

Year 10 Knowledge Organiser

Student's name:



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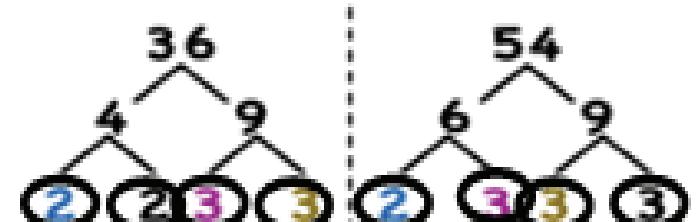


Maths



Maths Foundation - LCM & HCF



Definitions	
Factors	Numbers which divide exactly into another number
Multiples	A particular number's times tables
Lowest Common Multiple (LCM)	<p>Make a list of the multiples of all the numbers. The lowest number appearing in all lists is the lowest common multiple.</p>
Highest Common Factor (HCF)	<p>The highest number that can be divided exactly into each of two or more numbers. To find the highest common factor of two (or more) numbers, make prime factors of the numbers and identify the common prime factors. Then the highest common factor is the product of the common prime factors.</p> <p>1) Prime Factors</p>  <p>2) Shared: 2, 3, 3</p> <p>3) Multiply $2 \cdot 3 \cdot 3 = 18$</p>

Foundation - Transformations



Important vocabulary	
Column Vector	Used to describe the movement of a shape (a translation).
Mirror Line	The line which you are reflecting from
Centre of Rotation	The point which you are rotating your shape from.
Scale Factor	This is the number that the lengths have been multiplied by. Remember a shape can get smaller too if it is enlarged.
Vertex	A corner of a shape
Centre of enlargement	The point where all the lengths are enlarged from
Clockwise	Important in rotations. This is the direction the clock goes in. North to East to South to West back to North
Anti-Clockwise	Important in rotations. This is the opposite direction the clock goes in. North to West to South to East to North

Transformation	Instructions	Transformation	Instructions
Drawing a Reflection	<p>Reflection:</p> <p>Reflect shape A in the line $X = -1$ Label your image B</p> <p>Draw your reflection line Use tracing paper and mark the line on it! Copy the mirror image ALWAYS LABEL YOUR ANSWER</p>	Enlarging a shape	<p>Enlargement: Increasing/Decreasing a shape in size proportionally.</p> <p>Mark your centre point Count along and multiply as necessary</p> <p>Shape A has been enlarged by a scale factor of 2 from the centre point</p>
Translating a shape	<p>Translation: The shape's journey. Move the shape exactly to another position The top number is moving left (-) or right (+) The bottom number is moving down (-) or up (+)</p> <p>(-3) (-6) Move 3 to the left Move 6 down</p>	Rotating a shape	<p>Rotation: Turning a shape around either clockwise or anti-clockwise.</p> <p>Trace the shape.</p>



Foundation - Rounding, Estimating and Error Intervals



Definitions	
Integers	Whole numbers
Significant Figures	The first non zero number is the first significant figure. All other numbers including zero are significant.
ESTIMATE a calculation	Round every individual number to 1 significant figure then calculate the answer

Round to decimal places

"To 1dp" – to one number after the decimal

"To 2dp" – to two numbers after the decimal

2.46192 (to 1dp) - Is this closer to 24 or 25



2.46192 (to 12dp) - Is this closer to 246 or 247



2.46192

Focus on the numbers after the decimal point

2.46192

This shows the number is closer to 25

2.46192

This shows the number is closer to 246

Compare integers using $<$, $>$, $=$, \neq

$<$ less than

Two and a half million \equiv 2 500 000

$>$ greater than

300 000 000 \equiv Three billion

$=$ equal to

Six thousand and eighty \equiv 68 000

\neq not equal to

Six thousand and eighty \equiv 68 000

Round to 1 significant figure

370 to 1 significant figure is 400

37 to 1 significant figure is 40

3.7 to 1 significant figure is 4

0.37 to 1 significant figure is 0.4

0.00000037 to 1 significant figure is 0.0000004

Round to the first non zero number

4. Error Interval

A range of values that a number could have taken before being rounded or truncated.

An error interval is written using inequalities, with a lower bound and an upper bound.

Note that the lower bound inequality can be 'equal to', but the upper bound cannot be 'equal to'.

Foundation - Percentage of an Amount



Definitions	
Percentage	Parts per one hundred. Percent means literally for every 100.
To find 50% of an amount	Divide by 2
To find 25% of an amount	Divide by 4
To find 10% of an amount	Divide by 10
To find 1% of an amount	Divide by 100
Calculating any percentage of an amount without a calculator	Use the percentages that we know how to calculate (above) to find other percentages.
Calculating Percentage of an amount with a calculator	Convert the percentage to a decimal multiplier. To do this, just divide the percentage by 100. Times the original amount by the multiplier.
Increase/Decrease by percentage	Find the % of the amount using your usual non-calculator method. For an increase, ADD this amount to the original. For a decrease, MINUS this amount from the original.
Simple Interest	IT is a percentage increase. It is calculated as a percent of the original loan.
VAT	Value added tax currently 20%
Inflation	A percentage Increase
Deflation	A Percentage Decrease

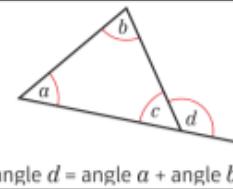


Higher - Pythagoras' Theorem & Trigonometry



Formulae & Diagrams

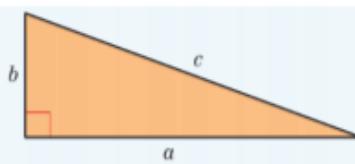
The exterior angle of a triangle is equal to the sum of the interior angles at the other two vertices.



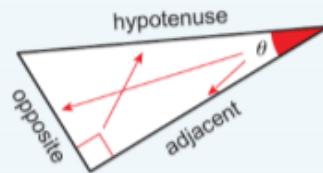
$$\frac{360}{\text{number of sides}}$$

Exterior Angle of a regular Polygon

$$\text{Pythagoras Theorem: } c^2 = a^2 + b^2$$



Identifying hypotenuse, opposite and adjacent sides in a Right Angled Triangle



Sine Ratio (sin)

$$\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}$$

Cosine Ratio (cos)

$$\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}}$$

Tangent Ratio (tan)

$$\tan \theta = \frac{\text{opposite}}{\text{adjacent}}$$

Important vocabulary & Ideas

Interior Angles An angle between two adjacent sides inside a polygon.

Exterior Angles An angle between a side of a polygon and an adjacent side extended outward.

Polygon A 2D shape made from 3 straight sides or more.

Pythagoras Theorem It states that the square of the hypotenuse is equal to the sum of the squares of the other two sides.

Hypotenuse (hyp) Longest side—opposite the right angle.

Opposite (opp) Opposite the angle given or that you are wanting to find.

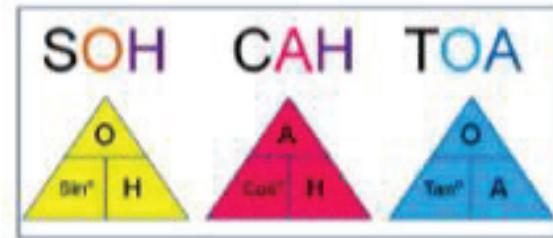
Adjacent (adj) Next to the angle given or that you are wanting to find.

