driven **the need for new technology** to reach or gain more resources.
- More people in the **secondary and tertiary industry** has increased the **demand for resources** required for electronics and robotics.

Food in the UK

Growing Demand

- The UK imports about 40% of its food. This increases people's **carbon footprint**.
- There is growing demand for greater choice of **exotic foods** needed all year round.
- Foods from abroad are more affordable.
- Many food types are unsuitable to be grown in the UK.

Impact of Demand

Foods can travel long distances (food miles). Importing food adds to our carbon footprint.
+ Supports workers with an income
+ Supports families in LICs.
+ Taxes from farmers' incomes contribute to local services.
- Less land for locals to grow their own food.
- Farmers exposed to chemicals.

Agribusiness

Farming is being treated like a large industrial business. This is increasing food production.
+ Intensive faming maximises the amount of food produced.
+ Using machinery which increases the farms efficiency.
- Only employs a small number of workers.
- Chemicals used on farms damages the habitats and wildlife.

Sustainable Foods

Organic foods that have little impact on the environment and are healthier have been rising.
Local food sourcing is also rising in popularity.

- **Reduces emissions** by only eating food from the UK.
- **Buying locally sourced** food supports local shops and farms.
- A third of people **grow their own food**.

Energy in the UK

Growing Demand

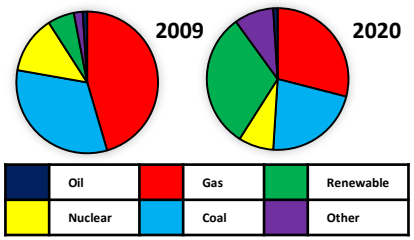
The UK **consumes less energy** than compared to the 1970s despite a smaller population. This is due to the **decline of industry**.

Energy Mix

The majority of UK's energy mix comes from **fossil fuels**. By 2020, the UK aims for 15% of its energy to come from **renewable sources**. These renewable sources do not contribute to **climate change**.

Changes in Energy Mix

- 75% of the UK's oil and gas has been used up.
- Coal consumption has declined.
- UK has become too dependent on imported energy.



Water in the UK

Growing Demand

The average water used per household has risen by 70%. This growing demand is predicted to increase by 5% by 2020.
This is due to:

- A growing UK population.
- Water-intensive appliances.
- Showers and baths taken.
- Industrial and leisure use.
- Watering greenhouses.

Deficit and Surplus

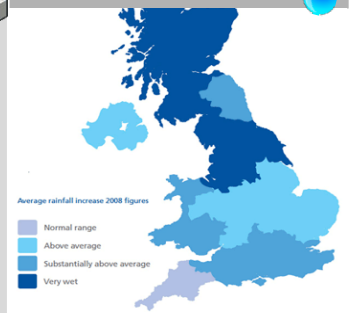
The north and west have a **water surplus** (more water than is required).
The south and east have a **water deficit** (more water needed than is actually available).
More than half of England is experiencing **water stress** (where demand exceeds supply).

Pollution and Quality

Cause and effects include:

- Chemical run-off from farmland can destroy habitats and kills animals.
- Oil from boats and ships poisons wildlife.
- Untreated waste from industries creates unsafe drinking water.
- Sewage containing bacteria spreads infectious diseases.

Water stress in the UK



Management

UK has **strict laws** that limits the amount of discharge from factories and farms.
Education campaigns to inform what can be disposed of safety.
Waste water treatment plants remove dangerous elements to then be used for safe drinking. Pollution traps catch and filter pollutants.

Water Transfer

Water transfer involves moving water through pipes from areas of surplus (Wales) to areas of deficit (London).
Opposition includes:

- Effects on **land and wildlife**.
- High maintenance **costs**.
- The **amount of energy** required to move water over long distances.

Energy in the UK (continued)

Significance of Renewables

+ The UK government is investing more into low carbon alternatives.
+ UK government aims to meet targets for reducing emissions.
+ Renewable sources include wind, solar and tidal energy.
- Although infinite, renewables are still expensive to install.
- Shale gas deposits may be exploited in the near future

Exploitation

Nuclear	New plants provide job opportunities. Problems with safety and possible harm to wildlife. Nuclear plants are expensive.
Wind Farm	Locals have low energy bills. Reduces carbon footprint. Construction cost is high. Visual impacts on landscape. Noise from wind turbines.

Option 1: FOOD

Food Security is when people at all times need to have physical & economic access to food to meet their dietary needs for an active & healthy life. This is the opposite to Food Insecurity which is when someone is unsure when they might next eat.

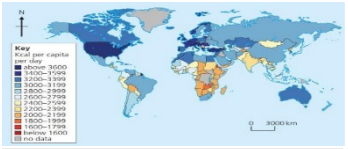
Human

- **Poverty** prevents people affording food and buying equipment.
- **Conflict** disrupts farming and prevents supplies.
- **Food waste** due to poor transport and storage.
- **Climate Change** is affecting rainfall patterns making food production difficult.

Physical

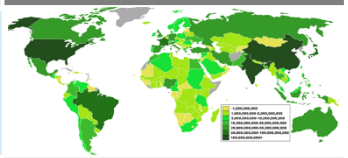
- The **quality of soil** is important to ensure crops have key nutrients.
- **Water supply** needs to be reliable to allow food to grow.
- **Pest, diseases and parasites** can destroy vast amounts of crops that are necessary to populations.
- **Extreme weather** events can damage crops (i.e. floods).

Daily Calorie Intake



This map shows how many **calories per person** that are consumed on average for each country.
This can indicate the global distribution of **available food** and **food inequality.**

Food Supply



This map shows the amount of **food produced** in different countries. Whilst Asia and **North America** have **high** production outputs, **Africa** and **Central America** have **low** production outputs.

Increasing Food Supply

Hydroponics - A method of growing plants without soil. Instead they use nutrient solution.
New Green Revolution - Aims to improve yields in a more sustainable way. Involves using both GM varieties and traditional and organic farming.
Biotechnology - Genetically modified (GM) crops changes the DNA of foods to enhance productivity and properties.
Irrigation - Artificially watering the land so crops can grow. Useful in dry areas to make crops more productive.

C.S. Makeuni programme, Kenya

Two villages in Makueni County involved in the project

The project:
- **Built sand dams to provide an improved water supply for each village**
- **Training programme for famers**
- **Water tank on the roof of the schools**

Did it work? Yes, but only 2 villages helped so small scale
- **Less time fetching water – more time for work**
- **More crops grown, better yields**
- **Appropriate technology used**

Sustainable Food Supply

This ensures that fertile soil, water and environmental resources are available for future generations.

Organic Farming - The banned use of chemicals and ensuring animals are raised naturally.
Permaculture - People growing their own food and changing eating habits. Fewer resources are required.
Urban Farming - Planting crops in urban areas. i.e. roundabouts.
Managed Fishing – Includes setting catch limits, banning trawling and promoting pole and line methods.

C.S. NEE- Indus Basin Irrigation System

Largest irrigation scheme in the world. Involves large and small dams. Thousands of channels provides water to supports Pakistan's rich farmlands.

Advantages
- **14 million ha has been irrigated**
- **Increased yield & range of foods (better diet)**
- **HEP dams built – renewable energy**

Disadvantages
- **Few take an unfair share of water**
- **Water is wasted and demand is rising due to population growth.**
- **High evaporation rates in the summer means water is lost**

Option 2: WATER

Water security is when people have good access to enough clean water to sustain well-being and good health. Water insecurity is when areas are without sufficient water supplies. Water Stress is when less than 1700m³ is available per person.

Human

- **Pollution caused** from human and industrial waste being dumped into peoples water sources.
- **Poverty prevents** low income families affording water.
- **Limited infrastructure** such as a lack of water pipes and sewers.
- **Over-abstraction** is when more water is taken than is replaced.

Physical

- **Climate** needs to provide enough rainfall to feed lakes and rivers. Droughts affect supply if water.
- **Geology** can affect accessibility to water. Permeable rock means sourcing water from difficult aquifers, whereas impermeable allows water to run-off into easily collected basins.

Impact of Water Insecurity

Food production

The less water available for irrigating crops the less food that will be produced. This could lead to starvation.

Industrial output

Manufacturing industries depend heavily on water. A severe lack of water can impact economic output.

Disease and Water Pollution

Inadequate sanitation systems pollutes drinking water causing diseases such as cholera and typhoid.

Water conflict

Water sources that cross national borders can create tensions and even war between countries.

Increasing Water Supply

Water diversion - Involves diverting water to be stored for longer periods. Often water is pumped underground to prevent evaporation.
Dams and Reservoirs - Dams control flow and storage of water. Water is released during times of water deficit.
Water transfer – includes schemes to move water from areas of surplus to areas of deficit.
Desalination – Involves the extraction of salt from sea water to produce fresh drinking water.

C.S. Lesotho Highland Water Project

Lesotho is a highland country dependent on South Africa. Lesotho has water surplus due to high rainfall.

Advantages
- **Provides 75% of Lesotho's GDP.**
- **Provides water to areas of drought in South Africa.**

Disadvantages
- **Dams displaced 30,000 people.**
- **Destruction to key ecosystems.**
- **40% lost through pipe leakages.**

Sustainable Water Supply

Ensures water supplies don't cause damage to the environment whilst also supporting the local economy.

Water conservation - Aims to reduce the amount of water wasted.
Groundwater Management - Involves the monitoring of extracting groundwater. Laws can be introduced.
Recycling and 'Grey' Water - Means taking water that has already been used and using it again rather than returning it to a river or the sea. This includes water taken from bathrooms and washing machines.

C.S. NEE - The Wakel River Basin

A project in India that aims to improve water use by encouraging greater use of rainwater harvesting techniques.

How does the project work?
- Provides 'taankas' that store water underground.
- Small dams called 'johed' interrupt water flow and encourages infiltration.
- Villages take turns to irrigate their fields so water is not overused.
- Maintained by farmers so it is entirely sustainable.
- Greater education for awareness.

Option 3: ENERGY

Energy security means having a reliable, uninterrupted and affordable supply of energy available. Energy insecurity can be experienced by countries with both a high and low energy consumption. Technology is increasing energy consumption.

Physical

- **Geology** determines the availability of fossil fuels.
- **Climate variations** will affect the potential use of renewable energy.
- **Natural disasters** can damage energy infrastructure.

Economic

- **Cost** of extracting fossil fuels is becoming costly and difficult.
- **Price of fossil fuels** are volatile to potential political changes.
- **Infrastructure** for energy is costly, especially for LICs.

Technology

- **New technology** is making once difficult energy sources now reachable/exploitable.

Political

- **Conflict** and turmoil in energy rich countries can affect exports.
- **Stricter regulations** over Nuclear.

Impact of Energy Insecurity

Sensitive environments

Exploration of energy resources threatens to harm sensitive areas such as the oil drilling in Alaska, USA.

Food production

Food production depends on the energy needed to power machinery and transport goods to different markets.

Energy conflict

Shortages of energy resources can lead to tensions and violence. Conflict can be caused by fear of energy insecurity.

Industry

Countries can suffer from shortfalls in energy leading to a decline in manufacturing and services.

Increasing Energy Supply

Non-renewables
Fossil Fuels - Conventional power stations can be made more efficient with carbon capture overcoming the environmental impacts.
Nuclear - Once a nuclear plant is built it can provide a cheap and long-term dependable source of energy.
Renewables
Wind, Solar, Biomass - These are examples of environmentally friendly renewable sources that can't run out but cost a lot to install.

C.S. UK Fracking

Fracking is used to extract natural gas trapped in underground shale rock. It is a method considered by the UK.

Advantages
- **Estimated to create 64,000 jobs.**
- **UK has large shale gas reserves.**
- **Is far cheaper than natural gas.**

Disadvantages
- **May cause groundwater pollution**
- **Is a non-renewable resource.**
- **May trigger minor earthquakes.**

Sustainable Energy Supply

This involves balancing supply & demand. It also includes reducing waste & supporting the environment.

Home design - Building homes to conserve energy. i.e. roof insulation.
Reduce demand - Changing attitudes towards energy used to save energy.
Efficient technology - Making cars more efficient by improving engine design and weight. i.e. Hybrid engines.
Transport - Using public buses & bikes.

C.S. NEE - Chambamontera

Chambamontera is an isolated community in the Andes of Peru. It introduced a micro-hydro to exploit water power as an energy source.

Benefits to the community
- **Provides renewable energy.**
- **Low maintenance & running costs**
- **Has little environmental impacts.**
- **Using local labour and materials.**
- **Businesses are developing.**
- **Less wood is needed to be burnt.**

Unit 2b Geography

The Changing Economic World

What is development?

Development is the progress of a country in terms of economic growth, well-being and human welfare

Economic	This is progress in economic growth through levels of industrialisation and use of technology.
Social	This is an improvement in people's standard of living. For example, clean water and electricity.
Environmental	This involves advances in the management and protection of the environment.

Measuring development

These are used to compare and understand a country's level of development.

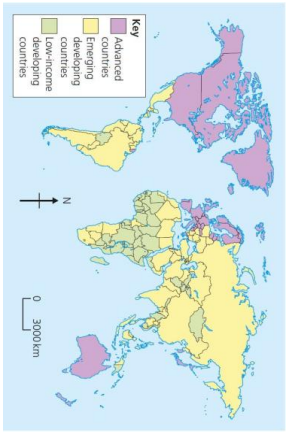
Economic indictors examples	
Employment type	The proportion of the population working in primary, secondary, tertiary and quaternary industries.
Gross Domestic Product per capita	This is the total value of goods and services produced in a country per person, per year.
Gross National Income per capita	An average of gross national income per person, per year in US dollars.

Social indicators examples	
Infant mortality	The number of children who die before reaching 1 per 1000 babies born.
Literacy rate	The percentage of population over the age of 15 who can read and write.
Life expectancy	The average lifespan of someone born in that country.

Mixed indicators	
Human Development Index (HDI)	A number that uses life expectancy, education level and income per person.

Variations in the level of development

LICs	Poorest countries in the world. GNI per capita is low and most citizens have a low standard of living.
NEEs	These countries are getting richer as their economy is progressing from the primary industry to the secondary industry. Greater exports leads to better wages.
HICs	These countries are wealthy with a high GNI per capita and standards of living. These countries can spend money on services.



Causes of uneven development

Development is globally uneven with most HICs located in Europe, North America and Oceania. Most NEEs are in Asia and South America, whilst most LICs are in Africa. Remember, development can also vary within countries too.

Physical factors affecting uneven development

Natural Resources

- **Fuel sources** such as oil.
- Minerals and metals for fuel.
- **Availability for timber**.
- Access to **safe water**.

Natural Hazards

- Risk of tectonic hazards.
- Benefits from **volcanic material** and **floodwater.**
- Frequent hazards **undermines redevelopment**.

Climate

- **Reliability** of rainfall to benefit farming.
- **Extreme climates** limit industry and affects health.
- Climate can **attract tourists.**

Location/Terrain

- **Landlocked countries** may find trade difficulties.
- Mountainous terrain makes farming difficult.
- **Scenery attracts tourists**.

Human factors affecting uneven development

Aid

- Aid can help some countries develop **key projects** for infrastructure faster.
- **Aid** can improve services such as schools, hospitals and roads.
- Too much **reliance on aid** might stop other trade links becoming established.

Trade

- Countries that export more than they import have a **trade surplus**. This can improve the national economy.
- Having **good trade relationships**.
- **Trading goods** and services is more profitable than raw materials.

Education

- Education creates a **skilled workforce** meaning more goods and services are produced.
- **Educated people earn more money**, meaning they also pay more taxes. This money can help develop the country in the future.

Health

- **Lack of clean water** and poor healthcare means a large number of people suffer from **diseases**.
- People who are ill cannot work so there is little contribution to the economy.
- More money on healthcare means less spent on development.

Politics

- **Corruption** in local and national governments.
- The **stability of the government** can effect the country's ability to trade.
- Ability of the country to **invest into services and infrastructure**.

History

- **Colonialism** has helped Europe develop, but slowed down development in many other countries.
- Countries that went through industrialisation a while ago, have now develop further.

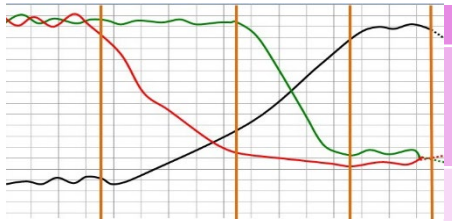
Consequences of Uneven Development

Levels of development are different in different countries. This uneven development has consequences for countries, especially in wealth, health and migration.

Wealth	People in more developed countries have higher incomes than less developed countries.
Health	Better healthcare means that people in more developed countries live longer than those in less developed countries.
Migration	If nearby countries have higher levels of development or are secure, people will move to seek better opportunities and standard of living.

The Demographic Transition Model

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



STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5
High DR High BR Steady	*BR Low Declining DR Very High*	*Rapidly falling DR Low BR High*	*Low DR Low BR Zero*	*Slowly Falling DR Low BR Negative*
e.g. Tribes	e.g. Kenya	e.g. India	e.g. UK	e.g. Japan

Reducing the Global Development Gap

Microfinance Loans
This involves people in LICs receiving smalls loans from traditional banks.
+ Loans enable people to begin their own businesses
- Its not clear they can reduce poverty at a large scale.

Foreign-direct investment
This is when one country buys property or infrastructure in another country.
+ Leads to better access to finance, technology & expertise.
- Investment can come with strings attached that country's will need to comply with.

Aid
This is given by one country to another as money or resources.
+ Improve literacy rates, building dams, improving agriculture.
- Can be wasted by corrupt governments or they can become too reliant on aid.

Debt Relief
This is when a country's debt is cancelled or interest rates are lowered.
+ Means more money can be spent on development.
- Locals might not always get a say. Some aid can be tied under condition from donor country.

Fair trade
This is a movement where farm get a fair price for the goods produced.
+ Paid fairly so they can develop schools & health centres.
-Only a tiny proportion of the extra money reaches producers.

Technology
Includes tools, machines and affordable equipment that improve quality of life.
+ Renewable energy is less expensive and polluting.
- Requires initial investment and skills in operating technology

EG: Tourism - Reducing the Development Gap In The Gambia

Location and Background

The Gambia is a LIC African nation. Location makes The Gambia an attractive place for visitors to explore the tropical blue seas, mangrove forests and historic slavery locations

Yes it does reduce the development gap

-In 2015, **2.12 million** visited.
-Tourism **contributes 27% of GDP** will increase to **38% by 2025**.
-**130,000 jobs** rely on tourism.
-**Global recession** 2008 caused a **decline in tourism**. Now tourism is beginning to recover.

Multiplier effect

Jobs from tourism have meant **more money** has been spent in shops and other businesses.
-Government has invested in **infrastructure** to support tourism.
-**New sewage treatment** plants have reduced pollution.

No it doesn't reduce the development gap

Holiday companies like The Gambia Experience keep a large % of the profits. This is called 'leakage' of profits.

The Gambia is still poor with 74% of the rural population living below the poverty line.