Angle of Elevation The angle measured upwards from the horizontal

Angle of Depression The angle measured downwards from the horizontal

Parallel Lines Lines that have the same distant continually between them. They never intersect

Quick Mnemonic for Trigonometric Ratios

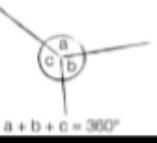
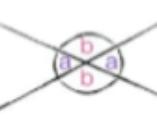
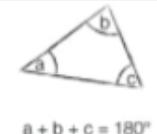
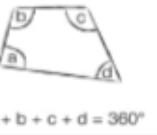
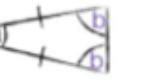
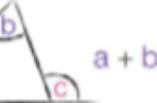


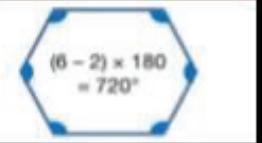
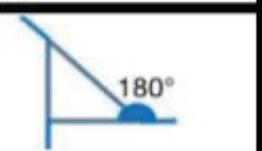
Exact Values of Trigonometric Functions

Angle (θ) Degrees	0°	30°	45°	60°	90°
$\sin(\theta)$	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1
$\cos(\theta)$	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0
$\tan(\theta)$	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	Not Defined

Higher - Bearings and Angles



Example—Basic angle facts	
Angles around a point add up to 360°	
Angles on a straight line add up to 180°	
Vertically opposite angles are equal.	
Angles in a triangle add up to 180°	
Angles in a quadrilateral add up to 360°	
Base angles in an isosceles triangles are equal.	
Angles in an equilateral triangle are all 60°	
The exterior angles of a triangle is equal to the sum of the two opposite interior angles	

Definitions	
<u>Scale</u>	A ratio that shows the relationship between a length on a map or drawing and the actual length
<u>Scale Factor</u>	In two similar geometric figures, the ratio of their corresponding sides is called the scale factor.
<u>Bearing</u>	<ol style="list-style-type: none"> Measured from North In a clockwise direction Written as 3 figures
Example - angles in parallel lines facts	
Corresponding angles are equal	
Alternate angles are equal	
Supplementary (co-interior) angles add up to 180°	
Polygon Angle Facts	
Sum of interior angles in a polygon with n sides $= (n - 2) \times 180$	
Sum of exterior angles in a polygon $= 360^\circ$	
Interior angle + exterior angle $= 180^\circ$	

Higher - Pie Charts and Probability



Pie Charts

Definitions	
<u>Pie Chart</u>	A circle divided into sectors. Each sector represents a set of data.
<u>Discrete Data</u>	Can only have particular values. For example shoe sizes are usually whole numbers.
<u>Continuous Data</u>	Continuous data is measured and can have any values, for example length and time. Write inequalities for the groups with no gaps between them.
<u>Mode</u>	The Modal class (or modal group) has the highest frequency

Probability

KEY FACTS	Definition / Example
Probability Values	Probability goes from 0 being impossible to 1 Being certain. It can be written as decimal, percentage or a fraction
The probability of Event A - $P(A)$	$\frac{\text{Number of correct outcomes (A)}}{\text{Total number of possible outcomes}}$
Frequency	How often an event occurs
Sample Space Diagram	A table showing all possible events, this is usually shown with a 2 way table for 2 Outcomes.
Experimental probability (Relative Frequency)	Probability taken from actual Experiments calculated by: $\frac{\text{Frequency of outcome}}{\text{Total number of outcomes}}$
Mutually Exclusive Events	Events that cannot happen at the same time
Probability of A or B if events are Mutually Exclusive	$P(A \text{ OR } B) = P(A) + P(B)$
Probability of not event A if Events are Mutually Exclusive.	$P(\text{Not } A) = 1 - P(A)$
Product Rule for Events If there are n outcomes for event A and m outcomes for event B	If there are n outcomes for event A and m outcomes for event B the total number of possible outcomes for the 2 events = $n \times m$
Expected number of outcomes	Number of Trials x probability
Independent Events	Events are Independent if one happening does not affect the probability of the other happening.
Probability of two Independent events A & B happening	$P(A \& B) = P(A) \times P(B)$
Probability of a repeated Independent Event happening	$P(A \& A) = P(A) \times P(A)$
Conditional Probability	The probability of Event B happening if Event A has already happened

English





AQA English Language Paper 1: Explorations in Creative Reading and Writing



Question 1: List 4 things
You must choose from the
lines specified in the
question.
4 marks
5 minutes

Question 2:
Language analysis
WHAT? HOW? WHY?

Methods

The writer creates a
sense of mystery through
personification of the
protagonist's past: "**the
past claws its way out.**"
The verb "claws"
**highlights the struggle
between Amir's attempts
to "bury" his past and
the strength of his
memories.**

8 marks
10 minutes

Zoom Evidence Explanation
Embedded quotation

The Kite Runner by Khaled Hosseini
The following extract is from *The Kite Runner*, the first novel by Afghan-American author Khaled Hosseini. Published in 2003 by Riverhead Books, it tells the story of Amir, a young boy from the Wazir Akbar Khan district of Kabul.

Chapter One
December 2001

I became what I am today at the age of twelve, on a frigid overcast day in the winter of 1975. I remember the precise moment, crouching behind a crumbling mud wall, peeking into the alley near the frozen creek. That was a long time ago, but it's wrong what they say about the past, I've learned, about how you can bury it. Because the past claws its way out. Looking back now, I realize I have been peeking into that deserted alley for the last twenty-six years.

Question 3: Structural analysis

Consider key questions of the text

Possible key questions move from the **what**, to **how** and on to **why**. They could include:

1. When I first start to read the text, what is the writer focusing my attention on?
2. How is this being developed?
3. What feature of structure is evident at this point?
4. Why might the writer have deliberately chosen to begin the text with this focus and therefore make use of this particular feature of structure?
5. What main points of focus does the writer develop in sequence after the starting point?
6. How is each being developed?
7. Why is the writer taking me through this particular sequence?
8. How is this specific to helping me relate to the intended meaning(s) at these points?
9. What does the writer focus my attention on at the end of the text?
10. How is this developed as a structural feature?
11. How am I left thinking or feeling at the end?
12. Why might the writer have sought to bring me to this point of interest/understanding?

8 marks
10 minutes

Mark Scheme

- Band 4:** Perceptive, detailed analysis
- Band 3:** Clear, relevant explanation.
- Band 2:** Some understanding and comment.
- Band 1:** Simple, limited comment.

Question 4:

Critical Evaluation: To what extent do you agree?

- Say whether you agree/disagree/partly agree (**evaluate**).
- Provide evidence (**quotations**) to support your evaluation.
- **Analyse** your evidence using **accurate subject terminology**.

20 marks
25 minutes

Read the questions carefully.
Have your highlighter ready.

AQA English Language Paper 1: Explorations in Creative Reading and Writing



Descriptive writing

Insidiously, the smoke and sweat and sound **invaded** the dark, cavernous room. Their senses both heightened and confused, the dancers moved as one: **arms raised, eyes blurred, blood pumping.**

- Adverbs
- Alliteration
- Verb choices
- Personification
- Triple

Which other techniques could you employ?



Either: Write a story about two people who meet unexpectedly, as suggested by this picture.

You may have a choice of narrative or descriptive writing, BUT you may not. There may be two narrative tasks, or two descriptive tasks. Be prepared for both!

Mark Scheme –AO5

- Communicate clearly, effectively and imaginatively, selecting and adapting tone, style and register for different forms, purposes and audiences.
- Organise information and ideas, using structural and grammatical features to support coherence and cohesion of texts

Mark Scheme – AO6

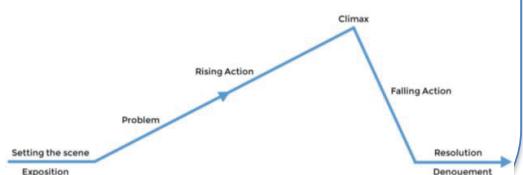
Candidates must use a range of vocabulary and sentence structures for clarity, purpose and effect, with accurate spelling and punctuation.

Narrative writing



- 1st or 3rd person?
- Past or present tense?
- Drop paragraph to begin?
- Dual narrative?
- Flashback?

Don't use too many characters. Remember, your narrative should be descriptive as well.