In **2014**, the **Ebola** virus affected some countries in West Africa meant that people stopped visiting The Gambia.

In 2016 the Gambian President) refused to step down after he was defeated This lead to rioting and 25,000 tourists were sent back to their home

Case Study: Economic Development in Nigeria

Location & Importance

Nigeria is a NEE in West Africa. Nigeria is just north of the Equator and experiences a range of environments.
Nigeria is the most populous and economically powerful country in Africa. Economic growth has been base on oil exports.

Influences upon Nigeria's development

Political

Suffered **instability** with a **civil war** between 1967-1970.
From 1999, the country became **stable** with **free and fair elections**.
Stability has **encouraged global investment** from China and USA.

Social

Nigeria is a **multi-cultural, multi-faith society**.
Although mostly a strength, diversity has caused **regional conflicts** from groups such as the Boko Haram terrorists.

Cultural

Nigeria's **diversity** has created rich and varied **artistic culture**.
The country has **a rich music, literacy and film industry** (i.e. Nollywood).
A successful national football side.

Industrial Structures

Once mainly based on agriculture, **50% of its economy is now manufacturing and services**.
A thriving manufacturing industry is **increasing foreign investment** and **employment opportunities**.

The role of TNCs

TNCs such as **Shell** have played an important role in its economy.
+ Investment has **increased employment and income**.
- **Profits move to HICs**.
- Many **oil spills** have **damaged fragile environments**.

Changing Relationships

Nigeria plays a leading role with the **African Union** and **UN**.
Growing links with **China** with huge **investment in infrastructure**.
Main import includes petrol from the EU, cars from Brazil and phones from China.

Environmental Impacts

The 2008/09 **oil spills devastated swamps** and its **ecosystems.**
Industry has caused **toxic chemicals** to be discharged in open sewers - **risking human health**.
80% of forest have been **cut down**.
This also increases **CO^2 emissions**.

Aid & Debt relief

+ Receives **$5billion** per year in aid.
+ **Aid groups** (ActionAid) have improved health centres, provided anti-mosquito nets and helped to protect people against AIDS/HIV.
- Some aid fails to reach the people who need it due to **corruption**.

Effects of Economic Development

Life expectancy has increased from 46 to 53 years. 64% have access to safe water. Typical schooling years has increased from 7 to 9.

Case Study: Economic Change in the UK

UK in the Wider World

The UK has one of the largest economies in the world.
The UK has huge political, economic and cultural influences.
The UK is highly regarded for its fairness and tolerance.
The UK has global transport links i.e. Heathrow and the Eurostar.

Causes of Economic Change

De-industrialisation and the **decline** of the UK's industrial base.
Globalisation has meant many industries have moved overseas, where labour costs are lower.
Government investing in supporting vital businesses.

Towards Post-Industrial

The **quaternary industry** has **increased**, whilst **secondary** has **decreased**.
Numbers in **primary** and **tertiary industry** has **stayed the steady**.
Big increase in **professional** and **technical jobs**.

Developments of Science Parks

Science Parks are groups of scientific and technical knowledge based businesses on a single site.
- Access to **transport routes**.
- **Highly educated workers**.
- Staff benefit from **attractive working conditions**.
- Attracts **clusters** of related **high-tech businesses**.

EG: Bristol and Bath Science Park

Sustainability
200 m² of Solar panels installed
2,200m² of hedgerows have been retained
The Metrobus stops outside the Science park
The site only offers highly skilled jobs which are not suitable for the entire population of Bristol

Change to a Rural Landscape

Social

Rising house prices have caused tensions in villages.
Villages are **unpopulated** during the day causing **loss of identity**.
Resentment towards **poor migrant communities**.

Economic

Lack of affordable housing for local first time buyers.
Sales of farmland **has increased rural unemployment**.
Influx of poor migrants puts **pressures** on local services.

Improvements to Transport

A **£15 billion 'Road Improvement Strategy'**. This will involve 10 new roads and 1,600 extra lanes.
£50 billion HS2 railway to improve connections between key UK cities.
£18 billion on Heathrow's controversial **third runway**.
UK has many **large ports** for importing and exporting goods.

UK North/South Divide

- Wages are **lower** in the North.
- Health is **better** in the South.
- Education is **worse** in the North.
+ The government is aiming to support a **Northern Powerhouse** project to resolve regional differences.
+ More **devolving of powers** to disadvantaged regions.

Unit 1c - Coasts

Geography

Physical Landscapes in the UK

AQA

Example – Coastal Management Study – Swanage

Reason for management

Swanage suffers from longshore due to the angle of the prevailing wind. The town is an important tourist town and needs a beach to keep the tourists visiting. In addition to this an eroded beach would mean that Swanage would be at risk of hug coastal erosion of the town and property behind. The land has high economic value and is important to protect.

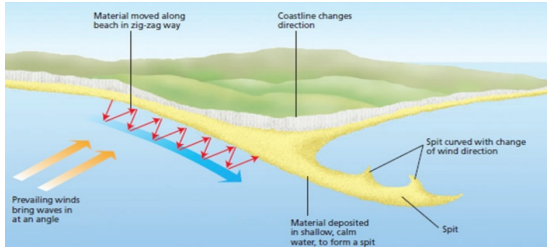
The management strategy

Groynes and a sea wall were built in the 1920s
In the 1980s rock armour was put at the base of the cliff and groundwater was drained from the cliff
In 2005, 18 timber groynes were put in replacing the old ones the beach was also replenished

Effects and conflicts

Effects – Swanage's sea wall is expected to collapse in the next three years, exposing 84 houses, 15 hotels and Shore Road to the sea.
The replenishment of the beach will have to be done every 20 years and will incur huge costs. Most of these costs will be paid for by the taxpayer.
Conflicts - £2.2 million was the cost of the recent coastal management. Locals argue that this is a waste of money because holding a beach back (by using groynes) will affect the coastline further down by holding back sediment.
Some locals were against the construction of the groynes due to their visual appearance and the danger associate with them,

Example: Spurn Head, Holderness Coast.



1) Swash moves up the beach at the angle of the prevailing wind.
2) Backwash moves down the beach at 90° to coastline, due to gravity.
3) Zigzag movement (Longshore Drift) transports material along beach.
4) Deposition causes beach to extend, until reaching a river estuary.
5) Change in prevailing wind direction forms a hook.
6) Sheltered area behind spit encourages deposition, salt marsh forms.

Types of Erosion

The break down and transport of rocks – smooth, round and sorted.

Attrition	Rocks that bash together to become smooth/smaller.
Solution	A chemical reaction that dissolves rocks.
Abrasion	Rocks hurled at the base of a cliff to break pieces apart or scraped against the banks and bed of a river.
Hydraulic Action	Water enters cracks in the cliff, or river bank, air compresses, causing the crack to expand.

Types of Weathering

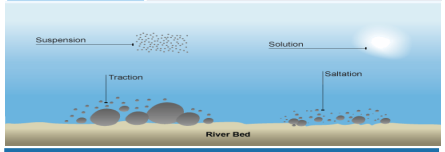
Weathering is the breakdown of rocks where they are.

Biological	Breakdown of rock by plants and animals e.g. roots pushing rocks apart.
Mechanical	Breakdown of rock without changing its chemical composition e.g. freeze thaw

Types of Transportation

A natural process by which eroded material is carried/transported.

Solution	Minerals dissolve in water and are carried along.
Suspension	Sediment is carried along in the flow of the water.
Saltation	Pebbles that bounce along the sea/river bed.
Traction	Boulders that roll along a river/sea bed by the force of the flowing water.

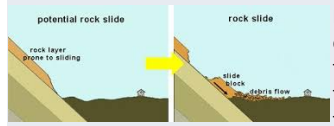


What is Deposition?

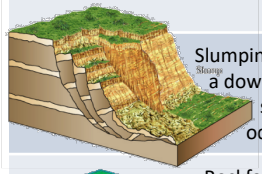
When the sea or river loses energy, it drops the sand, rock particles and pebbles it has been carrying. This is called deposition. Heaviest material is deposited first.

Mass Movement

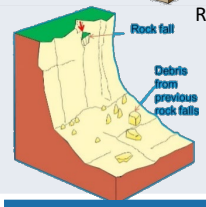
A large movement of soil and rock debris that moves down slopes in response to the pull of gravity in a vertical direction.



Rock slides occur when there is a failure along the bedding plane.

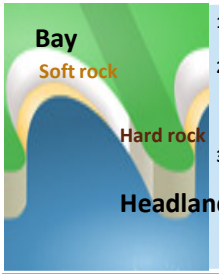


Slumping occurs when there is a downward rotation of sections of cliff. Often occur after heavy rain.



Rockfall is the rapid free fall of rock from a steep cliff face because of gravity.

Formation of Bays and Headlands



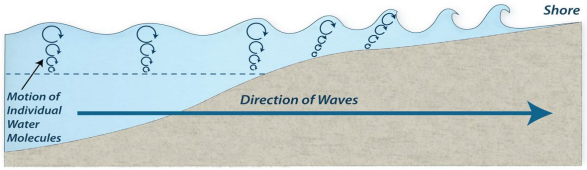
1) Waves attack the coastline.
2) Softer rock is eroded by the sea quicker forming a bay, calm area cases deposition.
3) More resistant rock is left jutting out into the sea. This is a headland and is now more vulnerable to erosion.

How do waves form?

Waves are created by wind blowing over the surface of the sea. As the wind blows over the sea, friction is created - producing a swell in the water.

Why do waves break?

1	Waves start out at sea.
2	As waves approaches the shore, friction slows the base.
3	This causes the orbit to become elliptical.
4	Until the top of the wave breaks over.



Mechanical Weathering Example: Freeze-thaw weathering

Stage One
Water seeps into cracks and fractures in the rock.

Stage Two
When the water freezes, it expands about 9%. This wedges apart the rock.

Stage Three
With repeated freeze-thaw cycles, the rock breaks off.

Size of waves

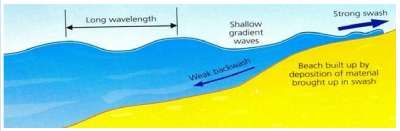
Affected by:

- **Fetch how far the wave has travelled**
- **Strength of the wind.**
- **How long the wind has been blowing for.**

Types of Waves

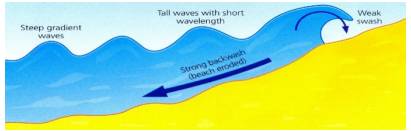
Constructive Waves

This wave has a **swash that is stronger** than the backwash. This therefore builds up the coast.

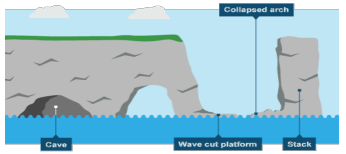


Destructive Waves

This wave has a **backwash that is stronger** than the swash. This therefore erodes the coast.



Formation of Coastal Stack



Example: Old Harry Rocks, Dorset

1) Hydraulic action widens cracks in the cliff face over time.
2) Abrasion forms a wave cut notch between high tide and low tide.
3) Further abrasion widens the wave cut notch to from a cave.
4) Caves from both sides of the headland break through to form an arch.
5) Weather above/erosion below –arch collapses leaving stack.
6) Further weathering and erosion eaves a stump.

Coastal Defences

Hard Engineering Defences

Groynes	**Wood barriers prevent longshore drift, so the beach can build up.**	✓ **Beach still accessible.** ✗ **No deposition further down coast = erodes faster.**
Sea Walls	**Concrete walls break up the energy of the wave . Has a lip to stop waves going over.**	✓ **Long life span** ✓ **Protects from flooding** ✗ **Curved shape encourages erosion of beach deposits.**
Gabions or Rip Rap	**Cages of rocks/boulders absorb the waves energy, protecting the cliff behind.**	✓ **Cheap** ✓ **Local material can be used to look less strange.** ✗ **Will need replacing.**

Soft Engineering Defences

Beach Nourishment	**Beaches built up with sand, so waves have to travel further before eroding cliffs.**	✓ **Cheap** ✓ **Beach for tourists.** ✗ **Storms = need replacing.** ✗ **Offshore dredging damages seabed.**
Managed Retreat	**Low value areas of the coast are left to flood & erode.**	✓ **Reduce flood risk** ✓ **Creates wildlife habitats.** ✗ **Compensation for land.**

Example – River Management Study – Somerset Levels floods

Why was the scheme needed?

The rivers were already swollen with water
30cm of rain fell in 24 hours
The ground was saturated from pervious rain events
The land has hills surrounding it - The Mendips in the north east and the Quantocks in the south west
Burrowbridge is at the confluence of the River Tone and Parett

Management Strategy - 20124

5 miles of the River Tone and Parrett were dredged. A total of 130,000 cubic metres of silt was removed.
A 300m long semi-circular embankment was built on private land around the village of Thorney.
Drayton Road , the main road into Muchelney was raised by just over a metre
A barrage is proposed to be built upstream of Bridgwater

Social, Economic and Environmental Issues

Social – Building an embankment and raising the road means that life can carry on when there are future floods – people can get to work, school.
Economic – The cost of a barrage is estimated at £32 million.
Environmental – Dredging speeds up the flow of the river and increase erosion downstream.
Building a road higher up could lead to erosion and possible collapse

Middle Course of a River

Here the gradient get gentler, so the water has less energy and moves more slowly. The river will begin to erode laterally making the river wider.

Water Cycle Key Terms

Precipitation	Moisture falling from clouds as rain, snow or hail.
Interception	Vegetation prevents water reaching the ground.
Surface Runoff	Water flowing over the surface of the land into rivers
Infiltration	Water absorbed into the soil from the ground.
Transpiration	Water lost through leaves of plants.

Physical and Human Causes of Flooding.

***Physical:* Prolong & heavy rainfall**
Long periods of rain causes soil to become saturated leading runoff.

***Physical:* Geology**
Impermeable rocks causes surface runoff to increase river discharge.

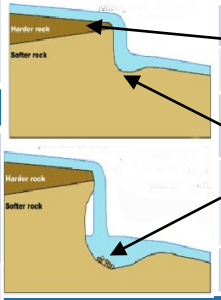
***Physical:* Relief**
Steep-sided valleys channels water to flow quickly into rivers causing greater discharge.

***Human:* Land Use**
Tarmac and concrete are impermeable. This prevents infiltration & causes surface runoff.

Upper Course of a River

Near the source, the river flows over steep gradient from the hill/mountains. This gives the river a lot of energy, so it will erode the riverbed vertically to form narrow valleys.

Formation of a Waterfall



1) River flows over alternative types of rocks.

2) River erodes soft rock faster creating a step.

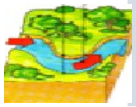
3) Further hydraulic action and abrasion form a plunge pool beneath.

4) Hard rock above is undercut leaving cap rock which collapses providing more material for erosion.

5) Waterfall retreats leaving steep sided gorge.

Formation of Ox-bow Lakes

Step 1



Erosion of outer bank forms river cliff. Deposition inner bank forms slip off slope.

Step 2

Further hydraulic action and abrasion of outer banks, neck gets smaller.

Step 3

Erosion breaks through neck, so river takes the fastest route, redirecting flow

Step 4

Evaporation and deposition cuts off main channel leaving an oxbow lake.

Unit 1d - Rivers

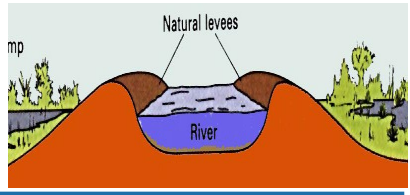
Lower Course of a River

Near the river's mouth, the river widens further and becomes flatter. Material transported is deposited.

Formation of Floodplains and levees

When a river floods, fine silt/alluvium is deposited on the valley floor. Closer to the river's banks, the heavier materials build up to form natural levees.

✓ Nutrient rich soil makes it ideal for farming.
✓ Flat land for building houses.



River Management Schemes

Soft Engineering

Afforestation – plant trees to soak up rainwater, reduces flood risk.
Demountable Flood Barriers put in place when warning raised.
Managed Flooding – naturally let areas flood, protect settlements.

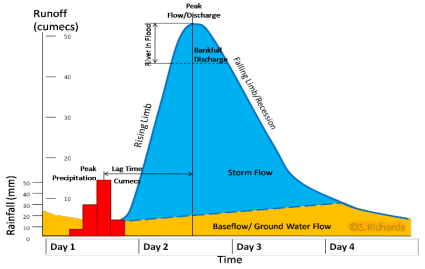
Hard Engineering

Straightening Channel – increases velocity to remove flood water.
Artificial Levees – heightens river so flood water is contained.
Deepening or widening river to increase capacity for a flood.

Hydrographs and River Discharge

River discharge is the volume of water that flows in a river. Hydrographs who discharge at a certain point in a river changes over time in relation to rainfall

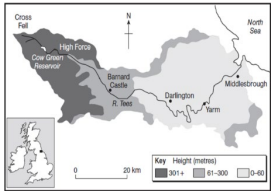
1. **Peak discharge** is the discharge in a period of time.
2. **Lag time** is the delay between peak rainfall and peak discharge.
3. **Rising limb** is the increase in river discharge.
4. **Falling limb** is the decrease in river discharge to normal level.



Case Study: The River Tees

Location and Background
Located in the North of England and flows 137km from the Pennines to the North Sea at Red Car.

Geomorphic Processes
Upper – Features include V-Shaped valley, rapids and waterfalls. High Force Waterfall drops 21m and is made from harder Whinstone and softer limestone rocks. Gradually a gorge has been formed.
Middle – Features include meanders and ox-bow lakes. The meander near Yarm encloses the town.
Lower – Greater lateral erosion creates features such as floodplains & levees. Mudflats at the river's estuary.



Unit 1a Geography
The Challenge of Natural Hazards

AQA

What are Natural Hazards?

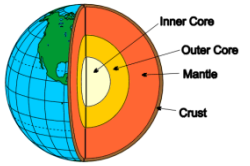
Natural hazards are physical events such as earthquakes and volcanoes that have the potential to do damage to humans, property and the economy. Hazards include tectonic hazards, tropical storms and forest fires.

What affects hazard risk?

Population growth
Global climate change
Deforestation
Wealth - LICs are particularly at risk as they do not have the money to protect themselves

Structure of the Earth

The earth has 4 layers
The core (divided into inner and outer), mantle and crust.



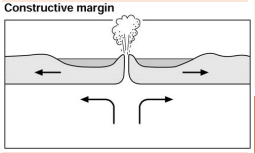
The crust is split into major sections called **tectonic plates**.

There are 2 types of crust: **Oceanic** (thin and younger but dense) and **Continental** (old and thicker but less dense).

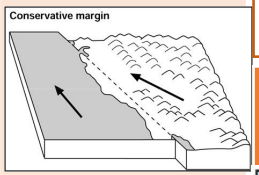
These plates move due to convection currents in the mantle and, where they meet, tectonic activity (volcanoes and earthquakes) occurs..

Plates either move towards each other (**destructive** margin) away from each other (**constructive**) or past each other (**conservative**).