Year 10 English Literature - A Christmas Carol



Jacob Marley	<p>"It is required of every man," the Ghost returned, "that the spirit within him should walk abroad among his fellowmen, and travel far and wide; and if that spirit goes not forth in life, it is condemned to do so after death. It is doomed to wander through the world -- oh, woe is me!"</p> 	<p>Stave 1: Marley's Ghost</p> <p>"Scrooge was his sole executor, his sole administrator, his sole assign, his sole residuary legatee, his sole friend and sole mourner." </p> <p>"But what did Scrooge care? It was the very thing he liked. "Bah! Humbug!"</p> <p>"Are there no prisons?" asked Scrooge.</p> <p>"Plenty of prisons," said the gentleman, laying down the pen again.</p> <p>"As a good time: a kind, forgiving, charitable, pleasant time" Fred on Christmas</p>	<p>AO6 - Context</p> <ul style="list-style-type: none"> We now have a Welfare State in Britain; this was not the case in the 1800s. What did this mean for the poor in society? Dickens supported the Ragged School Union – what was it? Dickens used his writing to act as a social commentator – bringing to the attentions of his middle and upper class readers the need for social upheaval. Dickens abhorred the laissez-faire attitudes of the rich towards the impoverished in society. What does this mean? What did the 1834 amendment to the Poor Law change? What is Scrooge's view of workhouses? Is it the same as Dickens'? Sabbatarianism meant that shops, including bakers, were not open on Sunday. Why was this a problem?
Ebenezer Scrooge	<p>"Bah! Humbug!"</p> <p>"Since you ask me what I wish, gentlemen, that is my answer. I don't make merry myself at Christmas and I can't afford to make idle people merry."</p> <p>"I will honour Christmas in my heart, and try to keep it all the year. I will live in the Past, the Present, and the Future."</p>	<p>Stave 2: The First of the Three Spirits</p> <p>"A solitary child, neglected by his friends, is left there still." Scrooge said he knew it. And he sobbed.</p> <p>"Scrooge sat down upon a form, and wept to see his poor forgotten self as he used to be."</p> <p>"Why, it's old Fezziwig! Bless his heart; it's Fezziwig alive again!"</p> <p>"Spirit!" said Scrooge in a broken voice, "remove me from this place."</p>	<p>Linguistic devices (AO2)</p> <p>Pathetic fallacy </p> <p>In Stave 1 he is surrounded by the "Piercing, searching, biting cold", echoing Scrooge's cold heart and lack of human warmth.</p> <p>By Stave 5 after Scrooge has transformed into a joyful human being the weather has also changed: "No fog, no mist; clear, bright, jovial, stirring, cold; cold, piping for the blood to dance to".</p>
The Ghost of Christmas Past	<p>"It wore a tunic of the purest white"</p> <p>"Why was he filled with gladness when he heard them give each other Merry Christmas, as they parted at cross-roads and-bye ways, for their several homes? What was merry Christmas to Scrooge? Out upon merry Christmas! What good had it ever done to him?"</p>	<p>Stave 3: The Second of the Three Spirits</p> <p>"Oh, a wonderful pudding! Bob Cratchit said, and calmly too, that he regarded it as the greatest success achieved by Mrs Cratchit since their marriage."</p> <p>But even here, two men who watched the light had made a fire, that through the loophole in the thick stone wall shed out a ray of brightness on the awful sea.</p> <p>Fred on Scrooge: "I mean to give him the same chance every year, whether he likes it or not, for I pity him."</p> <p>"Are there no prisons?" said the Spirit, turning on him for the last time with his own words. "Are there no workhouses?" </p>	<p>Epiphany</p> <p>An epiphany is a sudden realisation of something. Scrooge has an epiphany as he reveals after seeing his own gravestone that he must love with Christmas in his heart (Stave 5).</p>
The Ghost of Christmas Present	<p>"I am the Ghost of Christmas Present," said the Spirit. "Look upon me."</p> <p>"[Tiny Tim] told me, coming home, that he hoped the people saw him in the church, because he was a cripple, and it might be pleasant to them to remember upon Christmas Day, who made lame beggars walk, and blind men see."</p>	<p>Stave 4: The Last of the Three Spirits</p> <p>"He felt that it was tall and stately when it came beside him, and that its mysterious presence filled him with a solemn dread."</p> <p>"I will honour Christmas in my heart, and try to keep it all the year."</p> <p>I promised him that I would walk there on a Sunday. My little, little child!" cried Bob. "My little child!" </p>	<p>Symbols </p> <p>Each of the ghosts acts as a symbol for something much greater. What does each of them represent?</p>
The Ghost of Christmas Yet-to-Come	<p>"He lay, in the dark empty house, with not a man, a woman, or a child, to say that he was kind to me in this or that, and for the memory of one kind word I will be kind to him."</p> <p>"We may sleep to-night with light hearts, Caroline."</p>	<p>Stave 5: The End of It</p> <p>"I don't know how long I've been among the Spirits. I don't know anything. I'm quite a baby. Never mind. I don't care. I'd rather be a baby. Hallo! Whoop! Hallo here!"</p> <p>"I'll send it to Bob Cratchit's!" whispered Scrooge, rubbing his hands, and splitting with a laugh. "He shan't know who sends it. It's twice the size of Tiny Tim. Joe Miller never made such a joke as sending it to Bob's will be!" </p>	<p>Descriptive techniques </p> <p>Metaphor example: "But he [Scrooge] was a tight-fisted hand at the grindstone"</p> <p>Simile example: "It was a strange figure -- like a child: yet not so like a child as like an old man..."</p>
Others	<p>"Hilli-ho!" cried old Fezziwig, skipping down from the high desk, with wonderful agility. (Stave 2)</p> <p>"I have come to bring you home, dear brother!" said the child, clapping her tiny hands, and bending down to laugh. "To bring you home, home, home!" Fan (Stave 3)</p> <p>"God bless us every one!" said Tiny Tim, the last of all. (Stave 3)</p>		



Year 10 English Literature - Power & Conflict Poetry



Ozymandias by Percy Bysshe Shelley		Extract from The Prelude: Stealing the Boat by William Wordsworth		London by William Blake	
Themes: Power of Nature, Decay, Pride	Tones: Ironic, rebellious	Themes: Power of Nature, Fear, Childhood	Tones: Confident > Dark / Fearful > Reflective	Themes: Power, Inequality, Loss, Anger	Tones: Angry, Dark, Rebellious
<p>Content, Meaning and Purpose</p> <ul style="list-style-type: none"> -The narrator meets a traveller who tells him about a decayed statue that he saw in a desert. -The statue was of a long forgotten ancient King: the arrogant Ozymandias, 'king of kings.' -The poem is ironic and one big metaphor: Human power is only temporary – the statue now lies crumbled in the sand, and even the most powerful human creations cannot resist the power of nature. 	<p>Context</p> <ul style="list-style-type: none"> -Shelley was a poet of the 'Romantic period' (late 1700s and early 1800s). Romantic poets were interested in emotion and the power of nature. -Shelley also disliked the concept of a monarchy and the oppression of ordinary people. -He had been inspired by the French revolution – when the French monarchy was overthrown. 	<p>Content, Meaning and Purpose</p> <ul style="list-style-type: none"> -The story of a boy's love of nature and a night-time adventure in a rowing boat that instils a deeper and fearful respect for the power of nature. -At first, the boy is calm and confident, but the sight of a huge mountain that comes into view scares the boy and he flees back to the shore. -He is now in awe of the mountain and now fearful of the power of nature which are described as 'huge and mighty forms, that do not live like living men.' -We should respect nature and not take it for granted. 	<p>Context</p> <ul style="list-style-type: none"> -Published shortly after his death, The Prelude was a very long poem (14 books) that told the story of William Wordsworth's life. -This extract is the first part of a book entitled 'Introduction – Childhood and School-Time'. -Like Percy Shelley, Wordsworth was a romantic poet and so his poetry explores themes of nature, human emotion and how humans are shaped by their interaction with nature. 	<p>Content, Meaning and Purpose</p> <ul style="list-style-type: none"> -The narrator is describing a walk around London and how he is saddened by the sights and sounds of poverty. -The poem also addresses the loss of innocence and the determinism of inequality: how new-born infants are born into poverty. -The poem uses rhetoric (persuasive techniques) to convince the reader that the people in power (landowners, Church, Government) are to blame for this inequality. 	<p>Context</p> <ul style="list-style-type: none"> -The poem was published in 1794, and time of great poverty is many parts of London. -William Blake was an English poet and artist. Much of his work was influenced by his radical political views: he believed in social and racial equality. -This poem is part of the 'Songs of Experience' collection, which focuses on how innocence is lost and society is corrupt. -He also questioned the teachings of the Church and the decisions of Government.
<p>Language</p> <ul style="list-style-type: none"> -'sneer of cold command': the king was arrogant, this has been recognised by the sculptor, the traveller and then the narrator. -'Look on my works, ye Mighty, and despair': 'Look'=imperative, stressed syllable highlights commanding tone; ironic – he is telling other 'mighty' kings to admire the size of his statue and 'despair', however they should really despair because power is only temporary. -'The lone and level sands stretch far away': the desert is vast, lonely, and lasts far longer than a statue 	<p>Form and Structure</p> <ul style="list-style-type: none"> -A sonnet (14 lines) but with an unconventional structure...the structure is normal until a turning point (a volta) at Line 9 (...these words appear). This reflects how human structures can be destroyed or decay. -The iambic pentameter rhyme scheme is also disrupted or decayed. -First eight lines (the octave) of the sonnet: the statue is described in parts to show its destruction. -Final two lines: the huge and immortal desert is described to emphasise the insignificance of human power and pride. 	<p>Language</p> <ul style="list-style-type: none"> -'One summer evening (led by her)': 'her' might be nature personified – this shows his love for nature. -'an act of stealth / And troubled pleasure': confident, but the oxymoron suggests he knows it's wrong; forebodes the troubling events that follow. -'nothing but the stars and grey sky': emptiness of sky. -'the horizon's bound, a huge peak, black and huge': the image of the mountain is more shocking (contrast). -'Upreared its head' and 'measured motion like a living thing': the mountain is personified as a powerful beast, but calm – contrasts with his own inferior panic. -'There hung a darkness': lasting effects of mountain. 	<p>Form and Structure</p> <ul style="list-style-type: none"> -First person narrative – creates a sense that it is a personal poem. -The regular rhythm and enjambment add to the effect of natural speech and a personal voice. -The extract can be split into three sections, each with a different tone to reflect his shifting mood: Lines 1-20: (rowing) carefree and confident Lines 21-31: (the mountain appears) dark and fearful Lines 32-44: (following days) reflective and troubled -Contrasts in tone: 'I lustily I dipped my oars into the silent lake' versus 'I struck and struck again and with trembling oars I turned'. 	<p>Language</p> <ul style="list-style-type: none"> -Sensory language creates an immersive effect: visual imagery ('Marks of weakness, marks of woe') and aural imagery ('cry of every man') -'mind-forged manacles': they are trapped in poverty. -Rhetorical devices to persuade: repetition ('In every..'); emotive language ('infant's cry of fear'). -Criticises the powerful: 'each chartered street' – everything is owned by the rich; 'Every black'ning church appals' – the church is corrupt; 'the hapless soldier's sigh / Runs in blood down palace walls' – soldier's suffer and die due to the decisions of those in power, who themselves live in palaces. 	<p>Form and Structure</p> <ul style="list-style-type: none"> -A dramatic monologue, there is a first-person narrator ('I') who speaks passionately about what he sees. -Simple ABAB rhyme scheme: reflects the unrelenting misery of the city, and perhaps the rhythm of his feet as he trudges around the city. -First two stanzas focus on people; third stanza focuses on the institutions he holds responsible; fourth stanza returns to the people – they are the central focus.



Year 10 English Literature - Power & Conflict Poetry



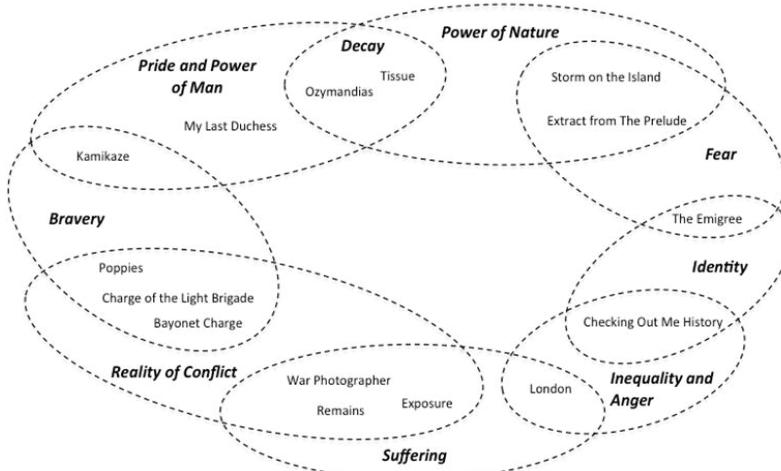
Charge of the Light Brigade by Alfred, Lord Tennyson		My Last Duchess by Robert Browning	
Themes: Conflict, Suffering, Reality of War, Patriotism	Tones: Energetic, Tragic, Haunting	Themes: Power, Pride, Control, Jealousy, Status	Tones: Sinister, Bitter, Angry
<p>Content, Meaning and Purpose</p> <ul style="list-style-type: none"> - Published six weeks after a disastrous battle against the Russians in the (unpopular) Crimean War - Describes a cavalry charge against Russians who shoot at the lightly-armed British with cannon from three sides of a long valley. - Of the 600 hundred who started the charge, over half were killed, injured or taken prisoner. - It is a celebration of the men's courage and devotion to their country, symbols of the might of the British Empire. 	<p>Context</p> <ul style="list-style-type: none"> - As Poet Laureate, he had a responsibility to inspire the nation and portray the war in a positive light: propaganda. - Although Tennyson glorifies the soldiers who took part, he also draws attention to the fact that a commander had made a mistake: "Someone had blunder'd". - This was a controversial point to make in Victorian times when blind devotion to power was expected. 	<p>Content, Meaning and Purpose</p> <ul style="list-style-type: none"> - The Duke is showing a visitor around his large art collection and proudly points out a portrait of his last wife, who is now dead. He reveals that he was annoyed by her over-friendly and flirtatious behaviour. - He can finally control her by objectifying her and showing her portrait to visitors when he chooses. - He is now alone as a result of his need for control. - The visitor has come to arrange the Duke's next marriage, and the Duke's story is a subtle warning about how he expects his next wife to behave. 	<p>Context</p> <ul style="list-style-type: none"> - Browning was a British poet, and lived in Italy. The poem was published in 1842. - Browning may have been inspired by the story of an Italian Duke (Duke of Ferrara): his wife died in suspicious circumstances and it was rumoured that she had been poisoned.
<p>Language</p> <ul style="list-style-type: none"> - "Into the valley of Death": this Biblical imagery portrays war as a supremely powerful, or even spiritual, experience. - "jaws of Death" and "mouth of Hell": presents war as an animal that consumes its victims. - "Honour the Light Brigade/Noble six hundred - "shot and shell 	<p>Form and Structure</p> <ul style="list-style-type: none"> - This is a ballad, a form of poetry to remember historical events – we should remember their courage. - 6 verses, each representing 100 men who took part. - First stanza tightly structured, mirroring the cavalry formation. Structure becomes awkward to reflect the chaos of battle and the fewer men returning alive. - Dactylic dimeter (HALF-a leauge / DUM-de-de) mirrors the sound of horses galloping and increases the poem's pace. - Repetition of 'the six hundred' at the end of each stanza (epistrophe) emphasises huge loss. 	<p>Language</p> <ul style="list-style-type: none"> - 'Looking as if she was alive': sets a sinister tone. - 'Will't please you sit and look at her?' rhetorical question to his visitor shows obsession with power. - 'she liked whate'er / She looked on, and her looks went everywhere.': hints that his wife was a flirt. - 'as if she ranked / My gift of a nine-hundred-years-old name / With anybody's gift': she was beneath him in status, and yet dared to rebel against his authority. - 'I gave commands; Then all smiles stopped together': euphemism for his wife's murder. - 'Notice Neptune, though / Taming a sea-horse': he points out another painting, also about control. 	<p>Form and Structure</p> <ul style="list-style-type: none"> - Dramatic Monologue, in iambic pentameter. - It is a speech, pretending to be a conversation – he doesn't allow the other person to speak! - Enjambment: rambling tone, he's getting carried away with his anger. He is a little unstable. - Heavy use of caesura (commas and dashes): stuttering effect shows his frustration and anger: 'She thanked men, – good! but thanked / Somehow – I know not how' - Dramatic Irony: the reader can read between the lines and see that the Duke's comments have a much more sinister undertone.