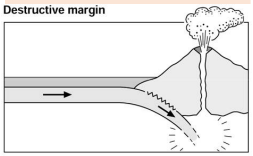
Constructive margin



Conservative margin



Destructive margin



Earthquakes and Volcanoes

Volcanoes	Earthquakes
- **Constructive** margins – Hot magma rises between the plates e.g. Iceland. Forms Shield volcanoes. - **Destructive** margins – an oceanic plate subducts under a continental plate. Friction causes oceanic plate to melt and pressure forces magma up to form composite volcanoes after repeated eruptions.	- **Constructive** margins – usually small earthquakes as plates pull apart. - **Destructive** margins – violent earthquakes as pressure builds and is then released. - **Conservative** margins – plates slide past each other. They catch and then as pressure builds it is released e.g. San Andreas fault.

Effects of Tectonic Hazards

Primary effects happen immediately. Secondary effects happen as a result of the primary effects and are therefore often later.

Primary - Earthquakes	Secondary - Earthquakes
- Property and buildings destroyed. - People injured or killed. - Ports, roads, railways damaged. - Pipes (water and gas) and electricity cables broken.	- Business reduced as money spent repairing property. - Blocked transport hinders emergency services. - Broken gas pipes cause fire. - Broken water pipes lead to a lack of fresh water.
Primary - Volcanoes	**Secondary - Volcanoes**
- Property and farm land destroyed. - People and animals killed or injured. - Air travel halted due to volcanic ash. - Water supplies contaminated.	- Economy slows down. Emergency services struggle to arrive. - Possible flooding if ice melts Tourism can increase as people come to watch. - Ash breaks down leading to fertile farm land.

Responses to Tectonic Hazards

Immediate (short term)	Long-term
- Issue warnings if possible. **- Rescue teams search for survivors.** **- Treat injured.** **- Provide food and shelter, food and drink.** **- Recover bodies.** **- Extinguish fires.**	**- Repair and re-build properties and infrastructure.** **- Improve building regulations** **- Restore utilities.** **- Resettle locals elsewhere.** **- Develop opportunities for recovery of economy.** **- Install monitoring technology.**

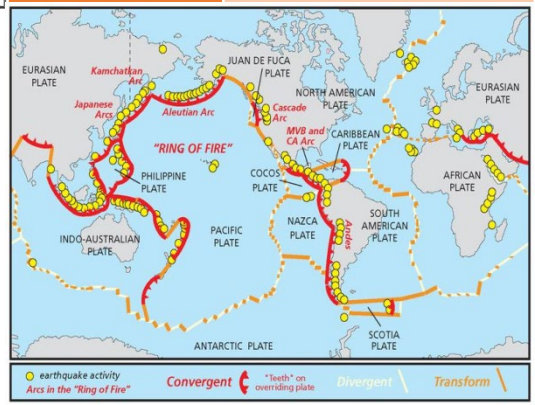
Comparing Earthquakes – Nepal and Chile

Nepal. April 2015. Magnitude 7.8.	Chile. February 2010. Magnitude 8.8.
Primary Effects	
• 9000 deaths • Over 500,000 homes destroyed • 26 hospitals and 50% of schools destroyed • Cost of earthquake was estimated to be over US$5 billion.	• 500 deaths • 210 000 homes destroyed • Cost of earthquake was estimated to be over US$30 billion.
Secondary Effects	
• Avalanche on Mount Everest killed 19 people. • The river Khali Gandaki was blocked by landslides – the area had to be evacuated in case of flooding. • Rice seed stored in homes was ruined as homes collapsed. This caused food shortages.	• A fire at a chemical plant near Santiago – the area had to be evacuated. • Roads blocked mainly by landslides • A drastic income decrease in the Chilean wine industry (one of the top wine industries in the world).
Immediate Responses	
• Nepal requested international help, including the UK. • Red Cross donated tents for 225,000 people. • Facebook launched a safety feature so people could indicate they were safe.	• Water and electricity was restores to 90% of homes within 10 days. • Temporary repairs were made to Route 5 (road running north to south) within 24 hours
Long term responses	
• World Heritage Sites (including Mount Everest) reopened August 2015. • There are now stricter controls on buildings	• Chile's strong economy (based on copper exports) could be rebuilt without the need for foreign help.

LICs suffer more than HICs from natural disasters because they are not as prepared and struggle to react effectively.

Distribution of tectonic activity

Along plate boundaries.
On the edge of continents.
Around the edge of the Pacific.

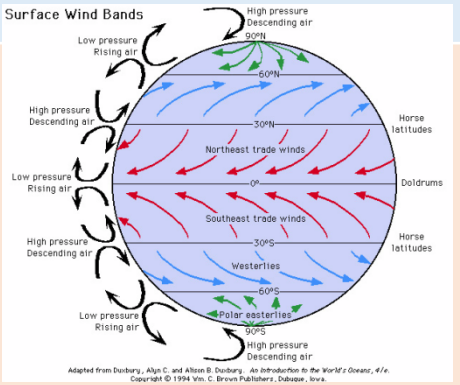


Reducing the impact of tectonic hazards

Monitoring	Prediction
S –sesimographs **H – heat seeking camera (thermal imaging)** **A- angle – bulging on the volcano measured by tiltmeter** **G gas monitoring stations – more Co2 released.**	**By observing monitoring data, this can allow evacuation before event.** **Animals can detect**
Protection	**Planning**
Reinforced buildings and making building foundations that absorb movement. **Automatic shut offs for gas and electricity.** **Cross bracing is built into building construction to give strength**	**Avoid building in at risk areas.** **Training for emergency services and planned evacuation routes and drills.**

Global atmospheric circulation

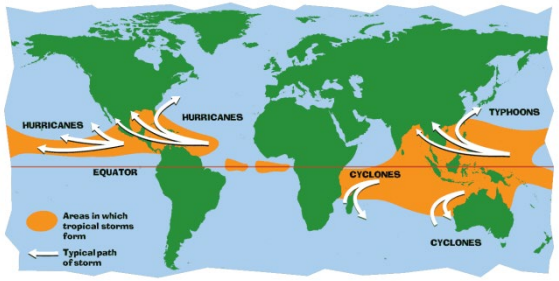
At the equator, the sun's rays are most concentrated. This means it is hotter. This one fact causes global atmospheric circulation at different latitudes.



High pressure = dry, descending air = deserts and clear skies
Low pressure = wet, rising air = rainforests and cloudy skies..
As the air heats it rises – causing low pressure. As it cools, it sinks, causing high pressure. Winds move from high pressure to low pressure. They curve because of the **Coriolis** effect (the turning of the Earth)

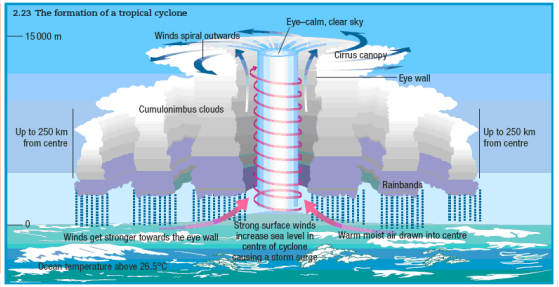
Tropical Storms

Occur in low latitudes between 5° and 30° north and south of the equator (in the tropics). Ocean temperature needs to be above 27° C. Happen between summer and autumn.



Sequence of a Tropical Storm

1. **Air is heated above warm tropical oceans.**
2. **Air rises under low pressure conditions.**
3. **Strong winds form as rising air draws in more air and moisture causing torrential rain.**
4. **Air spins due to Coriolis effect around a calm eye of the storm.**
5. **Cold air sinks in the eye so it is clear and dry.**
6. **Heat is given off as it cools powering the storm.**
7. **On meeting land, it loses source of heat and moisture so loses power.**



Climate change will affect tropical storms too. Warmer oceans will lead to more intense storms – but not necessarily more frequent ones.

Extreme weather in the UK

Rain – can cause flooding damaging homes and business.
Snow & Ice – causes injuries and disruption to schools and business. Destroys farm crops.
Hail – causes damage to property and crops.
Drought – limited water supply can damage crops.
Wind – damage to property and damage to trees potentially leading to injury.
Thunderstorms – lightening can cause fires or even death.
Heat waves – causes breathing difficulties and can disrupt travel.

UK weather is getting more extreme due to climate change. Temperatures are more extreme and rain is more frequent and intense leading to more flooding events. Since 1980 average temperature has increased 1 degree and winter rainfall has increased.

Typhoon Haiyan, Philippines, November 2013

Primary Effects	Secondary Effects
• At least 6340 killed • 90% buildings in Tacloban destroyed • 30,000 fishing boats were destroyed	• $1.5 Billion of damage • Storm surge was not expected • Water supply polluted • 1.9 million homeless, 6 million displaced • Public Order – Looting • Airports unusable for supplies

• Immediate Responses	• Long-term Responses
• US aircraft carrier George Washington helped with the search and rescue. • Over 1200 evacuation centres were set up. • UK government sent shelter kits to provide emergency shelter for families.	• Thousands of homes have now been built away from areas at risk of flooding • Cash for work programme people paid to help clear the debris and rebuild the city of Tacloban. • Oxfam helped to support the replacement of fishing boats.

Prediction	Planning	Protection
Monitoring wind patterns allows path to be predicted. Use of satellites to monitor path to allow evacuation	Avoid building in high risk areas Emergency drills Evacuation routes	Reinforced buildings and stilts to make safe Flood defences eg levees and sea walls Replanting Mangroves

Extreme weather event – Beast from the East

Causes:
• A **polar continental air mass** brought extremely cold air to the UK from the east
• This air mass met **storm Emma** (a low pressure system), bringing lots of warmer moist air from the south-west.
The polar jet stream un-expectantly twisted in direction and this caused a jump in temperatures high over the Arctic, known as **sudden stratospheric warming**

Social Effects

• Schools across the country closed for up to 3 days
• Hundreds were stranded for up to 36hrs on the M80 Motorway in Scotland and A roads in Devon.
•Snow drifts in excess of 7m in rural locations and people were blocked into their homes

Economic Effects

Supermarket shelves were left empty because fresh deliveries couldn't be made.
British Airways cancelled a huge number of short-haul flights from airports like Heathrow

Environmental impacts

• Many coastal areas were issued with flood warnings as well.

Management strategies/responses

Community centers opened for homeless people to shelter from the conditions.
Armed forces volunteered to rescue drivers and drive NHS workers to work.
Drivers of a Greggs Delivery van, stuck on the A1 near Newcastle, gave out free food to stranded drivers

Climate Change – natural or human?

Evidence for climate change shows changes before humans were on the planet. So some of it must be natural. However, the **rate** of change since the 1970s is unprecedented. Humans are responsible – despite what Mr Trump says!

Causes

Natural	Human
- Orbital changes – The sun's energy on the Earth's surface changes as the Earth's orbit is elliptical its axis is tilted on an angle. **- Solar Output** – sunspots increase to a maximum every 11 years. **- Volcanic activity** – volcanic ash reflects sunlight away reducing global temperatures temporarily. Volcanoes also release Co2 .	**- Fossil fuels –** release carbon dioxide with accounts for 50% of greenhouse gases. **- Agriculture –** accounts for around 20% of greenhouse gases due to methane production from cows etc. Larger populations and growing demand for met and rice increase contribution. **- Deforestation –** logging and clearing land for agriculture increases carbon dioxide in the atmosphere and reduces ability to planet to absorb carbon through photosynthesis.

Effects of Climate Change

Social	Environmental
- Increased disease eg. skin cancer and heat stroke. - Winter deaths decrease with milder winters. - Crop yields affected by up to 12% in South America but will increase in Northern Europe but will need more irrigation. - Less ice in Arctic Ocean increases shipping and extraction of oil and gas reserves. - Droughts reduce food and water supply in sub-Saharan Africa. Water scarcity in South and South East UK. - Declining fish in some areas affect diet and jobs. - Increased extreme weather eg. Tropical storms.	- Increased drought in Mediterranean region. - Lower rainfall causes food shortages for orangutans in Borneo and Indonesia. - Sea level rise leads to flooding and coastal erosion. - Ice melts threaten habitats of polar bears. -Forests in North America may experience more pests, disease and forest fires.

Evidence for Climate Change

The Met Office has reliable climate evidence since 1914 – but we can tell what happened before that using several methods.

Ice and Sediment Cores

- Ice sheets are made up of layers of snow, one per year. Gases trapped in layers of ice can be analysed. Ice cores from Antarctica show changes over the last 400 000 years.
- Remains of organisms found in cores from the ocean floor can by traced back 5 million years.

Pollen Analysis

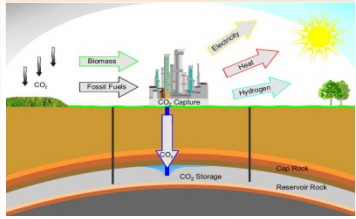
- Pollen is preserved in sediment. Different species need different climatic conditions.

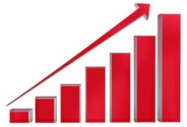
Tree Rings

- A tree grows one new ring each year. Rings are thicker in warm, wet conditions
- This gives us reliable evidence for the last 10 000 years.

Temperature Records

- Historical records date back to the 1850s. Historical records also tell us about harvest and weather reports.





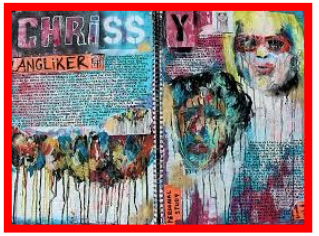
Managing Climate Change

Mitigation	Adaption
- Alternative energy production will reduce CO_2 production. **- Planting Trees** – helps to remove carbon dioxide. - **Carbon Capture** – takes carbon dioxide from emission sources is stored underground. **- International Agreements** e.g. the Paris Climate Agreement.	**- Changes in agricultural systems** need to react to changing rainfall and temperature patterns and threat of disease and pests. **-Managing water supplies** – eg. by installing water efficient devices and increasing supply through **desalination** plants. **- Reducing risk** from rising sea levels would involve constructing defences such as the Thames Flood Barrier or restoring mangrove forests, or raising buildings on stilts.

GCSE GRAPHIC DESIGN *WHAT YOU NEED TO KNOW for your CONTROLLED TEST*

You will start your controlled test (your final exam) In January. As with your coursework, in Graphic Design Design there are 4 assessment objectives that you will be graded against for the exam. To maximise your grade you need to complete all 4 steps of the project. Each one is worth 25% of your final grade. Your exam is worth 40% of your overall grade.

You will be given an exam paper with 8 possible questions. With the help of your teacher choose just one.



A01 ARTIST ANALYSIS, MAKING LINKS AND IDEAS

What artists or designers are you looking at for this project? How does your own work link or connect to that of the artist you have looked at? Have you developed some of your own ideas?

TIP: Complete an 'Artists analysis' sheet. Collect examples of their work and related work that inspires you. **25% of your marks.**

A02 REFINEMENT AND MATERIALS

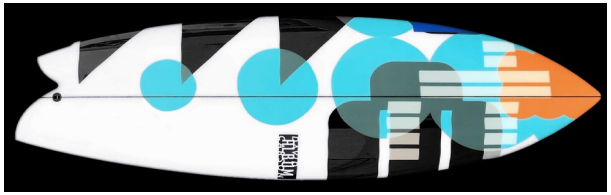
Refine your ideas through experimenting and selecting appropriate resources, materials, techniques and processes. You may want to use your newly developed PHOTOSHOP skills. Think of it like producing your typography compositions during your Cecil Touchon project or your surfboard development for Mambo.

TIP: if you are studying the work of a printmaker who uses lino prints then have a go at carving out a lino design! **25% of your marks.**

A03 DRAWING AND RECORDING

Always make sure you have recorded ideas, observations and insights relevant to your theme. For each project you should include high quality pencil drawings that show a full tonal range.

TIP: Try other exciting materials to draw with such as biro, inks or unusual materials. **25% of your marks.**



A04 PRODUCING A FINAL PIECE

At the end of the exam you will have 10 hours to present a personal, informed and meaningful final piece. Think of it like producing your surfboard for the end of the Mambo project.
This could be a series of prints, a digital image or a mixed media piece.

TIP: This should demonstrate how you have made connections with the artists you have studied. **25% of your marks.**

TOP TIPS FOR MAXIMUM MARKS

- Annotate your sheets explaining your ideas? Describe the process you have gone through of producing your work. Describe why you have made decisions.
- Just like in maths you should keep everything and show all you workings. Think of your project as a journey.
- You will pick up marks for showing how you got from A to B!

YR 11 Health and Social Care

KNOWLEDGE ORGANISER Component 1

This is revision for the exam in February. You will need sound knowledge of all of the key concepts from component 3. You must also know what each command word means and apply these in your answers to the exam questions.

Assess Give careful consideration to all the factors or events that apply and identify which are the most important or relevant. Make a judgement on the importance of something, and come to a conclusion where needed.

Describe To give an account of something. Linkage required in the form of context or process.

Explain Requires identification of a point and linked justification/exemplification of that point.

Give State or put forward information or an argument

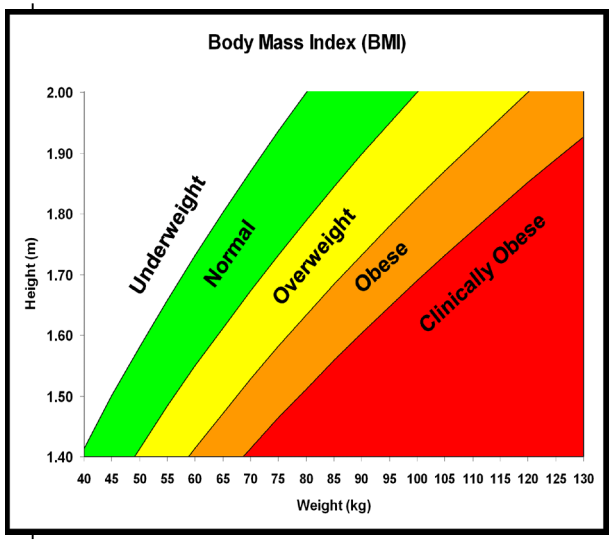
Interpret State the meaning, purpose or qualities of something.

Justify Give reasons or evidence to support an opinion.

Analyse Examine methodically and in detail, typically in order to interpret.

Apply Put knowledge, understanding or skills into action in a particular context.

Identify The main factors relating to two or more items/situations, explain the similarities and differences, and in some cases say which is best and why.



Discuss Consider the different aspects of the topic and talk about how they interrelate and the extent to which they are important.

Evaluate Bring together all information and review it to form a conclusion, drawing on evidence, including strengths, weaknesses, alternative actions, relevant data or information.