Year 10 English Literature - Power & Conflict Poetry



Which poems
can I
compare?



Which poems
link to each
theme?

Language for comparison	Assessment Objectives	Poetic Techniques	
Similarities Similarly, ... Both poems convey / address... Both poets explore / present... This idea is also explored in... In a similar way, ... Likewise, ...	Differences Although... Whereas... Whilst... In contrast, ... Conversely, ... On the other hand, ... On the contrary, ... Unlike...	<p>Ensure that your answer covers all of these areas:</p> <p>AO1</p> <ul style="list-style-type: none"> Write a response related to the key word in the question. Use comparative language to explore both poems. Use a range of evidence to support your response and to show the meaning of the poems. <p>AO2</p> <ul style="list-style-type: none"> Comment on the effect of the language in your evidence, including individual words. Identify any use of poetic techniques and explain their effects. <p>AO3</p> <ul style="list-style-type: none"> What might the poet's intentions have been when they wrote the poem? Comment on the historical context – when was the poem published and what impact might it have had then, and today? 	<p>LANGUAGE</p> <p>Metaphor – comparing one thing to another</p> <p>Simile – comparing two things with 'like' or 'as'</p> <p>Personification – giving human qualities to the non-human</p> <p>Imagery – language that makes us imagine a sight (visual), sound (aural), touch (tactile), smell or taste.</p> <p>Tone – the mood or feeling created in a poem.</p> <p>Pathetic Fallacy – giving emotion to weather in order to create a mood within a text.</p> <p>Irony – language that says one thing but implies the opposite eg. <i>sarcasm</i>.</p> <p>Colloquial Language – informal language, usually creates a conversational tone or a authentic voice.</p> <p>Onomatopoeia – language that sounds like its meaning.</p> <p>Alliteration – words that are close together start with the same letter or sound.</p> <p>Sibilance – the repetition of <i>s</i> or <i>sh</i> sounds.</p> <p>Assonance – the repetition of similar vowel sounds.</p> <p>Consonance – repetition of consonant sounds.</p> <p>Plosives – short burst of sound: <i>t, k, p, d, g, or b</i> sound.</p> <p>STRUCTURE</p> <p>Stanza – a group of lines in a poem.</p> <p>Repetition – repeated words or phrases</p> <p>Enjambment – a sentence or phrase that runs onto the next line.</p> <p>Caesura – using punctuation to create pauses or stops.</p> <p>Contrast – opposite concepts/feelings in a poem.</p> <p>Juxtaposition – contrasting things placed side by side.</p> <p>Oxymoron – a phrase that contradicts itself.</p> <p>Anaphora – when the first word of a stanza is the same across different stanzas.</p> <p>Epistrophe – when the final word of a stanza is the same across different stanzas.</p> <p>Volta – a turning point in a poem.</p> <p>FORM</p> <p>Speaker – the narrator, or person in the poem.</p> <p>Free verse – poetry that doesn't rhyme.</p> <p>Blank verse – poem in iambic pentameter, but with no rhyme.</p> <p>Sonnet – poem of 14 lines with clear rhyme scheme.</p> <p>Rhyming couplet – a pair of rhyming lines next to each other.</p> <p>Meter – arrangement of stressed/unstressed syllables.</p> <p>Monologue – one person speaking for a long time.</p>

Science





Science B3: Genetics



B3: Genetics	
Lesson sequence	
1. Meiosis	
2. DNA	
3. DNA extraction	
4. Alleles	
5. Inheritance	
6. Gene mutation	
7. Variation	

1. Meiosis	
Gametes	Egg cell and sperm cell Fertilisation
Sperm cell	fuses with egg cell and nuclei combine
Zygote	Single cell formed by fertilisation
Gene	Length of DNA coding for a protein. Controls your characteristics
Genome	All the DNA and genes in an organism
Protein	Polymer made from amino acids
Polymer	Long molecule made by chaining together many shorter ones
Diploid	A cell with 23 pairs of chromosomes (46 in total)
Haploid	A cell with 23 single chromosomes
Meiosis	Cell division that makes gametes
Meiosis	DNA replicates, cell divides into 2 stages diploid cells, these divide into 4 haploid daughters.
Why	Chromosomes in a pair are slightly different. Different gametes get different combinations of different chromosomes.

2. DNA	
Chromosome	Large DNA molecule made into a small package by tightly coiling DNA around a protein.
DNA structure	Two strands, double helix, complementary base pairs, sugar-phosphate backbone
DNA bases	Adenine, A; thymine, T; cytosine, C; guanine, G

Complementary base pairs	A pairs with T C pairs with G
Hydrogen bonds	Weak force holding the two strands of DNA together.
DNA analysis	Uses small differences in DNA to determine family relationships or link people to crimes.

3. DNA extraction	
DNA extraction:	Salt makes DNA clump Mix water, salt and detergent. together, detergent breaks down cell membranes to release DNA
DNA extraction:	Mash fruit/veg and add the solution
DNA extraction:	Heat makes it react quicker Leave in water bath at 60°C
DNA extraction:	To remove unwanted Filter the mixture lumps and collect filtrate
DNA extraction:	It's easier to work with a Measure out 10 cm³ of filtrate
DNA extraction:	Protease breaks down Add two drops of protease solution
DNA extraction:	DNA is insoluble in ethanol Gently add ice-cold ethanol so precipitates ethanol
DNA extraction:	So white DNA layer forms Leave for several minutes

4. Alleles	
Allele	Different version of the same gene. We have two alleles of each gene.
Homozygous	We have two copies of the same allele
Heterozygous	We have two different copies of an allele
Dominant allele	One copy needed for characteristic to show. Written as a capital.

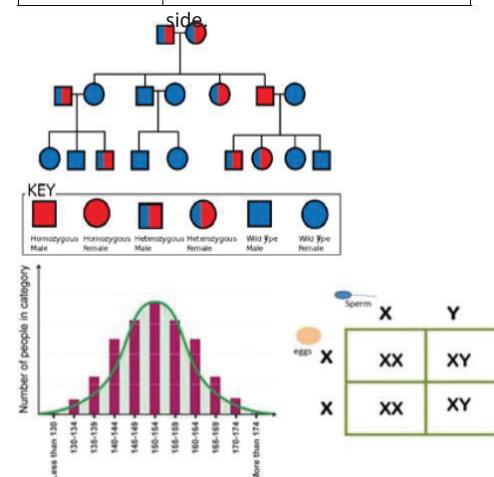
Recessive allele	Two copies for the characteristic to show. Written as lowercase.
Genotype	The combination of alleles in an organism.
Phenotype	The characteristics produced by the alleles.
Genetic diagram	Shows the likelihood of offspring produced by parents with certain genotypes

5. Inheritance variation	
Sex chromosomes	Female: XX Males: XY
Inheriting sex	All eggs are X, 50% of sperm are X and 50% are Y, so 50% of zygotes are XX and 50% are XY
Punnett squares	Uses the genotypes of male and female gametes to predict the genotypes of the offspring.
Probability	Punnett squares tell you the likelihood of certain offspring, not what will actually happen.
Cystic fibrosis	Illness caused by inheriting two copies of a faulty recessive allele.
Family pedigree chart	Chart showing how genotypes are inherited down through a family.