Health and Social Care Knowledge Organiser: Component 3 Health and Wellbeing

LAA Factors that affect health and wellbeing

A1 Factors affecting health and wellbeing

1. **Definition of health and wellbeing**
   a. A combination of physical health and social and emotional wellbeing, and not just the absence of disease or illness
2. **Physical and lifestyle factors that can have positive or negative effects on health and wellbeing:**
   a. Genetic inheritance, including inherited conditions and predisposition to other conditions
   b. Ill health (acute and chronic)
   c. Diet (balance, quality and amount)
   d. Amount of exercise
   e. Substance user, including alcohol, nicotine, illegal drugs and misuse of prescribed drugs
   f. Personal hygiene
3. **Social, emotional and cultural factors that can have positive or negative effects on health and wellbeing:**
   a. Social interactions, e.g. supportive/ unsupportive relationships, social intergration/ isolation
   b. Stress, e.g. work-related
   c. Willingness to seek help or access services, e.g. influenced by culture, gender, education
4. **Economic factors that have a positive or negative effect on health and well-being**
   a. Financial resources
5. **Environmental factors that can have a positive or negative effect on health and well-being:**
   a. Environmental conditions, e.g. levels of pollution, noise
   b. Housing, e.g. conditions, location
6. **The impact of life events relating to relationship changes and changes in life circumstances**

LAB Interpreting health indicators

B1 Physiological indicators

1. **Physiological indicators that are used to measure health:**
   a. Pulse (resting and recovery rate after exercise)
   b. Blood
   c. Peak flow
   d. Body mass index (BMI)
2. **Using published guidance to interpret data relating to these physiological indicators**
3. **The potential significance of abnormal readings: risks to physical health**

B2 Lifestyle indicators

1. **Interpretation of lifestyle data, specifically risks to physical health associated with:**
   a. Smoking
   b. Alcohol consumption
   c. Inactive lifestyles

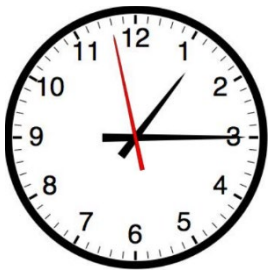
LAC Person centred health and wellbeing improvement plans

C1 Health and wellbeing improvement plans

1. **The importance of a person-centred approach that takes into account an individual's needs, wishes and circumstances**
2. **Information to be included in plan:**
   a. Recommended actions to improve health and wellbeing
   b. Short term (less than 6 months) and long term targets
   c. Appropriate sources of support (Formal and/ or informal)

C2 Obstacles to implementing plans

1. **Potential obstacles**
   a. Emotional/ psychological – lack of motivation, low self-esteem, acceptance of current state
   b. Time constraints – work and family commitments
   c. Availability of resources – financial, physical, e.g. equipment
   d. Unachievable targets – unachievable for the individual or unrealistic timescale
   e. Lack of support, e.g.from family and friends
   f. Other factors specific to individual – ability/ disability, addiction
   g. Barriers to accessing identified serv ices



History

THE ELIZABETHAN AGE 1568-1603 KNOWLEDGE ORGANISERS

Topic	Content
Elizabeth and Parliament How successful was the Elizabethan parliament?	•Elizabeth I and her court: background and character of Elizabeth I; court life, including patronage; key ministers. •The difficulties of a female ruler: relations with Parliament; the problem of marriage and the succession; the strength of Elizabeth's authority at the end of her reign, including Essex's rebellion in 1601.
Life in the Elizabethan age How different were the lives of the rich and the poor?	•A 'Golden Age': living standards and fashions; growing prosperity and the rise of the gentry; the Elizabethan theatre and its achievements; attitudes to the theatre. •The poor: reasons for the increase in poverty; attitudes and responses to poverty; the reasons for government action and the seriousness of the problem. •English sailors: Hawkins and Drake; circumnavigation 1577–1580, voyages and trade; the role of Raleigh.
Troubles at home and abroad How successfully did Elizabeth deal with threats to her rule?	•Religious matters: the question of religion, English Catholicism and Protestantism; the Northern Rebellion; Elizabeth's excommunication; the missionaries; Catholic plots and the threat to the Elizabethan settlement; the nature and ideas of the Puritans and Puritanism; Elizabeth and her government's responses and policies towards religious matters. •Mary Queen of Scots: background; Elizabeth and Parliament's treatment of Mary; the challenge posed by Mary; plots; execution and its impact. •Conflict with Spain: reasons; events; naval warfare, including tactics and technology; the defeat of the Spanish Armada.
The Spanish Armada	Causes; events; reasons for failure; consequences

Elizabeth 1: Elizabeth and her court

KPI 1 Elizabeth and her background

Gender
16th Century England was a **patriarchy**. People thought that queens were weak and would only do what their husbands wanted. Elizabeth's sister Mary had been unpopular because people thought her husband – Philip of Spain – controlled what she did.

Legitimacy
Monarchs were **legitimate** if they were related to previous monarchs. Many English people – especially Catholics - said Elizabeth was **illegitimate** because Henry's marriage to Anne Boleyn was not accepted by the Catholic church. However, as both her parents were English she did not have loyalty to any other country.

Religion
England had experienced huge religious change in the 16th Century. Elizabeth's father and brother – Henry VIII and Edward VI – had introduced **Protestantism** only for her sister, Mary I, to bring back **Catholicism**. Elizabeth was **Protestant** but many English people and powerful foreign countries like France and Spain were **Catholic**.

Debt
Mary I had run up a debt of £227,000 fighting wars. Elizabeth inherited this debt when she became Queen in 1558. Elizabeth needed to pay this back but also make sure she had enough money to raise an army to defend England

Invasion
Elizabeth's cousin, Mary Queen of Scots had a claim to the English throne. Mary could try to invade England and take the throne.

Character
Elizabeth was a well educated ruler.

KPI 2 Court life, including patronage; key ministers

	Positives	Negatives
QUEEN ELIZABETH The monarch was **sovereign**, meaning Elizabeth had complete power over England. However, in order to avoid challenges to her rule she needed to stay popular with her people.	**1. Royal Portraits always showed Elizabeth at her best** Portraits projected royal power. After catching small pox in 1562, Elizabeth's was scarred, but the portraits did not show this. They were a type of propaganda, creating an image of a powerful, ageless monarch. **2. Royal progresses generated loyalty** For 10 weeks each summer, Elizabeth went on **royal progress**, touring the countryside and staying with nobles. This ensured that Elizabeth was seen by her people.	**1. Elizabeth's grandeur was expensive** Elizabeth spend £16,000 on her coronation. Progresses were also expensive for nobles who had to host the Queen and her court **2. No visits to Wales or the North** Elizabeth's progresses moved very slowly and she never reached Wales or the North of England. These areas were less loyal to Elizabeth
THE ROYAL COURT The Royal Court was the group of people who surrounded the Queen. The Court was based in London but accompanied Elizabeth on **progress**.	**1. Elizabeth used the court to show off her power** The court hosted dancing, plays, hunts, feasts and jousting tournaments **2. Elizabeth always had her advisors with her** Because the Court travelled with Elizabeth she always had key advisors on hand **3. Patronage kept nobles loyal** The Queen ensured the loyalty of her court through a system of **patronage**. Loyal nobles were rewarded with important positions. Nobles were supportive because they knew that the Queen could give power, but if they annoyed her she could take away their court position.	**1. The Royal Court was split into factions** The **patronage** system created rivalries between different groups of nobles, or factions, who competed for the Queen's favour. This was a problem for Elizabeth because her government often was divided and advisors were sometimes more interested in serving their faction than giving the best advice.
THE PRIVY COUNCIL The Privy Council was a group of advisers appointed by the Queen. They advised the Queen on policy and ran her government.	**1. Elizabeth's attempted to control the Privy Council** Elizabeth limited the Privy Council to 19 members and made sure to appoint councillors with different viewpoints **2. William Cecil was the most loyal Privy Councillor** Cecil served as Secretary of State for 40 years, protecting Elizabeth's interests and giving good advice. **3. Francis Walsingham was Elizabeth's spymaster** Walsingham ran the secret service and uncovered Catholic plots against Elizabeth	**1. Faction divided the Privy Council** Cecil led a Protestant faction opposed to foreign wars. His great rival was **Robert Dudley**, a Puritan who wanted to fight the Catholic powers. **2. Many Privy councillors were Puritans** Walsingham and Dudley were Puritans and pushed for religious change **3. The Earl of Essex tried to rebel** In 1601, one of Elizabeth's privy councillors – the Earl of Essex – was executed for trying to rebel against Elizabeth
PARLIAMENT Parliament had the power to propose new laws and grant taxes. There were 450 MPs, elected by wealthy landowners.	**1. Elizabeth had control over Parliament** Parliament could only meet if Elizabeth called it. Elizabeth could also decide what topics Parliament was allowed to debate. For example, Elizabeth banned discussion of religion and her marriage. She could **prorogue** (close) Parliament at any point. Parliament only met 13 times in her 45 year reign. **2. William Cecil controlled debate** Elizabeth made sure Cecil and other privy councillors sat in Parliament to help control debates	**1. Parliament was needed to raise taxes** Elizabeth's main income was from tax. This gave Parliament some power over her **2. MPs wanted freedom of speech** MPs wanted to discuss issues that Elizabeth had banned. In 1576, she imprisoned the MP Peter Wentworth for demanding freedom of speech **3. Some MPs were Puritans** Puritan MPs used Parliament to demand religious change. Puritan MP William 'the Stinger' Strickland was famous for his fiery speeches.

William Cecil: Privy Councillor, Secretary of State, Protestant

Francis Walsingham: Privy Councillor, Spymaster, Puritan

Robert Dudley: Privy Councillor, Puritan, Cecil's greatest rival

Elizabeth 2: Elizabeth and female rule

KPI 3 Elizabeth's marriage

One of the main duties of a monarch was to leave an heir. For Elizabeth to have a legitimate heir she would have to get married. Elizabeth had three real choices: marry a foreign king/prince, marry an English noble or stay single. At different points in her **reign** each of the three men below were suitors of Elizabeth.

If Elizabeth did not marry it was likely that Mary Queen of Scots (Elizabeth's closest relative and a Catholic)n would become Queen of England. This was worrying for Protestants and Puritans in England.

In 1587 Mary was executed, this meant Elizabeth's closest relative was Mary's son, James VI of Scotland, who was a Protestant. Although Elizabeth did not name James as her heir, in 1603 Cecil began to write to James to arrange the succession, and when Elizabeth died 23rd March 1603, James was made King of England on 24th March 1603.

Choice	Positive/Negative
Marry a foreign king: **King Phillip of Spain**	**Positive:** She would have a powerful **ally** in Europe, and hopefully an heir, and would be marrying an equal. **Negative:** As England was a **patriarchal** society her husband would have more power than her in England. When Elizabeth's sister Mary was queen, the English thought that her husband Phillip of Spain had too much power in England. Phillip was Catholic, while Elizabeth was a Protestant, so it was unclear which religion any heir would be raised as
Marry an English noble: **Robert Dudley, Earl of Leicester**	**Positive:** She would have an ally in England, and hopefully an heir. Dudley was a Protestant and a favourite of Elizabeth. **Negative:** This would cause conflict between the different noble families, and as England was a patriarchal society, her husband would have more power than her. There were rumours that Dudley had his wife murdered so that he could marry Elizabeth, these rumours made it impossible for Elizabeth to marry him.
Stay single	**Positive:** She would keep her independence, and would not run the risk of dyeing in childbirth. She could also use the possibility of a marriage to help make **alliances** with foreign nobles/kings. **Negative:** There was a high chance that her cousin, the Catholic Mary Queen of Scots would become Queen of England when Elizabeth died.

KPI 4 Elizabeth's relations with Parliament

Parliament could only meet when Elizabeth asked them to, and could only discuss the topics she set. However over her reign some MPs became more assertive over certain issues:

Marriage Some MPs thought Elizabeth should marry to produce an heir. Elizabeth's response was that it was private, and she banned parliament discussing her marriage.

Religion Elizabeth was a Protestant, and changed England from a Catholic country to a Protestant. However some Puritans wanted her to take the religious changes even further. Elizabeth refused, and banned Parliament from discussing religion.

Free speech In 1576 the Puritan MP Peter Wentworth complained that MPs were not free to discuss what they liked – Elizabeth sent him to the **Tower of London** for a month as punishment

Monopolies these give one noble the sole licence to sell a particular good in England. Because one person sold all of that good, sometimes prices rose too much. Elizabeth made money from 'giving' nobles monopoly licence. MPs complained about monopolies in the 1597-8 parliament and the 1601 parliament. They refused to agree to Elizabeth's taxes until she withdrew some monopolies. Elizabeth agreed, and made a speech flattering parliament, called her 'Golden Speech'.

KPI 5 Elizabeth's authority at the end of her reign

Robert Devereux inherited the title Earl of Essex from his father in 1573. He was introduced to Elizabeth in 1587, when he was 21. Essex became the queen's favourite, becoming a Privy Councillor in 1595, and being granted the monopoly on sweet wine, which made Essex a lot of money.

Essex had a rivalry with Robert Cecil, son of William Cecil. Essex had a military success in 1596, but in 1598 he got into an argument with the Queen and turned his back on her. Elizabeth then hit him, and Essex had to be stopped by other councillors from pulling out his sword. Elizabeth put him under house arrest.

In 1599, when he was forgiven, Essex was made Lord Lieutenant of Ireland and sent to stop their rebellion. He failed, and on returning to England did not have his sweet wine monopoly renewed. He relied on this income to pay back his debts.

In 1601, angry and poor, Essex plotted to remove his rival Robert Cecil from power.
In Feb 1601 Essex took 4 Privy Councillors hostage, and with 200 men, marched to London. Cecil, hearing of the plan called Essex a **traitor**, and may of the rebels abandoned. Essex returned to his house and found his supporters had gone, and the hostages has been released. Essex was arrested, and two weeks later he was executed for treason.

Although Elizabeth faced plots against her in the 1570s and 1580s, by the end of her reign many people's attention had moved on from Elizabeth and looked to the future – to James. However she still showed herself able to command the loyalty of the English. This was for two main reasons:

1 The strength of Elizabeth's spy network led by Walsingham, people from nobles to inn-keepers were paid by him to inform on any potential threats.

2 For any kind of rebellion to succeed they need popular support. However under Elizabeth most people had relative religious freedom, and even those who didn't still often felt better off than under Mary who burned 289 people over religion, and the main alternatives for a ruler were foreign kings or queens, which most English people did not want.

Alliance	An agreement between countries to help each other
Catholic	Christian who follows the Pope
Coronation	Ceremony crowning a new king or queen
Faction	A group of politicians
Favourite	Someone who the King or Queen preferred
Heir	Someone to come to the throne after you
Illegitimate	Not the right and proper ruler of a country
Legitimate	The right and proper ruler of a country
Monopoly	When the right to sell a specific item is given to just one person.
MP	Member of Parliament
Noble	Wealthy landowner
Parliament	Partly elected body set up to debate new laws
Patriarchy	Society where men have power
Privy Council	A group of advisers to the queen
Prorogue	Close Parliament
Patronage	Giving rewards/jobs in return for loyalty
Protestant	Christian who rejects the Pope
Puritan	An extreme Protestant
Rebel	To rise up against the King or Queen
Reign	The years a person was King or Queen
Royal Progress	When the King or Queen travelled round England
Sovereign	Having complete power
Traitor	Someone who went against the Queen

Elizabeth 3: a 'Golden Age'

KPI 6 Social Structure

The Rich	**The Monarch** Used **patronage** to keep nobles loyal
The Rich	**Nobles and Lords** About 50 families owning 17% of **cultivated land**.
The Gentry	**Gentry** Smaller landowners
The Gentry	**Wealthy Merchants and Professionals** Businessmen and middle-class professionals including lawyers and teachers.
The Gentry	**Yeomen and Tenant Farmers** Farmers who owned or rented a small amount of land.
The Poor	**Landless Unskilled Labourers** Seasonal workers, unemployed during certain times of year. 30% of the population were close to starvation.

KPI 7 Living standards and fashions

	The Rich	The Poor
Living standards	• The rich used their wealth to build grand mansion houses, such as Hardwick Hall in Derbyshire. Historians have called this period 'The Great Rebuilding' • New building styles became fashionable, such as chimneys decorated with a twisted pattern of bricks • Most rich nobles made their money from collecting rent so they had lots of time for entertainment • Listening to music and dancing were popular. Men also engaged in sports like hunting and hawking. Large **banquets** with dozens of guests were frequently held. • The sons of the wealthy were educated at home by visiting tutors, learning foreign languages and classical languages such as Greek and Latin	• A poor man's cottage had one room with an earth floor, walls made of **wattle and daub**, and a thatched roof • Animals often lived in the house as well • The fire was always lit and used for heat, light, and cooking • Candles were expensive so the interior was often gloomy • Those who earnt a little money and became **yeomen** could add separate bedrooms, brick chimneys, and glazed windows. • Farmers and labourers worked long hours, from 5am to 5pm • The lower classes received little/no education. The poor could not afford to send their children to school • Leisure time was spent in the inn or **tavern**, gambling or playing cards or dice. Fishing and watching plays performed by strolling players, were other common pastimes
Fashions	• The rich chose their outfits to show off their **wealth** and **status.** They would have a set of clothes for each occasion, usually changing clothes during the day. • The rich wore clothes made from the finest materials such as silk, linen, and velvet, Nobles and their wives often wore clothes studded with jewels, and large **ruffs**. • Jewellery such as bracelets, earrings, and rings helped to project **status**.	• The poor usually owned just one set of clothes due to their poverty • Clothes were made from cheap, hard-wearing materials such as leather and felt.

KPI 8 Rise of the Gentry

Who?
The landlords of the countryside. They made money by charging the poor rent. A member of the gentry might make between £10 and £200 a year, and were sometimes wealthier than poor **nobles**.
Why? The increasing population in Elizabeth's **reign** meant that rents increased, also the stability of her reign meant that some people were able to become rich
Status?
A member of the gentry might gain power by being made a **Justice of the Peace**, or serving in **Parliament.** Some would be given the title knight or esquire

KPI 9 Reasons for the increase in poverty

Cause	Detail	How did it cause poverty?
Population increase	Population rose from 2.7m in 1540 to 4.1m in 1601	There were more people but the same amount of food and jobs
Inflation	Price of wheat increased by 250%	Wages did not increase at the same rate as prices so people could not afford food
Bad **harvests**	Bad **harvests** in 1596-7	Not enough food was produced, causing prices to increase rapidly
Sheep farming	Landowners began to rear sheep for their wool	With more sheep, less land was used for growing food so prices rose
Dissolution of the Monasteries	Henry VIII shut down the **monasteries** 1536-1540	**Monasteries** had provided poor relief and care for the sick. Now the poor had to fend for themselves.

KPI 10 Attitudes to poverty & reasons for the government action

The increase in poverty led to the rise of **vagrancy**. **Vagrants** or **vagabonds** were unemployed homeless people who wandered from town to town. There were several different types of **vagrant**, eg:
- **Abraham men**: pretended to be mad to get charity and sympathy
- **Hookers**: used a hooked stick to steal valuables

Vagrants were seen as a threat to society because:
1. The fear that **vagrants** would commit crimes
2. Wandering vagrants could spread disease rapidly
3. Villages with large numbers of vagrants would need to pay a high **poor rate**
4. Vagrants were seen as people who might be persuaded to join a rebellion against Elizabeth

KPI 11 Responses to poverty

1572: Harsh Punishments
At the beginning of Elizabeth's reign, the government put in place severe punishments for vagrancy. For example, the 1572 Vagrancy Act stated that **vagrants** should be whipped and burnt through the ear with a hot iron. This didn't work and there were still 10,000 vagrants.