6. Gene mutation	
Mutation	A change to the bases in a gene.
Effect of mutations	Change the structure of a protein and how it works. Sometimes harmless, normally harmful, very rarely beneficial
Cause of mutations	Mistakes copying DNA during cell division, DNA damage from chemicals or radiation
Inheriting mutations	Only if they occur in gametes (egg and sperm)
Human (HGP) Project	Project involving many scientists from many countries to find the order of bases in human DNA
How is the HGP useful?	To tailor drugs to genes, to design better drugs

Genetic HGP	found 99% of DNA in all people differences is identical.
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7. Variation	
Variation	Natural differences between members of a species that affect the chance of survival.
Genetic variation	Caused by genes
Environmental variation	Caused by interaction with the surroundings – such as food, climate etc.
Causes of variation	A combination of genes and the environment.
Acquired changes	Changes caused by the environment during your lifetime, such as losing a leg
Continuous variation	Can be anywhere within a range, such as height, following a normal distribution.
Discontinuous variation	Can be only one of a few possibilities, such as blood type: A, B, AB, O
Normal distribution	Bell-shaped curve with more in the middle and fewer either side.

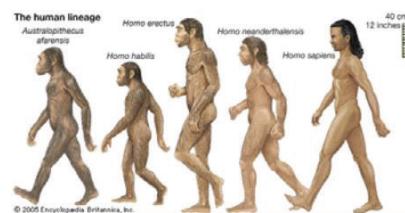




Science B4: Evolution



B4: Evolution	
Lesson sequence	
1. Human evolution	
2. The theory of evolution	
3. Resistance	
4. Classification	
5. How to modify species	
6. Problems with modifying species	
7. Genetic engineering of bacteria (HT)	
1. Human evolution	
Binomial naming	Two-part names, first part = genus, second part = species. Written in italics.
Homo sapiens	Our species. Evolved about 200,000 years ago. Skull volume 1450 cm ³ .
Ardipithecus ramidus	Aka 'Ardi'. 4.4 million years ago, walked upright and climbed trees, 350 cm ³ skull volume.
Australopithecus afarensis	Aka Lucy. 3.2 million years ago, walked upright, skull volume 400 cm ³ .
Homo habilis	2.4-1.4 million years ago, walked upright, skull volume 5-600 cm ³ .
Homo erectus	1.8 to 0.5 million years ago, walked upright, skull volume 850 cm ³ .
Fossil evidence	Many fossils have been found showing a gradual transition from 'ape-like' to 'human-like'.
Stone tool evidence	Older stone tools are simpler requiring less intelligence to make, younger stone tools are more complex requiring more intelligence to make.
The Leakeys	Mary and Louis discovered <i>Homo habilis</i> , their son Richard worked on <i>Homo erectus</i> .
2. The theory of evolution	
Charles Darwin	Develop the theory of evolution.
Evolution	The way that species develop by gradual changes over many generations due to natural selection.
Variation	Natural differences between members of a species that affect the chance of survival.
Mutations and evolution	Changes in DNA cause variation.
Environmental change	Change to factors such as food supply, climate or predators.
Competition	The fight to eat, survive and breed.
Natural selection	Organisms with the best genes and characteristics are more likely to survive, breed and pass on their better genes.
Inheritance	Gaining your genes from your parents.
Well adapted	An organism has features that make it better able to survive and breed.
Evolution and the individual	An individual does not evolve during its lifetime, populations of organisms evolve over many lifetimes.
Human evolution	Humans did not evolve from chimpanzees, we both evolved from a common ancestor.
3. Resistance	
Resistance	The natural ability of some members of a species to survive poisons that would kill the other members.

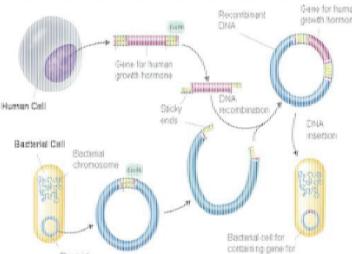


Evolution of resistance	Evolution of organisms that stops them from being affected by poisons.
Rats and warfarin resistance	Warfarin is used to kill rats. Some rats were naturally resistant, survived the warfarin, bred and passed on their resistance genes.
Antibiotic resistance	Antibiotics are used to kill bacteria. Some bacteria were naturally resistant, survived the antibiotics, bred and passed on their resistance genes.
The problems of resistance	Antibiotic resistance means that many infections that used to be simple to treat may become too resistant to treat, causing major health problems.
4. Classification	
Carl Linnaeus	Developed the modern system of classification.
How to classify	Based on similarities, group things into smaller and smaller groups with fewer and fewer similarities.
Problems with classification	Sometimes organisms that look similar are not actually related.
Kingdoms	Old idea, classifying living things into five kingdoms (including plants, animals and fungi)
Carl Woese	Developed the modern system of classification with three domains.
Domains	Modern idea of classifying living things into three main groups: bacteria, Archae, Eukarya.
Bacteria	Single-celled organisms with no nucleus and no unused sections of DNA.
Archae	Single-celled organisms with no nucleus but with unused sections of DNA.
Eukarya	(Often) multi-cellular organisms with a nucleus and unused sections of DNA. Includes plants, animals, fungi and protists.

5. How to modify species	
Artificial selection	When humans (normally farmers) select the animals/plants to breed with the best characteristics.
Selective breeding	Developing new breeds of plants or animals with better characteristics by selective breeding over many generations.
Selective breeding in practice	Choose parents with the best characteristics, breed them together, choose from their offspring with the best characteristics, breed them together, repeat for many generations.
Genetic engineering	Changing the characteristics of organisms by giving them genes from another organism.
GMO	Genetically modified organism: an organism that has had its genes changed.
Bt corn	Corn containing a gene from <i>Bacillus thuringiensis</i> that makes it produce a substance called Bt which kills insects.
Medical GMOs	GM bacteria are used to make insulin (for diabetes) and some antibiotics.
Pros and cons of GM	Quicker than selective breeding and can introduce more different characteristics but is expensive.

6. Problems with modifying species	
Over-farming	Farmers focussing too much on selection breeding for one characteristic (such as chicken breast size), don't spot problems with other characteristics (such as weak leg bones) causing suffering.
Gene leakage	The concern GMOs could breed with relatives, enabling the modified genes to escape into the wild. This could have ecological impacts.

Resistance	The concern that in areas growing Bt corn, insects simply evolve resistance to Bt.
Insulin	Insulin made by GM bacteria is not identical to human insulin, and some people suffer bad reactions to it.
7. Genetic engineering of bacteria (HT)	
Plasmid DNA	Small loops of DNA containing a few genes.
Restriction enzymes	Enzymes that cut DNA, leaving sticky ends at each end of the piece of DNA.
Sticky end	A short sequence of unpaired bases at the end of a piece of DNA.
Ligase	An enzyme that joins two pieces of DNA by matching up the bases on their sticky ends.
Recombinant DNA	DNA produced by combining together two or more pieces of DNA.
How to genetically engineer bacteria	Cut out gene using restriction enzymes, remove plasmids from bacteria and open with restriction enzymes, use ligase to join gene and plasmid together, return plasmids to bacteria.





Science B4: Natural selection and genetic modification



B4: Natural selection and genetic modification

Lesson sequence

1. Human evolution
2. The theory of evolution
3. Resistance
4. Classification
5. Modifying life
6. Problems with modifying life

1. Human evolution

Binomial naming	Two-part names, first part = genus, second part = species, written in italics.
<i>Homo sapiens</i>	Our species. Evolved about 200,000 years ago. Skull volume 1450 cm ³ .
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2. The theory of evolution

Charles Darwin	Develop the theory of evolution.
Evolution	The way that species develop by gradual changes over many generations due to natural selection.
Variation	Natural differences between members of a species that affect the chance of survival.
Mutations	Changes in DNA that cause variation.
Environmental change	Change to factors such as food supply, climate or predators.
Competition	The fight to eat, survive and breed.
Natural selection	Organisms with the best genes and characteristics are more likely to survive, breed and pass on their better genes.
Inheritance	Gaining your genes from your parents.
Well adapted	An organism has features that make it better able to survive and breed.
Evolution and the individual	An individual does not evolve during its lifetime, populations of organisms evolve over many lifetimes.
Human evolution	Humans did not evolve from chimpanzees, we both evolved from a common ancestor.

3. Resistance

Resistance	The natural ability of some members of a species to survive poisons that would kill the other members.
Evolution	Evolution of organisms that stops them from being affected by resistance poisons.
Rats and warfarin	Warfarin is used to kill rats. Some rats were naturally resistant, survived the warfarin, bred and passed on their resistance genes.

Antibiotic resistance Antibiotics are used to kill bacteria. Some bacteria were naturally resistant, survived the antibiotics, bred and passed on their resistance genes.

The problems of resistance Antibiotic resistance means that many infections that used to be simple to treat may become too resistant to treat, causing major health problems.

4. Classification

Carl Linnaeus	Developed the modern system of classification.
How to classify	Based on similarities, group things into smaller and smaller groups with fewer and fewer similarities.
Linnaeus' classification system	Kingdom → phylum → class → order → family → genus → species
Problems with classification	Sometimes organisms that look similar are not actually related.
Carl Woese	Developed the modern system of classification with three domains.
Domains	The three main groups of life: bacteria, Archae, Eukarya.
Bacteria	Single-celled organisms with no nucleus and no unused sections of DNA.
Archae	Single-celled organisms with no nucleus but with unused sections of DNA.
Eukarya	Often multi-cellular organisms with a nucleus and unused sections of DNA. Includes plants, animals, fungi and protists.

5. Modifying Life

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Selective breeding	Developing new breeds of plants or animals with better characteristics by selective breeding over many generations.
Insulin	Insulin made by GM bacteria is not identical to human insulin, and some people suffer bad reactions to it.

Selective breeding in practice Choose parents with the best characteristics, breed them together, choose from their offspring with the best characteristics, breed them together, repeat for many generations.

Genetic engineering Changing the characteristics of organisms by giving them genes from another organism.

GMO Genetically modified organism: an organism that has had its genes changed.

Bt corn Corn containing a gene from *Bacillus thuringiensis* that makes it produce a substance called Bt which kills insects.

Medical GMOs GM bacteria are used to make insulin (for diabetes) and some antibiotics.

Pros and cons of GM Quicker than selective breeding and can introduce more different characteristics, but is expensive.

6. Problems with modifying life

Over-breeding Farmers focussing too much on **selection** breeding for one characteristic (such as chicken breast size), don't spot problems with other characteristics (such as weak leg bones) causing suffering.

Gene leakage The concern that GMOs could breed with relatives, enabling the modified genes to escape into the wild. This could have ecological impacts.

Resistance The concern that in areas growing Bt corn, insects simply evolve resistance to Bt.

SP4 - Waves



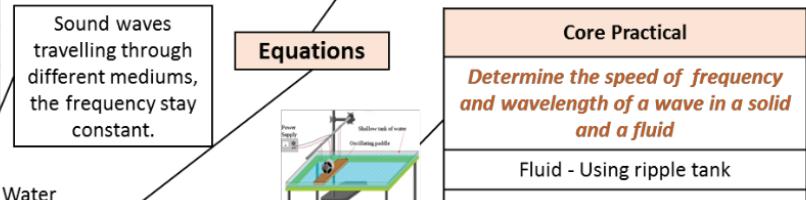
Velocity	The speed of the wave in a certain direction
Wavelength	Distance from one point on a wave to the same point of the next wave
Amplitude	The maximum disturbance from its rest position
Frequency	Number of waves per second
Wave front	The position of all the particles of the medium, vibrating in the same state
Period	Time taken to produce 1 complete wave

Waves transfer energy	Waves transfer energy and information in the direction they are travelling without transferring matter	When waves travel through a medium, the particles of the medium vibrate but stay in the same place. The energy and information is transferred between particles.	Medium	Material through which waves travel.
Basics of waves				
	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.

Waves change speed due to the different density of mediums.	HIGHER ONLY	Refraction	Waves changes direction at boundary.
If the waves goes from a thinner medium to a thicker medium, (e.g. air to glass), it will slow down.		Waves travel through different medium at different speeds	Speed of sound = 340m/s
If the waves goes from a thicker medium to a thinner medium, (e.g. glass to air), it will quicken up.		Speed of waves in water depends upon depth	When waves travel from medium to medium, velocity, frequency and wavelength may be affected.
		From deep water to shallow water, speed slows down	Wave speed = frequency X wavelength so if velocity changes either frequency or wavelength (or both) also changes

Absorption	Passes into but not out of, transfers energy and heats up the object.	HIGHER ONLY	Calculating depth or distance from time and wave velocity	Energy stored inside a system by particles
Transmission	Passes through the object.			Internal energy is the total kinetic and potential energy of all the particles (atoms and molecules) in a system.
Reflection	Wave bounces off the surface.			Heating causes a change in state. As particles separate, potential energy stored increases. Heating increases the temperature of a system. Particles move faster so kinetic energy of particles increases.
Refraction	Waves changes direction at boundary.			

Wave speed	Wave speed = frequency X wavelength	$v = f \times \lambda$
Wave period	Wave period = 1 ÷ frequency	$T = 1 \div f$
Wave Speed	Speed = distance ÷ time	$v = d \div t$



EDEXCEL TOPIC 4 - WAVES	Measuring waves	Speed	Measure the time it takes for waves to travel a certain distance	Time how long an echo takes to reach you (air)
				Time how long a wave travels between 2 fixed points (water)

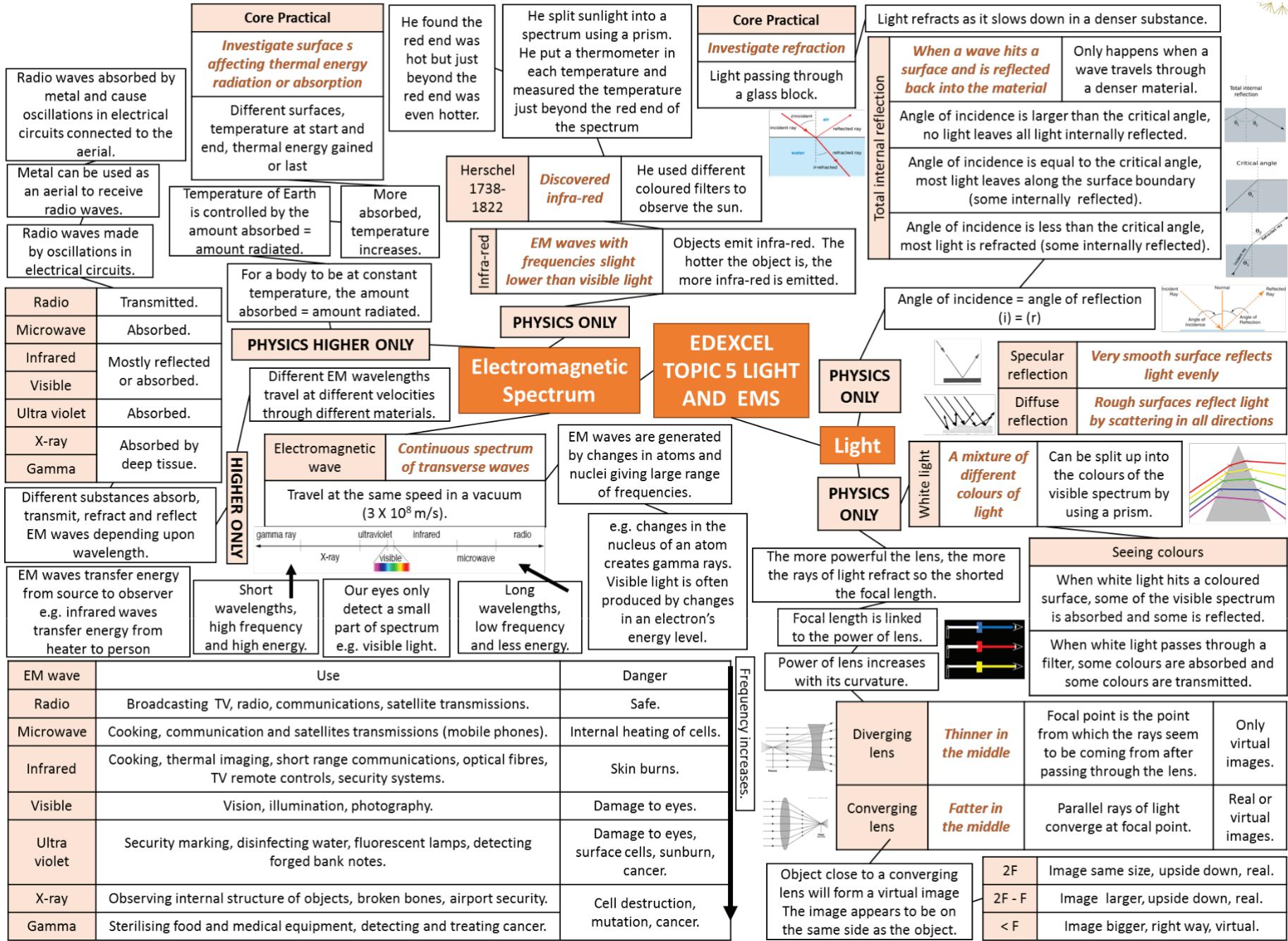
PHYSICS HIGHER ONLY	Speed of Light $= 3 \times 10^8 \text{ m/s}$	Sonar	Reflected off objects	Used to determine depth of objects under the sea.
		Ultra sound	Partially reflected off boundary	Used for medical and foetal scans.
		Infra-sound	Seismic waves (P and S) used to explore Earth's core	P waves can travel through the core, S waves cannot.