1597: Deserving vs. Undeserving Poor
The 1597 Act for Relief of the Poor divided the poor into two sorts and treated them differently:
- The **Deserving Poor** (willing but not able to work) were given **relief** paid for by a **poor rate**
- The **Underserving Poo**r (able but not willing to work) were punished in a **House of Correction**

1601 Poor Law
The 1601 Poor Law was the first attempt by the government to put in place a complete system for dealing with the poor. It remained in place for over 200 years. The Poor Law stated that:
- Four **Overseers of the Poor** be appointed in each **parish** to help JPs deal with the poor
- Everyone should pay a **poor rate** to pay for dealing with the poor
- Begging and **vagrancy** were made illegal
- The deserving poor were provided with tools to work. Children were given apprenticeships
- The undeserving poor were sent to the **House of Correction**

KPI 12 The Elizabethan theatre

There were no theatres in England in 1558. By 1603, Elizabeth's death, there were theatres across the country.

UNTIL 1572: BANDS OF STROLLING PLAYERS
Before Elizabeth's reign, groups of actors toured the country, performing in **inns** and market squares. Rich families sometimes had private showings at home.

1572- 1576: FORMATION OF THEATRE COMPANIES The **authorities** feared **strolling players** spreading popular unrest and that large gatherings at plays spread disease. In 1572 strolling players without a **licence** from the **Lord Chamberlain** were banned. This led to the formation of theatre companies such as The Queen's Men (1583) and The Lord Chamberlain's Men (1594).

AFTER 1576: BUILDING THE FIRST THEATRES
As plays became popular, **inns** became too small to stage them. In 1576 the first theatre, called The Theatre, in London was built. Other theatres followed, including the Globe Theatre in 1599. Theatres were built just outside London because of worries about public health.

KPI 13 the Theatre's achievements

The building of theatres required new plays to be written. Elizabeth's reign has come to be seen as a 'Golden Age' of English drama.

William Shakespeare
The most important **playwright** of Elizabeth's reign. He wrote 37 plays in a variety of styles: **comedies**, **tragedies**, and historical dramas. Shakespeare's plays were popular with ordinary people and with the Queen. His most popular plays were *Romeo and Juliet* (1595), *Hamlet* (1599), and *Twelfth Night* (1601).

Women were not allowed to act so men played female parts.

KPI 14 Attitudes to the Theatre

SUPPORT for the theatre Elizabeth loved the theatre and watched Shakespeare's *Twelfth Night* in 1601.

The exciting dramas also made theatre popular amongst ordinary people.

The **authorities** also used plays as propaganda. *The Alarum for London*, for example, showed Catholic Spanish soldiers killed Protestants and was made to encourage anti-Spanish feeling during times of war.

OPPOSITION to the Theatre

The **authorities** opposed the theatre because it attracted large crowds, which meant crime and the chance of unrest. As a result, they objected to theatres in the city centre.

The **Puritans** wanted play to be banned, thinking it to be the work of the devil and because they distracted people from religion.

KPI 15 Elizabethan sailors

The Elizabethan period was a time of discovery. New technology made this possible: ships called Lateens which had triangular sails making sailing faster; Improved weapons made sailing less dangerous; **astrolabes** made it easier to **navigate**.

English merchants began to look to distant countries for **trade**, for example spices like nutmeg from the Far East. (Indonesia etc.) English explorers went on many **voyages** of exploration trying to finder quicker routes to places like India and China.
Elizabeth encouraged English **privateers** to attack Spanish treasure ships returning from the **Spanish Main**. In 1577, Elizabeth sent Francis Drake on a 3 year voyage around the world in his ship, the ***Golden Hind***, to attack Spanish ships. He brought back £140,000 of treasure. Philip was furious but Elizabeth **knighted** Drake in 1581. By the 1580s, **privateering** was starting to have a serious impact on the Spanish economy.
While no **colonies** were established in Elizabeth's **reign**, the development of the navy, and the creation of companies like the East India Company, meant that in the following century England became a **dominant** trading power

KPI 16 Drake, Hawkins and Raleigh

In 1564 Hawkins and Drake kidnapped several hundred West Africans and took them to South America where they were sold as slaves.

Hawkins made three voyages capturing African people, this was the beginning of the Trans-Atlantic Slave Trade.

Hawkins then returned to England where he developed a new style of fighting **galleon** for the Royal Navy which was faster, lighter and more manoeuvrable. With these innovations and Hawkins role as a Commander, England defeated the Spanish Armada

Drake **circumnavigated** the globe in 1577-80, the first person to do so. However it was dangerous, he started with 5 ships, but only one finished the route. However it bought respect to England through the bravery of the sailors.
Drake raided Spanish sailing ships – as a pirate –stealing gold, silver and jewels, a portion of which he gave to Elizabeth.
In 1581 Elizabeth rewarded Drake by knighting him, and in 1588 he proved himself again by defeating the Spanish Armada.

Walter Raleigh was a famous explorer. He was given permission by Elizabeth to colonise any land that was not ruled by a Christian, in return he had to give Elizabeth 1/5 of all the gold and silver he found there. Raleigh organised and paid for an expedition to North America, an area thought to be rich in oil, sugar and flax. He founded an English colony in 1584. Two groups settled Roanoke, the first came home after a year, and the second stayed there but disappeared – probably killed or died of starvation.
Raleigh went on to have a successful career in the Royal court, becoming an MP in 1594.

KPI 17 Drake's circumnavigation

Drake circumnavigated the globe between 1577-1580. As he travelled past South America he carried out raids on Spanish ports. In North America he claimed land in the name of Queen Elizabeth, calling it New Albion. From the Americas he journey took him across the Pacific Ocean, round the bottom of Africa at the Cap of Good Hope before returning to Plymouth in September 1580. On his journey Drake faced a **mutiny**, which he dealt with by executing the lead Thomas Doughty, as well as destroying two of his own ships so that they didn't become separated.

Astrolabe	Something which helps you navigate	**MP**	Member of Parliament
Authority	The government	**Mutiny**	To try and get rid of the Captain of a ship
Banquet	A large dinner party	**Navigate**	To sail/find your way
Circumnavigation	To sail around the world	**Noble**	Wealthy landowner
Colony	An area of land ruled by another country.	**Overseer of the Poor**	A parish official who gave out money to the poor.
Cultivated Land	Land which is farmed	**Parliament**	Partly elected body set up to debate new laws
Deserving Poor	People who want to work but can't	**Parish**	The area controlled by one church
Dominant	Being the most powerful	**Patronage**	Giving rewards/jobs in return for loyalty
Harvest	The crops picked to be eaten	**Poor Rate**	A local tax collected to pay for the poor.
House of Correction	A type of prison for people who would not work.	**Puritan**	An extreme Protestant
Inflation	When the price of goods goes up.	**Ruff**	A large collar
Inn	A pub	**Trade**	Buying and selling
Justice of the Peace/JP	Local people who ran local government	**Undeserving Poor**	People who could work but refuse to.
Licence	Permission from the government to do something.	**Vagrant**	A person without a job moving between towns.
Lord Chamberlain	Person who licensed plays	**Voyage**	A journey on a ship.
Monastery	Religious building		

ELIZABETH 3: Troubles at home and abroad

1559	Act of Supremacy and Act of Uniformity
1563	**Foxe's *Book of Martyrs*** published
1563	**Council of Trent** ends
1570	Elizabeth was excommunicated by the Pope
1571	**Catholic Ridolfi Plot** against Elizabeth

Archbishop of Canterbury	Leader of the Church in England
Bishop	Important position in Church
Calvin	Protestant thinker
Cardinal	Important position in Church
Catholic	Christian who follows the Pope
Clergy	Anyone who works for Church
Communion	Important Christian service
Compromise	To meet in the middle
Committees	Elected groups of people
Doctrine	Religious belief
Excommunicate	Banish from Catholic Church
Foxe's *Book of Martyrs*	Book detailing gory deaths of Protestants under Mary I
Injunctions	Things you have to do
JPs	Justices of the Peace
Latin	Language of Catholics
Matthew Parker	Eliza's Archbishop of Canterbury
Missionaries	People who tried to convert others to Catholicism
MPs	Members of Parliament
Parliament	Body debating new laws
Prayer Book	What is read out in church
Protestant	Christian who rejects Pope
Puritan	Extreme Protestant
Pope	Head of the Catholic Church
Recusants	People who refused to go to Church
Reform	Protestant change
Restored	Brought back
Ridolfi Plot	Catholic attack on Elizabeth
Surplice	White linen robe
Transubstantiation	Key Catholic belief
Vestments	Priests' traditional clothes
Via Media	Latin for 'Middle Way'

KPI 18 English Catholicism, Protestantism and Puritanism

CATHOLIC
1 **Pope** head of church
2 **Cardinals** and **bishops** help lead the church
3 Bible and services in **Latin**
4 Highly decorated churches and priests wear **vestments**
5 Priests should not marry
6 **Transubstantiation**: during **communion** the bread and wine turned into the bread and body of Christ

PROTESTANT
1 Queen head of church
2 **Archbishops** and **bishops** help lead the church
3 Bible and services should be in English
4 Little decoration of churches and no **vestments**
5 Priests should be allowed to marry
6 Did not believe in **transubstantiation**, but thought bread and wine helped remember Christ's suffering

PURITAN
1 There should be no head of the church
2 Churchgoers should elect **committees** to run the church
3 Church services should be simple and easy to understand
4 No decoration of churches or **vestments**
5 No **transubstantiation**

KPI 19 The question of religion

Before 1532 England had been Catholic. In 1532 **Henry VIII** made himself head of the Church in England & introduced English bibles. Henry remained a **Catholic** but there were many Protestants in England.

Henry's son **Edward VI** made England more **Protestant** introducing a new **Protestant Prayer Book** in 1549, making church services in English, not **Latin** amongst others.

Mary I restored the power of the pope as head of the church
She put church services back into Latin. Burnt 289 Protestants for refusing to convert.

KPI 20 Elizabeth's Religious Settlement

In 1559, Elizabeth presented her religious settlement to **Parliament**. She adopted a **via media** or 'middle way' which created a church with both **Protestant** and **Catholic** practices, rejecting **Puritanism**. Her 1559 Acts of Supremacy and Uniformity were a mixture of Protestant and Catholic ideas. Elizabeth did not strictly enforce her settlement because she did not want to cause a rebellion. There was a small fine of 12 shillings for recusants which was not enforced. "I will not open windows into men's souls" she said.

Protestant
- Elizabeth, not the Pope, was head of the Church
- Elizabeth was named 'Supreme Governor' of the Church
- All clergy had to swear loyalty to Elizabeth
- Edward's Protestant prayer book to be used.
- Recusants were fined a shilling per week that they did not go to church.

Catholic
- Archbishops and bishops would help Elizabeth run the Church
- Recusancy fine was not regularly enforced.

KP1 21 The Rebellion of the Northern Earls 1569

Causes
Unmarried, Elizabeth had no Protestant **heir**. Catholic nobles the **Earl** of Northumberland and the **Earl** of Westmoreland wanted to replace her with Mary, Queen of Scots, who they planned to marry to the **Duke of Norfolk**. When Elizabeth heard of the scheme and summoned the earls to London, they refused and rebelled

Events
In Nov 1569, 4,600 rebels marched into **Durham** and held **mass** in the cathedral. They marched south but fled from the Queen's army led by the Earl of Sussex. The earls fled to Scotland in Jan 1570. Northumberland was executed in 1570 and Westmoreland fled to **Flanders**. Elizabeth executed over 800 rebels.

Reasons for Failure
1. Poor leadership: the rebel leaders lacked a clear plan
2. No foreign support: **Philip of Spain** was unwilling to support Mary because he feared she would support France, not him, if she became Queen
3.Elizabeth's popularity: few wanted Mary to replace Elizabeth or wanted the Pope to return as head of the church

KP1 22 Excommunication, 1570

The Papal Bull Pope Pius V issued a **Papal Bull** in February 1570 which **excommunicated** Elizabeth and called upon all Catholics to remove her. This provided a motive for rebellion and foreign invasion. This created a problem for English Catholics: follow the Pope and commit treason or be loyal to the Queen.
Elizabeth's Response Elizabeth issued the 1571 Treason Act which: 1 Made it **treason** to declare that Elizabeth was not the lawful Queen, 2 Made it **treason** to publish the **Papal Bull**, 3 Allowed Elizabeth to **confiscate** property from Catholic **exiles**
Elizabeth also set up a new **Council of the North** which reduced the powers of the northern **earls**.

KP1 23 Elizabeth's response to the rebellion and the Excommunication

From the late 1560s onwards, Elizabeth was forced to abandon her policy of toleration in response to three threats:

1. **Seminary Priests** trained by William Allen in Douai, **Flanders** were sent to England to restore Catholicism arriving from 1574
2. **Jesuit missionaries** led by **Edmund Campion** began to arrive in England in 1580. They swore to destroy Protestantism.
3. **The Papal Bull** excommunicating Elizabeth.

Elizabeth's response to **recusancy** grew stricter:
1581: Recusancy fine increased to £20 and converting people now **treason**
1581: Edmund Campion tortured and hanged in the Tower of London
1585: All Jesuits and Seminary Priests must leave the country or be killed, anyone helping them to be arrested
1593: Catholics forbidden from moving more than 5 miles from home

ELIZABETH 5: The Catholic Threat

1559	Elizabeth's religious settlement
1568	Mary, Queen of Scots arrives in England
1568	**Seminary college** set up in **Doaui**
1569	Rebellion of the Northern Earls
1570	Pope issues **Papal Bull**
1571	**Treason** Act
1571	The Ridolfi Plot
1581	Edward Campion executed
1581	**Recusancy** fine increased to £20
1583	The Throckmorton Plot
1585	All **Jesuits** required to leave England
1586	The Babington Plot
1587	Mary, Queen of Scots executed
1591	Catholics forbidden from gathering

Abdication	A monarch giving up the throne
Confiscate	Take away
Council of the North	Group enforcing the Queen's authority in North of England
Death Warrant	Authorization of execution
Douai	Town in Flanders
Duke of Norfolk	Powerful noble
Durham	City in the North of England
Earl	Type of powerful noble
Excommunicate	Banish from Catholic Church
Exiles	People who flee a country
Flanders	Part of modern Belgium
Heir	Next in line to the throne
Intervene	Get involved in
Jesuits	Anti-Protestant Catholic group
Mass	Catholic church service
Papal Bull	Public order from the Pope
Philip of Spain	Very Catholic king of Spain
Recusancy	Refusing to attend church
Seminary	College for Catholic priests
Tolerant	Not strict
Treason	Going against the monarch
Walsingham	Head of Elizabeth's spies
William Cecil	Elizabeth's main advisor

KPI 24 Catholic Plots

Ridolfi Plot, 1571
Roberto Ridolfi, an Italian banker, hatched a plot with **Philip of Spain** to invade England, replace Elizabeth with Mary, and marry Mary to the **Duke of Norfolk**. However, **William Cecil** and Francis **Walsingham** discovered the plot. **Norfolk** was executed and Ridolfi was expelled from England. MPs wanted Mary executed but Elizabeth refused as she believed executing a queen went against God's will.

Throckmorton Plot, 1583-4
Francis Throckmorton organised a plan for French Catholic soldiers, backed by the Pope and Spain, to invade England and replace Elizabeth with Mary. However, Throckmorton was arrested and executed. Mary was banned from receiving visitors and all her mail was checked by **Walsingham**.

Babington Plot, 1586
In 1586 **Walsingham** discovered coded letters between Mary and Anthony Babington, a Catholic noble, plotting to overthrow Elizabeth with the help of a Spanish invasion. In August 1586, Babington, and six others were executed. Mary was executed in 1587.

KPI 25 Mary Queen of Scots background, treatment and problems

Mary was Elizabeth's cousin, her closest living relative, and a Catholic. She had been married to the King of France until he died in 1558, and by the 1560s was Queen of Scotland, and had a son, the Protestant James. She became increasingly unpopular in Scotland, and was forced to flee in 1567, leaving her infant son James as King of Scotland.

Mary was given refuge in England. Many Protestants were scared – they thought Mary was likely to become Queen of England and to begin persecuting Protestants. Many MPs saw Mary as a security threat and wanted her executed, but Elizabeth refused, she did not want her enemies getting ideas and executing her, nor did she want Catholic rulers in Europe coming help Mary. Instead Mary was kept in luxury, but a prisoner, for 19 years. For most of this time Mary was not involved in any plots to overthrow Elizabeth, although she did inspire plots as she was a potential alternative queen.

Elizabeth used her spymaster Walsingham to keep track of Mary, leading to the uncovering of the Babington plot, which showed Mary aimed to have Elizabeth killed and herself made Queen of England.

KPI 26 Execution and impact

In October 1586 Mary was put on trial for treason. There were 36 noble men whose job it was to decide on the case. Mary was not allowed to see the evidence against her, but even so she made a good case. She argued that as she was a foreign queen, and not English, she could not be accused of treason. However on 25 October 1586 she was found guilty and sentenced to death. Despite the evidence, Elizabeth did not go ahead with he execution at first. She was worried about the consequences – either revenge from Mary's son James, or from the Catholic King of Spain.

On 1st February 1587 the death warrant was signed, and Mary was executed on 8th February. The execution was carried out in private, and Elizabeth had the privy councillor who delivered the warrant briefly imprisoned. With Mary gone the threat should have gone, however some Catholics saw Mary as a martyr and Elizabeth had proven that an anointed ruler could be killed. The kings of France and Scotland expressed their outrage but took no action. Philip was unable to fund plots to bring Catholicism back so carried out the Armada.

KPI 27 The nature and ideas of Puritanism

There were many high profile Puritans in government including, Walsingham and Dudley, but some were more outspoken than others:
1.Peter Wentworth MP was imprisoned in 1576 for demanding a debate on religion in Parliament
2. From the 1570s, meetings of Puritans, known as phrophesyings became popular, during these meetings the clergy would criticise Elizabeth's Church. The Archbishop Edmund Grindal encouraged these meetings, so the queen suspended him when he refused to ban the meetings.
3. Both **Robert Dudley and Francis Walsingham** were moderate Puritans who used their role in the Privy Council to push for Puritan change, and to protect Puritans such as Thomas Cartright. However by 1590 they were both dead, so Archbishop **Whitgift** was able to carry out his persecution of them unopposed

Puritans wanted to get rid of all traces of Catholicism and introduce a 'purer' form of religion. Many Puritans had been **radicalised** during Mary I's reign when they had been forced to flee to Protestant countries and accepted the extreme Protestantism of **Calvin**.

Puritans opposed:
1 Priests wearing vestments/a surplice 2 Celebrating saints' days 3 Church decoration (e.g. stained glass windows) 4 The role of bishops within the church
Puritans believed that everyday life should be based upon religious belief, so they wore simple black and white clothing, rejected the theatre and gambling, and studied religion on Sundays.

The new Archbishop Bishop of Canterbury John Whitgift, with the queen's support introduced measures to crack down on Puritanism.

A new High Commission was created with the power to fine and imprison Puritans who did not conform.100s were dismissed or imprisoned.

Puritans began making more extreme pamphlets, one publisher John Stubbs had his right hand chopped off as a punishment. Whitgift's reforms broke the organisation of Puritans.

ELIZABETH 6: The Spanish Armada

1566	Dutch Protestants rebel against Spain
1567	Spanish army crushes Dutch rebellion
1575	Dutch Protestants rebel again
1585	Elizabeth signs the Treaty of Nonsuch
1587	Execution of Mary Queen of Scots
1587	Drake raids Cadiz
1588	Spanish Armada **28 May** Armada sets sail from Lisbon **19 Jun** Forced to return to Corunna **21 Jul** Leaves Corunna **27 Jul** Sighted off English coast **6 Aug** Anchors off Calais **7 Aug** Lord Howard sends fireships **8 Aug** Battle of Gravelines **9 Aug** Elizabeth's speech at Tilbury Armada forced north by wind **12 Aug** English fleet turns back

Armada	A large force of armed ships
Cadiz	Important Spanish port
Calais	Important port in France
Corunna	Spanish port
Crescent	Half moon-shaped
Dutch	From the Netherlands
Earl of Leicester	Pro-war Privy Councillor
Fireships	Unmanned ships set on fire
Galleons	Large, heavily armed ships
Golden Hind	Francis Drake's ship
Gravelines	French town, near Calais
John Hawkins	English sailor and slave trader
Knighted	Made a 'Sir' by the Queen
Lord Howard	Leader of English fleet
Netherlands	Important part of Spanish Empire
Privateers	Private ships used by government
Privateering	Using private ships to raid Country
Realm	
Seasoned wood	Wood made waterproof
Spanish Main	Spanish territory in Americas
Tilbury	Port in England
Treaty of Nonsuch	Deal between Dutch and English
Warning beacons	Towers lit to signal danger
William Cecil	Anti-war Privy Councillor

KPI 28 Reasons for the Armada

Philip II / Religion
Philip II, the King of Spain, wanted to use the power of his empire to attack Protestantism across Europe. The 1570 Papal Bull meant he had a holy duty to attack Elizabeth. The death of Mary, Queen of Scots ended his plan of putting a Catholic ruler on the English throne and he planned a 'holy crusade' against Elizabeth.

War in the Netherlands
In 1566, Protestants in the Netherlands rebelled against the Catholic rule of Spain. In 1567 Philip crushed the rebellion with an army of 10,000 men, arresting 18,000 rebels and burning thousands. Elizabeth was worried about having such a large Spanish army so near England. However, her Privy Council was split between **William Cecil**, who wanted to avoid war, and the **Earl of Leicester**, who wanted to intervene to help the **Dutch**. Elizabeth chose to provide unofficial support, supplying money and weapons. However, when war broke out again Elizabeth signed the 1585 **Treaty of Nonsuch** with the Dutch rebels, supplying 5,000 troops led by the Earl of Leicester. England and Spain were basically at war.

Privateering
Elizabeth encouraged English **privateers** to attack Spanish treasure ships returning from the **Spanish Main**. In 1577, Elizabeth sent Francis Drake on a 3 year voyage around the world in his ship, the ***Golden Hind***, to attack Spanish ships. He brought back £140,000 of treasure. Philip was furious but Elizabeth **knighted** Drake in 1581. By the 1580s, **privateering** was starting to have a serious impact on the Spanish economy.

Key Individuals

Philip II
Ruled over huge Spanish empire, including Americas and Netherlands. Ex-husband on Mary I. Devout Catholic.

Duke of Parma
Appointed to lead Spanish army in Netherlands. Experienced and feared general but failed to meet Armada.

Duke of Medina Sidonia
Devout Catholic keen to destroy Protestantism but inexperienced at sea. Forced to lead Armada by Philip.

Francis Drake
English pirate and privateer. Raided Spanish shipping in the ***Golden Hind*** and attacked the Armada at Cadiz in 1587. Vice-admiral of the English fleet.

KPI 29 The Course of the Armada

Philip's Plan
In 1586, Philip planned to build an **armada** of ships to sail north from **Lisbon**, defeat the English fleet, pick up the Duke of Parma's army from the **Netherlands** in huge barges, land in England, and overthrow Elizabeth.

Drake's attack on Cadiz
In April 1587, Francis Drake attacked the Armada in Cadiz harbour. Drake destroyed 37 ships and burnt supplies of **seasoned wood** used to build waterproof barrels. Drake's attack delayed the Armada for a year.

England prepares for invasion
Warning beacons were set up on the coast. Unlike Parma's army, the English force of 20,000 men was inexperienced. Elizabeth stationed three armies: in the North, in Kent, and at **Tilbury** in Essex. **Lord Howard**, Drake, and **John Hawkins** led a **fleet** of 200 light and fast ships.

Medina Sidonia prepares
On 9 May Medina Sidonia gathered his men and sealed them into Lisbon Harbour, waiting to leave. However, they didn't leave Lisbon until 28th May, during this time the Spanish sailors ate much of the food they had stored on the ships.

The Armada spotted from Cornwall, 29th July
With 127 ships including 20 **galleons**, 30,000 men, and 1,900 cannons, the Armada entered the Channel in a **crescent** formation, with galleons protecting unarmed store ships. On July 31st the English fleet pursued the Armada but they only sank two Spanish ships.

Howard's first attack
On 2nd August the first full attack on the Spanish began, with Lord Howard attacking Medina Sidonia's own galleon. Howard's men fired over 500 cannon balls, but Sidonia's ship only fired 80. This convinced Howard that although it would be hard to sink the Spanish ships, the English had little to fear from the Spanish guns which were difficult to reload.

The Battle of Gravelines, 8 August
With the Armada scattered, the English **fleet** attacked. After 8 hours, the English had sunk 3 Spanish ships and killed 1,000 sailors. The English lost 50 sailors and no ships. It was now difficult for the Armada to join with Parma's army, although an invasion was still possible.

Calais and the Fireships
The Duke of Parma was delayed by Dutch rebels and the Armada had to wait for a week off **Calais**. On 7 Aug, Lord Howard sent 8 unmanned burning ships into the Armada. The **fireships** caused the Spanish **galleons** to panic and they broke their **crescent** formation.

Elizabeth's speech
Fearing a Spanish invasion, delivered a rousing speech to her army on 9th August: "I know I have the body of a weak and feeble woman, but I have the heart and stomach of a King…and I think foul scorn that any prince of Europe should dare to invade my **realm**."

Pursuing the Armada
On 9th August, the wind changed and the Armada was blown north, pursued by the English fleet. The Armada could not sail back to Spain against the wind had to travel around Scotland and Ireland to get home. On 12th August, the English fleet turned back due to a lack of food.

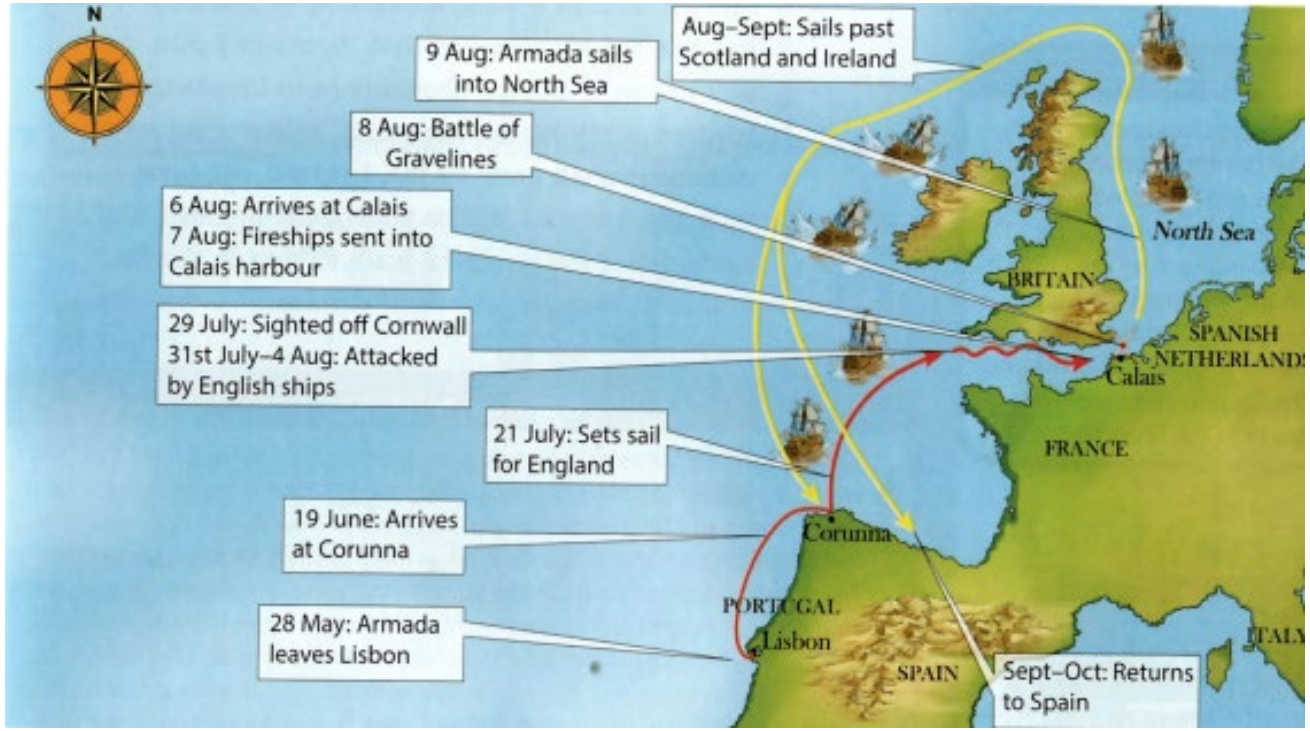
The Armada returns to Spain The Spanish had no maps of Scotland and Ireland. On the journey back to Spain 27 ships were wrecked and thousands of sailors drowned, only 13,400 men returned to Spain. Only 92 of the original 127 ships made it back to Spain in the autumn, and only 40 of these could be used again.

KPI 30 Reasons for Failure

1 English strengths: the English ships were faster and more manoeuvrable than the Spanish **galleons**. The leadership of Howard and Drake was crucial: the use of **fireships** was a turning point.
2 Spanish weaknesses: Spanish cannons were made of poor-quality iron. Leadership was poor: Medma Sidonia was inexperienced and Parma failed to turn up on time.
3 Weather: the wind forced the Spanish northwards and they had no maps for this route nor food and water for a long voyage.

KPI 31 Results of the Armada

Some change: 1 Great celebrations in England, 2 No more Catholic plots after 1588 3 Increased anti-Catholic feeling in England
But mainly continuity: 1 War with Spain continued until 1604 2 Philip soon built another 100-ship armada but it was driven back twice by storms 3 Conflict in the Netherlands continued with Elizabeth supporting Protestants against Parma 4 English **privateers** continued to attack Spanish ships



Q1 Study interpretation A. How convincing is interpretation A about X? [8]

CHECKLIST

- ✓ Link to the question
- ✓ Provide two points about the question from interpretation A.
- ✓ Support each point with knowledge
- ✓ Explain how your knowledge proves the interpretation

SENTENCE STARTERS

Int. A suggests that X ….
This is because it says…
This can be supported with the knowledge that…
This is convincing as (explain)

and repeat

Q2 What was important about Z? [8 marks]

CHECKLIST

- ✓ Link to the question
- ✓ Provide two points about the importance of Z
- ✓ Explain each point
- ✓ L4 needs a complexity – how the importance has changed/for different groups etc.

SENTENCE STARTERS

One way in which Z was important was…
More specifically…
This shows that Z was important because…
Another way in which Z was important was…
More specifically…
This shows that Z was important because…
The importance changed/differed etc…

Q3 Write an account of W. [8]

This is the same as Q3

Vietnam & Korea

CHECKLIST

- ✓ Note down two causes/consequences/ events related to W
- ✓ Write a paragraph explaining one cause/consequence/event in W, including
  - ✓ specific own knowledge
  - ✓ Explanation of this
- ✓ Write a paragraph explaining one cause/consequence/event in W, including
  - ✓ specific own knowledge
  - ✓ Explanation of this

SENTENCE STARTERS

For causes:
One cause of W was…
reason for W was
For example…
This led to W because…
Repeat
Or
For consequences
One cause of W was…
reason for W was
For example…
This led to W because…
Repeat
Or
For events
The first event of W was… reason for W was
For example…
This led to …
Repeat

Q5 The main change/cause/consequence that X demonstrated was Y. How far does a study of the Spanish Armada support this statement? [16 marks]

CHECKLIST

- ✓ Make an overall judgement about how far you agree
- ✓ Make three points
- ✓ Make three points that show that the main change/ cause/ consequence that X shows was..
  - Y
  - Something else
  - Either another change/cause/ consequence or Y/P
- ✓ Support each point with evidence from the Spanish Armada
- ✓ Explain how your evidence shows that change/ cause/consequence
- ✓ Give an overall judgement showing the MAIN cause/ consequence/change

SENTENCE STARTERS

One change/cause/consequence of X was Y. More specifically… (include some evidence from Spanish Armada)
This shows that Y was change/cause/consequence of X because…

A second change/ cause/ consequence of X was P. More specifically… (include some evidence from Spanish Armada)
This shows that P was a change/cause/consequence of X because…

A third change/ cause/ consequence of X was (Y, P or a new point). More specifically… (include some evidence from Spanish Armada)
This shows that… __ was a change/cause/consequence of X because…

Overall the main change change/ cause/ consequence that X demonstrated was __, despite…
The main change change/ cause/ consequence that X demonstrated was __

Media

Total marks 60.	Component 3. Year 11.
<u>Activity 1</u> **Ideas log.** 2 hours supervised conditions. 15 Marks.	Carry out research to support you in the generation of ideas in response to the brief. Complete an ideas log on the development of your chosen idea for a media product in reponse to the brief. You must provide information on: -Your initial ideas and how your idea will meet the target brief, with reference to – your target audience and how any other media products have influenced your ideas. -The content of your idea and how it will be structured into pages and how the content meets the requirements of the brief. -The style that will be used in your idea. Assessment is on your interpretation of the brief, development of ideas and consideration of target audience.
Evidence to provide for **<u>Activity 1</u>** & to be completed within the 2 hours.	**Mind Map** of your initial ideas At least 3 ideas explained 1 idea chosen giving reasons to why you choose it and why you rejected the other 2 **User Requirements** Document **Research** – how previous research has helped you with your idea and designs **Planning documents** such as page layout mock ups, experimentation with font styles and colours
<u>Activity 2</u> Planning material. 3 hours supervised conditions. 15 marks.	Produce the layout and design for all the pages of your publishing product. Th epage alyout and design should include; **Headlines and straplines** **The positioning of copy, images and any other assets** **Notes on design features.** You will be assess on your understanding of and appropriate use of skills and techniques to design a product for a specific audience and purpose. You need to collect your assets so you are able to make your product. These will include images you will take yourself and images you will download from the internet.
Activity 3. 4 hours supervised conditions. 30 marks.	Use your ideas from activity 1, planning materials from activity 2 and assets that you have collected and generated to create your media product in response to the brief. Export your product in an appropriate digital file format. You will be assessed on the skills and techniques used in your production and the extent to which your media product meets the requirements of the brief.

Key terminology			
Mood board	These are created before a magazine is created to help form ideas about the magazine	**Magazine front cover:**	Designed to attract attention and show what the magazine is about. It should appeal to the target audience.
Masthead	The name of the magazine. Goes across the top of the magazine.	**Tag line**	Goes next to the masthead. Gives an indication of what the magazine is about or who it is aimed at.
Central image	This is the main image on the front cover. It catches the readers attention. It will be relevant to the purpose and audience of the magazine.	**Coverlines**	These are located at various points on the front cover. They tell the reader about the contents of the magazine.
Essential information	Barcode, price, edition. These should be strategically placed and not distort any of the magazine's principle features.	**Typography**	This is the arrangement of text. This includes adjusting the font size and style to create a hierarchy amongst the masthead and coverlines. It also includes tracking and kerning.
Tracking	This is the space in between the letters. You can uniformly reduce or increase the tracking to make the text fit a particular space.	**Kerning**	This is the process of adjusting the spacing between characters in a proportional font, usually to achieve a visually pleasing result. Kerning

			adjusts the space between individual letter forms.
Analogous colours	These are next to each other on the colour wheel and can help to match the mood of the magazine. 	**Monochromatic colours**	This is the same colour with black or white added to achieve different shades. 
Complimentary colours	These are opposite each other on the colour wheel and go well together. 	**Editing images**	This involves preparing an image for your magazine cover to make it effective. This may involve adjusting the brightness to fit the desired mood; cropping the image to remove unwanted parts; layering the image to put text or secondary images on top of or under the image; change the colour of the image to black and white, for example
Purpose	What is the purpose of the media product? Entertainment, escapism, information profit, community benefit, raising awareness, critical acclaim, inspiration, innovation or experimentation.	**Target audience**	This is the group of people you are creating the media product for. Making the product appeal to and engage the target audience will help to get the message of your product across.
Target audience: Age	Magazines are often targeted towards specific age groups. For example pre-schoolers, children, teenagers and adults.	**Target audience: Ethnicity**	Your ethnicity is based upon your culture, ancestors, background, nation you come from. Some magazines will target specific ethnicities to reflect particular cultures others deliberately target multiple ethnicities.
Target audience: Gender	Your gender relates to how you identify yourself within society. Many magazines target either male or female gender particularly fashion and lifestyle magazine but some will be more gender neutral.	**Target audience: Psychometric groups**	These groups are based upon peoples' values, attitudes and lifestyles (VALs). There are 7 groups all with different VALs: succeeder, struggler, explorer, mainstreamer, resigned, aspirer, reformer.
Target audience: socio-economic groups	These groups are based upon the income and occupation of the head of the household. The different groups are: A upper middle class, B middle class, C1 lower middle class, C2 skilled working class, D working class, E those at the lowest level of subsistence.	**White space**	This is not necessarily white – it can be any colour. They are the areas on a magazine page that *deliberately* empty.
Active white space	This is white space that has been designed to guide the reader through the page. It may encourage a reader's eye to read a particular section of information before moving onto the rest.	**Passive white space**	This improves the aesthetics of the layout without guiding the user through a specific reading or content order.
Micro white space	This refers to the very small areas of white space between design elements– for example between individual letters (tracking) and between paragraphs. It has a direct impact on content legibility.	**Macro white space**	These are large areas of white space that are intended to add to the overall design of the page.

Year 11 – BTEC Music Component 3
Music Knowledge Organiser

Elements of Music	
Pitch	The pitch is how high or low the sounds/notes are. For example: A scale of notes rises in pitch by step.
Tempo	The tempo is the speed of the music. For example: how fast or slow the music is being played.
Dynamics	The volume of the music. For example: how loudly or quietly the music is being played.
Duration	The length of notes. For example: a minim lasts for two beats.
Texture	The layers within a piece of music. For example: how thick or thin the music is and how the parts within the music relate to each other.
Timbre	The quality and type of sound produced by an instrument. For example: string, brass, percussion, woodwind, voice.
Silence	The absence of music sounds. For example: in music, rests are written to show where the player should be silent.

Personal and professional skills for the music industry	
Time management	The ability to manage your time well in all processes involved within the music industry.
Self-discipline	The ability to stick to your plan and commit to your rehearsal/practise session.
Working with others	The ability to communicate well with your peers and to work together well to create the final music product.
Correct and safe use of equipment	The ability to maintain and correctly use musical equipment, including musical instruments, and electrical equipment.
Maintaining a development plan	Keeping a log of your journey, always referring back to the skills you are developing with regular check-in points.

Composition Skills	
Creating chord sequences	Using major and minor triads from within a key to create patterns of chords.
Using musical starting points	Using a musical/visual stimuli to inspire continuation of an initial idea.
Exploring musical structures	Taking inspiration from other pieces of music or songs to create a structure that suits your idea. E.g. ABABA, popular song, variations on a theme.
Using rhythmic and melodic rhythms	Exploring and creating patterns of notes in certain orders to create playable rhythms for both accompaniment and for melodies (tunes)

Key Performance & Rehearsal Skills	
Rhythm and timing	Being able to play rhythms accurately and stay in time with other musicians, keeping the music together.
Accuracy of pitch	Being able to sing or play the correct notes, ideally from sheet music.
Intonation/tuning	Being able to stay in tune and not go sharp or flat when playing or singing.
Phrasing & breath control	Controlling your breathing so that you can sing or play through a phrase showing musical shape.
Learning repertoire & following an accompaniment	Being able to tackle a new song/piece of music and the ability to follow a live or pre-recorded accompaniment part.
Instrumental or vocal technique & Musical skills exercises	Breathing exercises, scales, and technical exercises specific to your instrument/voice in order to develop a good technique.
Creating a practise routine	Organising your practise sessions and keeping a log to ensure development in all areas of performance.
Stage presence	Having confidence to command the audience and allowing them to engage in your performance.
Expression & musicality	Having the ability to connect with a song/piece of music and put your own stamp on it, showing emotion.
Health and safety in the use of equipment	Learning and maintaining high standards of looking after musical equipment of all varieties.

Music Production Skills	
Recording and editing audio (voice and instruments)	Exploring how to record using music technology musical instruments and voices. Also how to edit out errors and record multiple layers.
Exploring digital recording software and tools	Exploring how to use music technology equipment and computer software to create a music recording.
Using effects	Exploring the use of reverb, echo, delay, distortion and other vocal and instrumental effects.

How you will communicate your music skills development
Methods of capturing musical development:
Digital or written portfolio – including production notes, rehearsal diaries, annotated photographs/screenshots, milestone performances and reviews, recorded audition, compositional sketches and ideas.
Keeping a clear and organised approach:
Key points in the process need to be referenced clearly and in chronological order. Your written commentaries must match the quality of your practical work to show your full understanding.

Preparing for Component 3

COMPONENT 3: RESPONDING TO A COMMERCIAL MUSIC BRIEF

Essential content

A Understand how to respond to a commercial music brief

A1 Features of a commercial music brief

- Creative intentions and purpose of product:
  - target audience
  - commercial
  - collaborative
  - experimental.
- Aim, purpose and requirements of the brief.
- Nature of the specific area of the industry.
- Understand the target audience.
- Understanding and linking to the company's vision.

A2 Planning to meet the demands of the music brief

- How investigation and exploration can inform response.
- Understanding the rationale behind the selection of musical material.
- Investigating musical styles.
- Researching relevant material to support meeting the brief.
- The human and physical resources required.
- Proposing structure, version and arrangement.
- Timeline for development, including:
  - working out individual parts
  - establishing a personal practice routine
  - learning and memorising material if appropriate.
- Format and scope of the final response.

A3 Considering constraints and intentions

- Creative constraints:
  - technical requirements of the final response – format, material and purpose
  - available resources
  - feasibility of own ideas
  - standing out from similar work.
- Personal intentions:
  - personal skills development
  - building on own strengths.

B Select and apply musical skills in response to a commercial music brief

B1 Develop and produce a response to a client brief

- Working with and interpreting the client brief.
- Organisation skills:
  - identifying priorities
  - setting targets
  - using planning tools and technology.
- Prepare for a project:
  - health and safety
  - checking resources and facilities are adequate
  - taking measures to safeguard work and having a contingency by backing-up data, anticipating issues, creating multiples and planning alternatives.
- Consider constraints of the brief by:
  - working within the constraints of the brief
  - using suitable materials and techniques for the audience
  - addressing quality issues – technical, finish and function.

B2 Refining musical skills for a musical product

Learners will develop and refine their skills in creating a music product by creating original music, performing and using DAW as appropriate, during the creative process.

Learners should be able to:

- apply skills in a creative process
- apply industry approaches relevant to a project
- refine musical skills and techniques for a musical product in relation to a chosen context or style.

- Create original music:
  - applying melodic and rhythmic ideas
  - use of chords and chord progressions
  - use textures/sound palettes
  - musical devices, canon, riffs, imitation, sequences
  - musical structures, verse, chorus, middle-eight, AABA, riff-l
  - use of composition software if appropriate.
- Perform (if appropriate):
  - selecting material
  - working out individual parts
  - exploring feels and grooves
  - stylistic investigation
  - defining structure, version and arrangement
  - establishing a personal practice routine
  - establishing a group practice routine (where applicable)
  - learning and memorising material if appropriate.
- DAW skills (if appropriate)
  - selecting material
  - capturing audio
  - importing audio
  - sequencing
  - manipulating sounds and using effects
  - use of pre-sets and plug-ins.

B3 Refining musical material

- Watching/listening back material for self-analysis.
- Discarding, refining and polishing material and processes.
- Seeking feedback and responding appropriately to criticism.

B4 Personal management

- Being prepared and maximising rehearsal or studio time.
- Working with others.
- Setting goals and monitoring progress.
- Meeting deadlines.
- Adhering to health and safety guidelines and safe working practices.

C Present a final musical product in response to a commercial music brief

The final musical product should show application of skills appropriate to the context.

Components of Fitness

- Aerobic endurance
- Body composition
- Muscular endurance
- Flexibility
- Speed
- Strength
- Power

Methods of Training

- Continuous/ Fartlek/ Interval-Aerobic End
- Circuit/ Core Stability- Muscular End.
- Free Weight/ Fixed resistance Machines- Strength
- Plyometrics/ Anaerobic Hill Sprints/ CrossFit- Power
- Static Stretching/ Dynamic Stretching/ PNF Stretching- Flexibility
- Interval/ Sprint/ SAQ- Speed

Principles of Training

Specificity- Matching training to Components
Progressive Overload- Gradually getting harder
Overtraining- Risk of injury from training workload too quickly.
Reversibility- Return to previous fitness when you can't train.
Participant differences and Needs- Training to meet a person's goals based on fitness data.
Training Zones- correct training intensity to see improvements.

Maintain Fitness Levels- 50-60%
Fat Burning- 60-70%
Aerobic- 70-80%
Anaerobic- 80-100%

Frequency- How often
Intensity- How Hard
Time- How long
Type- Which method

Key Terms

Maximum Heart Rate- 220-Age

PAR-Q- Physical Activity Readiness Questionnaire

Lifestyle Questionnaire- questions related to occupation, diet, smoking, drinking.

Fitness Testing

Coopers 12 Min Run- Aerobic End

Skin Fold Callipers- Body Composition

Sit ups in 1 Min- Muscular Endurance

Sit and Reach Test- Flexibility

30m Sprint Test- Speed

Hand Grip Dynomometre- Strength

Sergeant Jump/ Vertical Jump- Power

Understanding Fitness Programmes

Using a person centred approach-

- Likes and Dislikes
- Availability to exercise
- Medical history
- Goal

Establishing Aims and Objectives-

What do I want to be able to do by the end of the training programme.

Aims- What you want to achieve

Objectives- The steps you are going to take to achieve your aims.

BTEC Sport

Designing a safe and effective programme-

A programme should contain a series of sessions. Each session needs- Warm up- The main component- Cool down

Training programmes usually last 6 weeks, At the end you review the aims and objectives to see if they have been met .

Key Words – CHECK YOUR SPELLING

Aim	Flexibility	Oxygen	Strength
Aerobic	Frequency	Progressive	Stamina
Aesthetic	Goal	Overload	Tactics
Anaerobic	Hazard	Psychological	Technique
Body	Health	Repetitions	Tedium
Composition	High Impact	Reversibility	Time
Cardiovascular	High Intensity	Specificity	Type
Core Muscles	Hypertrophy		Weight
Continuous	Load		Wellbeing
Differences	Long Term		

Step 1- Question
- Highlight key terms in the exam question.
- Highlight Sport specific terms i.e- Frequency

Step 2- Point
- Introduction- describe the key topic

Step 3- Explain
- Say how this concept can be used by this athlete.

Repeat

Step 4- Example
- How could she use this for the sport in the question

Step 5- Link
- Link all paragraphs together. Come to a conclusion.

Key word meanings.

Analyse -Examine methodically and in detail, typically in order to interpret-

Apply - Put knowledge, understanding or skills into action in a particular context.

Assess -Present a careful consideration of varied factors or events that apply to a specific situation or identify those that are the most important or relevant, and arrive at a conclusion.

Compare Identify the main factors relating to two or more items/situations, explain the similarities and differences, and in some cases say which is best and why.

Describe - Give a clear, objective account in their own words, showing recall, and in some cases application, of relevant features and information. Normally requires breadth of content coverage.

Discuss - Consider different aspects of a topic and how they interrelate and the extent to which they are important.
Explain- Provide details and give reasons and/or evidence to support an argument.

State - Express something definitely or clearly.

Concept	Remember	Definition	Example related to topic
Components of fitness			
Aerobic endurance	**A**thletes	The ability of the cardiorespiratory system to work efficiently, supplying oxygen and nutrients to the working muscles during **sustained physical activity**.	**Sustained physical activity**- exercise at moderate to high intensity for **30 minutes or longer**. Eg Long-distance runners, games players (football, rugby, hockey, netball); swimmers, cyclists.
Body composition	**B**uild	The ratio of fat mass to fat-free mass. Fat-free mass includes heart, lungs, muscle tissue and bone.	Long distance runners-small muscles and very little body fat so they carry less weight. Gymnasts- lots of muscle and little body fat, they need to be light but also powerful. Shot putter- high levels of muscle to create power, often have excess body fat.
Muscular endurance	**M**uscle	Where a muscle can continue contracting over a period of time against a fixed resistance or load.	Rugby-keep pushing in a ruck or scrum. Rowing- to keep stroke rate high. Football- keep kicking the ball hard. Netball to keep moving at speed.
Flexibility	**F**or	The range of movement around a joint and ability to move a joint fluidly through its complete range of movement.	Gymnasts, athletes, games players (football, rugby, hockey, netball); martial arts competitors
Speed	**S**peed	The distance travelled, divided by the time taken. How quickly a distance can be covered, or an action performed.	Athletes; games players (football, rugby, hockey, netball), whilst sprinting to get a ball or intercept a pass. Striking/hitting, how quickly you can swing the bat or racquet to hit an object.
Power	**P**ower	The ability to undertake strength performances quickly – SPEED x STRENGTH	Most sports require an element of power, the force applied can be into our own body, into someone else or into an object.
Strength	And **S**trength	The maximum force (in Kg or N) that can be generated by a muscle or group of muscles.	Related to how much muscle mass a person has. The more muscle the more force they can produce. Rugby players and weight lifters.
Fitness testing		To test a person's components of fitness to determine strengths and areas for development in a training programme.	For each test there will be a specific protocol (exactly how the test is carried out). A warm-up should be conducted before the test,
Normative data		What is usually expected for a specific population.	Normative tables are available for different groups of the population: Girls and boys (14-16), men and women, elite performers and older people 65+
Reliability		The repeatability of results	If the test is repeated in exactly the same way, the same results should be achieved
Cooper's 12m Run	Aerobic endurance	Protocol: You run a set course for 12 mins and measure your distance covered to the nearest 10 metres.	It tests your aerobic endurance, the ability of the respiratory system to work efficiently, supplying oxygen and nutrients to the working muscles). As a running test, it is a less effective measure for cyclists and swimmers.
One Minute Sit Up Tests	Muscular endurance	Protocol: Perform each sit up with correct technique. Complete as many sit-ups within one minute, record score.	Tests muscular endurance in abdominal muscles, which is not necessarily a good indicator for other muscles in the body. Requires a high degree of motivation to push for as many as you can.
Hand grip dynamometer test	Strength	Protocol: With your arm hanging by your side, squeeze a hand grip dynamometer with your dominant hand for 5 seconds.	This tests muscular strength in your hand and forearm. This is not always indicative of the strength of other muscles in your body.
Sit and Reach Test	Flexibility	Protocol: You sit with your feet against a bench and your legs straight. You reach forwards and a partner measures how far in front of your toes you can reach with your fingers.	This measures the flexibility of the muscles at the backs of your legs, (your hamstrings). A person may have better flexibility in other muscles. Results are also dependent on your warm up.
Sargent Jump Test	Power	Protocol: The Sergeant jump is done by jumping upwards. You chalk your fingers and leave a marker on a wall as high as you can. You then jump up as high as possible and touch the wall again leaving another mark. Your partner measures the difference between the 2 marks.	Tests power in the legs.
30- metre sprint test	Speed	Protocol: From a standing start, on 'Go', sprint 30m as fast as you can.	The surface the test takes place on can affect results eg if it is bumpy or slippery.

	Sport-related advantage	Examples of related sports	Equipment related advantage	Other advantages	Sport-related disadvantage	Equipment related disadvantage	Other disadvantages
Training methods to improve aerobic endurance.							
Continuous training	For sports with constant work rate /intensity	10k running, open water swimming, rowing	Very little equipment needed Other than that for the sport eg bike for cycling. Mostly done outdoors so nothing other than space to train is required. It can be done indoors on a treadmill, exercise cycle or rower.	Can be done on your own whenever you like	Very few sports are at a constant pace the whole time	These types of training are often outside and therefore the weather can impact on performance. Heat can increase fatigue. Cold and wet weather may put people off training.	People may find it boring. Injury risk running on a hard surface. Takes at least 30mins so some people may find it difficult to make time regularly.
Fartlek training	Good for sports with varied intensity (running + sprinting)	Cross-country running Mountain biking		Can control your own pace so can change intensity as needed and to reduce tedium	There is no rest period in this type of training		
Interval training	Good for sports that have varied intensity with recovery periods	Team sports such as hockey- having to sprint for the ball then jog or walk back to position.		Helps to plan for progression in the training programme by increasing the intensity of the work periods or decrease the rest periods			
Training methods to improve muscular endurance.							
Circuit training	Stations can be designed for specific activities and muscle groups and also include sport specific skills	Team sports such as volleyball, hockey, football and individual sports such as squash	A wide range of equipment or bodyweight can be used as a form of resistance, so the cost can be minimal	The stations can be varied, and the time spent on each station can be changed so this is good for avoiding boredom	None	Usually, a card or sign shows what is to be done at each station. Stations need to be organised so you use different muscles at each station	This type of exercise is usually performed as a group. This is more sociable but does restrict when you can do it.
Core stability training	Core stability is required for all sports and activities to maintain posture and reduce back injury	All sports	No equipment is needed as most core stability exercises use only bodyweight. A stability ball is low cost	Can be carried out by an individual at times that fit in with their own commitments	None	None	None
Training methods to improve strength.							
Free weights	Increase strength over a large range of movement	Specific muscles and groups can be targeted to increase strength in these areas eg chest for breast stroke swimmer	Can be stored and used at home and used for a range of muscles		Movements with weights don't exactly replicate the action in sport. Strength will increase but range of motion may not.	Cost to buy barbell/dumbbell Spotter needed	If you had no spotter you may injure yourself
Resistance machines	Increase strength of target muscles for specific sport			Safer for new users less chance of injury, train alone		Very expensive machines which train one muscle group each	
Training methods to improve flexibility							
Static stretching	Help to increase flexibility in specific areas required for specific sports	Increased range of movement at shoulders for a swimmer performing butterfly or increase hip mobility to get low across the hurdle to increase speed	No equipment needed, so no costs or time needed to set up equipment		None	None	None
Dynamic stretching				Good as part of warm up as keeps heart rate raised			
Proprioceptive neuromuscular facilitation (PNF) stretching				Helps to develop flexibility at faster rate compared to other types of flexibility training		Requires an experienced person helping	Increase risk of injury if the person helping does not have experience
Training methods to improve power							
Plyometrics	Can be specific to the muscles that need power	High jump, long jump, basketball, gymnastics	Equipment is cheap and relatively easy to set up	Can be carried out on own at times to suit the individual	None	Benches and bars need to set up to on/off or over	Can cause injury, muscles experience great stress
Anaerobic hill sprints	Good for high intensity running sports	Cross country running	No setting up or cost required		Only specific to sports that require running	Access to a hill is required	Requires high intensity of work, not for the unfit
CrossFit	Can be made sport-specific	Sprinting, shot put, gymnastics	Equipment relatively cheap and not much to set up	Intensity can be varied to cater for different ability levels	None	A range of equipment is required	
Training methods to improve speed							
Interval training	Good for sports that have varied intensity with recovery periods	Team sports where you sprint for the ball then walk or jog back to position	Very little equipment needed Other than that for the sport. Mostly done outdoors so nothing other than space to train is required.	Helps to plan for progression in the training programme by increasing the intensity of the work periods or decrease the rest periods	Does not always replicate the movements from sports as it does not always use sport specific equipment for training	None	This type of exercise if usually performed as a group. This is more sociable but does restrict when you can do it.
Sprint training	Good for sports that require speed	Speed in a straight line eg 100m or the long jump	Inexpensive parachute or bungee ropes can increase resistance	These types of training can use different types of equipment which can reduce boredom	Only useful for straight sprint	Not much equipment, but needs to be bought and stored	
Sport specific training (SAQ) Speed, agility, quickness	Can be sport specific- such as running and dribbling	Good for sports requiring agility eg rugby, basketball or hockey	Can use cones, hurdles and ladders to move around at pace		None	Not much equipment, but needs to be set up before use	

Btec Sport Activity and Fitness- Term 2.1 and 2.2.

		Purpose	Example
Macronutrient	Proteins (12-15% of intake)	Tissue growth – known as the body's building blocks (Amino Acids). There are 22 amino acids- 8 of these are **essential amino acids**- have to be supplied from food as the body cant make them. Remaining 14 amino acids- **Non essential amino acids** can be made by the body. Athletes frequently use protein supplements in their diet and will consume protein immediately after training, sometimes as a 'shake'.	Animal products – meat, fish, dairy; plants – lentils, nuts, seeds; protein supplements and shakes.
Macronutirent	Carbohydrates (50-60% of intake)	Source of energy. Stored in the bidy as gylcogen but is broken down into glucose for energy. Divided into: simple carbohydrates – sugars- Which break down quickly providing a burst of energy. Consume if you are feeling tired before, during or after exercise. Complex carbohydrates – starches. Break down slowly, releasing energy over a longer period of time. Athletes need to consume larger quantities of carbohydrates to fuel their training and performance. Prior to an endurance event such as a triathlon, athletes might 'carbo-load' to ensure they have enough to finish the race.	Simple – sugar, glucose, fructose; energy gels; complex – bread, pasta, rice, potatoes.
Macronutirent	Fats (30% of intake)	Source of energy. Saturated fats- solid at room temperature. Too much increases cholesterol in your blood, incerasing risk of CHD. Should be limited. Unsaturated fats- Liquid at room temperature. They are healthier for you're a play a role in reducing the risk of coronary heart disdease. The bosdies secind source of energy after carbohydrates but take a long time to covert to energy. Fats are stored under the skin and are essential for health. Too much fat can limit an athlete's performance due to increased weight.	Monounsaturated – olive oil, avocados; polyunsaturated – oily fish, nuts, sunflower oil, soya beans; saturated – full-fat dairy, fatty meats; and trans fats – many snack foods.
Micronutrient	Minerals	Essential for many processes, eg bone growth/strength, nervous system, red blood cells, immune system. Need small amounts only.	Calcium – milk, canned fish, broccoli; Iron – watercress, brown rice, meat; zinc – shellfish, cheese, wheatgerm; Potassium – fruit, pulses, white meat.
Mirconutirent	Vitamins	Essential for many processes, eg bone growth, metabolic rate, immune system, vision, nervous system. Need small amounts only.	A – dairy, oily fish, yellow fruit; B – vegetables, wholegrain cereals; C – citrus fruit, broccoli, sprouts; D – oily fish, eggs, cereals.

Hydration.- Recommended daily intake (RDI) is 2 litres per day.

When you are hydrated you have enough water in your body for it to function properly. You become dehydrated when your body does not contain enough water for it to function efficiently. Signs include- thirst, dizziness, headaches, dry mouth, poor concentration, rapid heart rate.

Water helps to regulate body temperature through sweating and prevents overheating. Body temperature should stay between 36.1-37.8 degree C. Vasodilation is one way to get rid of excess heat. Sweating will reduce body temperature by releasing heat. Dehydration reduces your body's ability to sweat and makes you overheat.

Water keeps blood thin so that it flows around the body easily- Blood cells are carried in plasma, which is mainly water. When blood doesn't contain a lot of plasma it is thick and sticky (viscous). When you are dehydrated the blood becomes viscous, doesn't flow well and means oxygen doesn't get to the muscles as quickly.

Water keeps the joints lubricated- key component of synovial fluid, a clear substance produced in joints to enable them to move smoothly through their full range of movement.

Before training and Competition.

When preparing for intense aerobic exercise, performers must load their bodies with energy-providing foods containing carbohydrates to maximize their stores of glycogen. Known as Carbohydrate loading.

Immediately before competition they might also eat something that is easy to digest and contains simple carbohydrates, such as toast and honey to maximize glucose.

It is easier to perform on an empty bowel, so going to the toilet prior to exercise is advised. Fiber is also important for a healthy bowel function

During Training and Competition

Sports performers should ensure they drinks plenty of fluids, in the form of water or a sports drink, if they are working at a high intensity, for a long periods of time or in hot conditions. If the activity is lengthy they may also need a snack that is easy to digest such as a banana.

After Training or Competition.

Sports drinks are popular immediately after training, like water but contain electrolytes to replace the ones lost through sweat. Water also helps to replace fluids lost through exercise.

Within 1-2 hours of training or competing, a meal with complex carbohydrates to replenish the body's stores of glycogen, protein to aid repair of muscles and promote muscle growth. Some atheltes take protein shakes to aid muscle growth and repair.

Legal Training Supplements

Vitamin D- Crucial for healthy bones, so by taking Vitamin D tables your bones will becomes stronger and healthier. Benefit for athletes in high impact sports.

Protein Supplements- Usually a powder that you mix with water or milk to forma protein shake. Often drunk for strength or power training sessions. Most provide all 8 essential amino acids. Protein is essential for repair so can help a performer train harder for longer with less recovery time.

The B Vitamins are a group of vitamins that occur together in foods. Vitamin B1 breaks down the carbohydrates we eat into energy, so a lack of B1 may reduce performance. Supplements can be taken.

Pre-workout supplements- Give you a boost of energy before exercise. Someone taking part in aerobic exercise should take a different supplement than someone who is taking part in strength or power session.

Isotonic Drinks- Containing glucose replenish electrolytes lost through sweat and help to rehydrate. They also provide a burst of energy to enable performers to work at a higher intensity or to recover from exercise.

Caffeine- Can improve alertness and concentration. Studies have shown it can improve aerobic endurance and power.

Carbohydrate Loading

Carbohydrates provide energy. The complex carbohydrates – starches – are stored in the body as glycogen and converted into glucose when the body needs more energy. Glycogen is a slow-release form of energy. This is particularly useful to endurance athletes in the last stages of a performance. So, for example, in the week leading up to a race, marathon runners may eat lots of starchy foods, such as pasta. This helps them to keep going towards the end of the race.

High-protein diets

Protein builds tissue, including muscle. Athletes who want to build up their muscle during strength-training sometimes eat high-protein diets. This includes obvious strength-training athletes, such as weightlifters, but also includes endurance athletes who want t repair or prevent torn muscle. The value of high-protein diets is debatable. Athletes do not need much more protein than other people, protein is difficult to digest and it does not automatically turn into muscle – the athlete still needs to do strength-training, which is fuelled by carbohydrates.

Sport Psychology- Term 2.2

Motivation- The drive for a person to be successful

Intrinsic- From within- Taking part in sport for the enjoyment, because it makes them happy.

Extrinsic- A form of reward is given- Tangible- Something that has a physical presence- Money/ Trophies Intangible- something that doesn't cost anything but provides recognition- Name in the local paper/ Team Captain.

The impact of motivation on participation- Benefits	The impact of Self Confidence on Participation
Intensity of effort during participation is higher- more likely to push themselves.	Increased intrinsic motivation- higher levels of self confidence increase your motivation to take part.
Continue to take part on a regular basis-	Positive attitude to fitness, sport and activity- Increase the belief that they can reach their goals.
Overcoming adversity- Injured for a long time, Not achieving a fitness goal in planned time. Things that could affect motivation- bad school report, falling out with friends, family issues.	Improved performance- They believe that they can perform the skills, make the time. More confidence means that they will commit to a tackle in football therefore more likely for it to be successful.
Higher Enjoyment Levels-	Improved concentration and effort- Less likely to have doubts about their performance.
Increased Intrinsic and extrinsic rewards.	

Positive Reinforcement-

Rewards- Children respond well to certificates or badges.

Creating a Positive Environment-

If performers feel comfortable in the environment they are happier to take part.

Self Talk-

Talks to themselves out loud or in their head key affirmations to reassure themselves.

Working with similar abilities-

Having a training partner to keep you going when you lack motivation is good Will add a social element If they are much better than you this can be demotivating.

Methods to Increase Self Confidence

Goal Setting-

Short (1 session- few weeks) and Long term goals (6 weeks/ Term/ Year)

SMART targets- Specific- Something they want to achieve Measureable- Able to be monitored Achievable- Capable of doing it Realistic- Remove any barriers from achieving goal Time-Related- A time scale.

Effects of Anxiety on Participation

Somatic Anxiety- The feelings brought on by state or trait anxiety- Butterflies in stomach, Muscle tension, Increased heart rate/ sweat rate.

Cognitive Anxiety- Psychological effects brought on by state or trait anxiety- Feeling worried, poor concentration levels, lack of sleep due to over thinking.

Anxiety-

State Anxiety- The situation the person is in. Temporary anxiety only in this environment

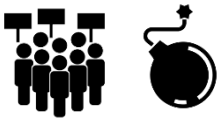
Trait Anxiety- Some people are more anxious than others- related to their personality.

Impact of Anxiety- Controlling it

Fitness Induction- Know where to go and what to do.
Use of Music- Motivate or Calm
Activity based on Ability Levels- Beginner classes
Pre-Match Team Talk- Builds confidence, reduces anxiety.

AQA Religious Studies A – Theme D: Religion, Peace and Conflict

Key Words			
Forgiveness	Pardoning someone for wrongdoing	Peace-making	Working toward bringing about an end to war and a state of peace
Greed	Going to war to gain land or natural resources such as oil	Protest	A public expression of disapproval, often in a big group, can be peaceful or violent
Holy War	A war that is fought for religious reasons, usually backed by a religious leader	Quakers	A Christians denomination who worship in silence and are well known pacifists
Just War	A Christian theory that asks whether a war is fought justly	Reconciliation	Restoring friendly relationships after a war or conflict
Justice	Bringing about what is right and fair, according to the law or God's will	Retaliation	Deliberately harming someone as a response to them harming you
Nuclear Weapon	A weapon using a nuclear reaction to cause massive damage	Self-Defence	Protecting yourself or others from harm
Pacifism	A belief that all forms of violence are wrong, commonly held by Quakers	Terrorism	Using violence in order to further a political or religious message
Peace	A state of happiness and harmony, an absence of war	WMD	Weapons of mass destruction: chemical, nuclear or biological weapons

Key Ideas			
Protests and Terrorism 	**Protests** The right to gather together and protest is a fundamental democratic **freedom**. UK law allows for peaceful public protest but sometimes protects can turn violent and become a **riot**. Christians often **protest unjust laws** or for other forms of justice but would rarely advocate the use of violence in protest.		**Terrorism** Examples of terrorism include suicide bombing, mass shootings or using vehicles to injure pedestrians. The aim of terrorism is to make society aware of a cause or issue and to make people frightened to go about their business. Christians don't promote political violence + believe terrorism is wrong as it targets innocent people
Reasons for War 	**Greed** To gain more **land** or to control important **resources** such as oil or gas. e.g. The UK and US invading **Iraq** in order to control oil resources	**Self-Defence** To **defend** one's country against invasion or attack or to protect allies who are under attack e.g. UK threatened by Nazi invasion in **WWII**	**Retaliation** To fight against a country that has done something very wrong or to fight against a country that has attacked you e.g. US invading **Afghanistan** in retaliation for 9/11
Nuclear War and WMD 	Nuclear weapons work by a nuclear reaction and devastate huge areas and kill large numbers of people. They are a type of WMD (**weapons of mass destruction**) which also includes **chemical** and **biological** weapons. All these weapons are not allowed under the Christian Just War Theory and would therefore be rejected by most Christians. Nuclear weapons were used at the end of WWII in **Japan** to force the Japanese to surrender. Some people say their use was justified as it prevented more suffering even though 140,000 people died. Although some Christians justify war with 'an eye for an eye', this cannot be used to justify the use of weapons of mass destruction as they are not a **proportionate** response.		
Holy War 	A **Holy War** is a war which is fought for religious reasons, often with the backing of religious leaders. An example of this was the **Crusades** fought from the 11th-14th Century by Christians, backed by the Pope. Religion can still be a cause for war today such as in **Northern Ireland** where Protestant and Catholic Christians fought a civil war between 1968-98.		
Just War Theory 	Just War Theory is a Christian moral theory for working out if a war meets internationally accepted criteria for fairness. These are some of the conditions that must be met in order for a war to be just: • Just Cause – fought in self-defence or to protect others • Just Intention – fought to promote good and defeat wrongdoing • Last Resort – only going to war if all other methods have been tried first • Proportional – excessive force should not be used and innocent civilians must not be killed		
Pacifism and Christian Responses to War 	**Pacifism** is the idea that **all forms of violence are wrong**. Pacifists such as Quakers refuse to take part in war and often choose to be a **conscientious objector** (someone who doesn't go to war for moral reasons) or to assist in medical tasks like ambulance driving. Christians try to follow Jesus' teaching that "blessed are the peacemakers"		Christians try to show **mercy** and **agape** to victims of war and provide them with assistance. This can be through charity or through welcoming them into their churches. It can be victims in their own country or **refugees** such as people fleeing from Syria or Yemen. This is an example of 'love your neighbour' in action.

AQA Religious Studies A - Theme C: Existence of God and Revelation

Key Words			
Atheist	Someone who does not believe a God exists	Omnipotent	God's nature as all-powerful
Benevolent	God's nature as all-loving and all-good	Omniscient	God's nature as all-knowing and aware of all that has happened past, present, future
Faith	A commitment to God and religion that goes beyond proof	Personal	God's nature as merciful, compassionate and something humans can relate to
General Revelation	God making themselves known through ordinary experiences open to all	Proof	Evidence that shows something is true or existent
Immanent	God's nature as present in and involved in the world	Special Revelation	God making themselves known through extraordinary experiences
Impersonal	God's nature as non-human, unknowable and mysterious	Theist	Someone who believes in a God or Gods
Miracle	A remarkable event that cannot be explained by science alone	Transcendent	God's nature as beyond our understanding, existing outside the universe

Key Ideas		
Design Argument 	The **Design Argument** argues that God must exist because the world around us is so intricate and well-designed that there must be an intelligent creator behind it. **William Paley** puts this forward in his **Watchmaker's Argument** that says if you found a watch in the grass you would not assume its intricate mechanism had come about by accident, you would assume someone had created it. The same applies for the world around us. ☒ Atheists argue that nature and science are responsible for the world around us and that much of the so-called design is the result of **chance** and **natural selection**.	
First Cause Argument 	The **First Cause Argument** was put forward by **Thomas Aquinas** and it argues that there has to be an **uncaused cause** that made everything else happen and that must be God. It argues that nothing moves without first being pushed and that God is the only possible being that can exist with no cause as God is **eternal** (never beginning, never ending) ☒ Atheists argue that by this logic **God must have a cause** or that if God is eternal then the universe itself could be eternal as well.	
Argument from Miracles 	The **Argument from Miracl**es argues that **miracles** (a remarkable event seemingly only explained by God's actions) prove that God exists. They argue that these events (like Jesus walking on water or people coming back from the dead) **cannot be explained by science** and that they must be the result of God's intervention. ☒ Atheists argue that miracles are not more than happy coincidences and that they can be explained either by **science** or people being **delusional** or **lying**.	
Special and General Revelation 	**<u>Special Revelation</u>** This is a form of revelation where God reveals themselves through **remarkable experiences** usually only open to one or a small group of people. These could be **visions** (seeing Mary, God or Jesus), **dreams**, **miracles** or **hearing God's call** directly. In the Bible **Saul** experiences a vision of Jesus on the Road to Damascus and this causes him to believe in God, change his name, and preach the Gospel	**<u>General Revelation</u>** This is a form of revelation where God reveals themselves through **ordinary experiences** which are open to all people to experience. This could be through **nature** where God's creation is revealed in the intricacy of the human eye or the beauty of the Grand Canyon. It could be through **scripture**, God reveals much information about themselves in the Bible.
Nature of God 	**<u>Omnipotent, Omniscient, Benevolent</u>** According to the Bible and Christian teachings, God is **omnipotent** (all-powerful), **omniscient** (all-knowing) and **benevolent** (all-loving).	**<u>Problem of Suffering</u>** This however leads to the Problem of Suffering. If God is all-powerful and all-loving **why does so much suffering exist in the world?** Some people see this as an argument against God's existence.
	<u>Personal vs Impersonal</u> Different Christians have different views on God with some seeing them as personal and some as impersonal. A **personal God** has human characteristics and Christians can form a relationship with them through prayer. An **impersonal God** is mysterious and unknowable and has no human characteristics. More like an idea or a force than a human being.	**<u>Transcendent vs Immanent</u>** They also disagree about God's place in the world. A **transcendent God** exists beyond and outside of life on earth and is not limited by the laws of physics or the rules of time and space. An **immanent God** is active and involved in life on earth and can play a role in events that happen here. This could be through the Holy Spirit answering prayers for example.

AQA Religious Studies A – Christian Beliefs

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

Key Ideas

Nature of God

- Christians believe in **one God** who is the creator and the sustainer of all that exists
- God is **omnipotent** which means they are almighty and have unlimited power
- God is **benevolent** which means they are all-loving and all-good
- God is **just** which means they are a perfect and fair judge
- **The Problem of Suffering** asks: if God is all these things why do they allow bad things to happen to good and innocent people?

The Trinity

- Christians believe God is three persons in one. This idea is called the **Trinity**.
- Each person of the Trinity is fully God but the three persons of the Trinity are not the same.
- The **Father** is the creator of all life
- The **Son** is Jesus Christ who is both fully human and fully God
- The **Holy Spirit** is the unseen power of God at work in the world, especially answering prayers

"We believe in one God, Father, Son and Holy Spirit" – The Nicene Creed

Incarnation and Crucifixion

<u>Crucifixion</u>

- Jesus travelled to Jerusalem to preach and he was sentenced to death by Pontius Pilate
- Jesus was then nailed to a **cross** where he died.
- In his last moments Jesus was able to forgive those who were killing him showing Christians how important **forgiveness** is
- This event is remembered on Good Friday

"Forgive them father, they know not what they do" – Luke 23:34

<u>Incarnation</u>

- Christians believe that God was **incarnated** (born) in human form as **Jesus Christ**
- **Mary** was impregnated by the Holy Spirit and gave birth as a virgin – for Christians this is proof of Jesus' status as the son of God
- **Christmas** is the festival that celebrates the incarnation

"The word became flesh" – John 1:14

Resurrection and Ascension

<u>Resurrection</u>

- After Jesus was dead and buried Christians believe he **rose from the dead** – this is the **resurrection**
- Early on the Sunday three women visited his tomb expecting to find his body but it was not there
- After his resurrection Jesus appeared to his disciples and told them to spread the word of him
- This event is celebrated on **Easter Sunday**

"He is risen" – Christians say this to each other on Easter Sunday

<u>Ascension</u>

- Forty days after he rose from the dead Jesus **ascended** (went up) into heaven

<u>A belief in resurrection and ascension ...</u>

- Shows **life after death** is real
- Assures Christians they will rise again after death and live on in the afterlife
- Leads Christians to try and lead a **good life**

Sin and Salvation

- Christians believe you are **judged** after you die (see Religion and Life) and how well or badly you have lived and treated others decides if you go to **heaven** or **hell**
- **Sin** is any action or thought that goes against God's will, Christians can look in the Bible for advice on what is a sin e.g. murder (you shall not kill) and adultery (cheating, you shall not commit adultery)
- God gave humans **free will** but they should use that freedom to make good choices and not sin
- **Salvation** is the idea that Jesus's crucifixion saves human beings from eternal damnation
- The death of Jesus made up for **original sin** – the idea that we were all damned by Eve's choice to disobey God – it allows us to atone for sins and reach eternal life in heaven