Ultrasound	Above 20,000Hz	Infrasound	Below 20Hz	You must know how sound travels through the ear.
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Frequency does not change but wavelength does ($v = f\lambda$)
Wavelength increases as speed increases, if speed slows down, wavelength get shorter.



Electromagnetic Spectrum

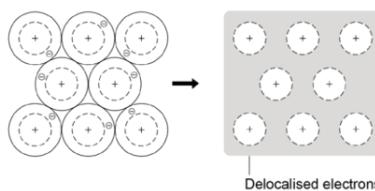


Bonding



Metallic bonding

Metals LOSE ELECTRONS to form POSITIVE IONS



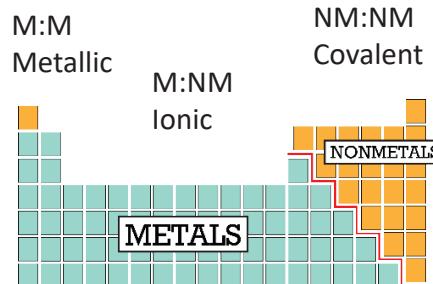
GIANT structures of atoms in a REGULAR pattern

Delocalised electrons are free to move.

What is a metallic bond?

Sharing delocalised electrons – STRONG metallic bonds.

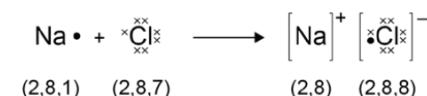
Which type of bonding is it?



Ionic bonding

Metals LOSE ELECTRONS to form POSITIVE IONS
Non-metals GAIN ELECTRONS to form NEGATIVE IONS

Electrons transferred from metal to non-metal



Ions have electronic structure of a noble gas

What is an ionic bond?
STRONG electrostatic force of attraction between oppositely charged ions

How do we quickly work out the charges on ions?

Group	Electrons in outer shell	Charge on ion
1	1	1+
2	2	2+
6	6	2-
7	7	1-

SC5-SC7 Structure and Bonding

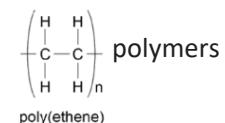
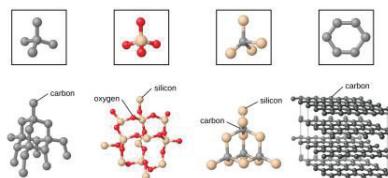
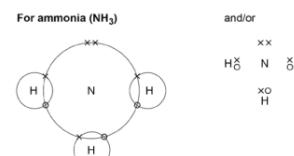
Covalent Bonding

Two non-metals will SHARE pairs of electrons

STRONG bond formed.

Small molecules

A small group of atoms sharing electrons



Limitations of these models

Model	Limitations
	Looks like electrons aren't identical Electrons look like they are in fixed positions
	Doesn't show true shape of the molecule
	Can attempt to show 3D shape but doesn't show electrons

Substances and structure



Properties of Metallic Substances

Metals have high melting and boiling points because...

...they are **giant structures** of atoms with **strong metallic bonding**

Can be bent or shaped because...

...atoms are arranged in **LAYERS** which can **SLIDE** over each other

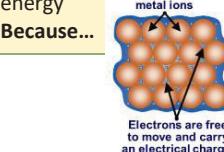


Alloys are harder than pure metals because...

Alloys are a mixture of two or more elements, at least one of which is a metal

...the layers are **DISTORTED** so can't slide over each other

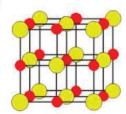
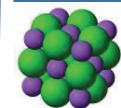
Metals are good conductors of electricity and thermal energy Because...



...the **electrons are free** to move and carry thermal energy and charge

Properties of Ionic Substances

Ionic compounds have high melting and boiling points because...



...they are giant structures of atoms (giant ionic lattice) with **strong electrostatic forces** of attraction in **ALL DIRECTIONS** between oppositely charged ions.

A large amount of **energy** is needed to break the many strong bonds.

Only conduct electricity when melted or dissolved in water because...

...the **ions are free** to move and so charge can flow.

As ionic compounds are made of CHARGED IONS, they can CONDUCT ELECTRICITY but ONLY if the ions can MOVE.

If it is MOLTEN the ions can move

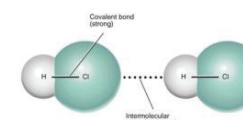
If it is DISSOLVED the ions can move

MELT 800°C DISSOLVE 20°C H₂O

SC5-SC7 Structure and Bonding

Small molecules

Small molecules have relatively low melting and boiling points because...



...intermolecular forces are overcome on melting and boiling and these are weak forces.

The bigger the size of the molecule the higher the melting and boiling point because...

...intermolecular forces increase with the size of the molecules.

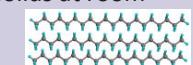
Don't conduct electricity because...

...the molecules have **no overall electric charge**.

Properties of Covalent substances

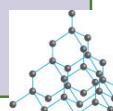
Giant Structures

Polymers are solids at room temperature because...



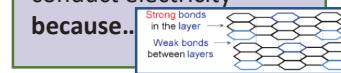
...intermolecular forces increase with the size of the molecules and polymer molecules are **very large**.

Diamond is very hard, has a very high melting and boiling point and doesn't conduct electricity because...



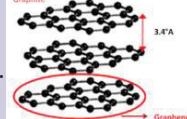
...each carbon is bonded to 4 other carbons by **strong covalent bonds**. There are **no free electrons**.

Graphite is very hard, has a very high melting and boiling point and does conduct electricity because...

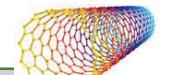


...each carbon is bonded to 3 other carbons by **strong covalent bonds**. It forms **layers** of hexagonal rings with no covalent bonds between layers. There are **free electrons**.

Graphene is strong, light and an excellent conductor of thermal energy and electricity. because...



...it is a single layer of graphite so has **free electrons**.



Fullerenes (e.g. carbon nanotubes) are extremely strong and are excellent conductors of thermal energy and electricity because...



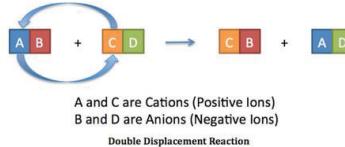
...they have **strong covalent bonds** and **free electrons**.



SC11 Displacement reactions and metal extraction

potassium		K
sodium		Na
calcium		Ca
magnesium		Mg
aluminium		Al
carbon		C
zinc		Zn
iron		Fe
tin		Sn
lead		Pb
hydrogen	most reactive	H
copper		Cu
silver		Ag
gold		Au
platinum	least reactive	Pt

Reactivity depends on tendency to form metal ion



HT: OILRIG
Oxidation Is Loss of electrons
Reduction Is Gain of electrons

- Metal + Oxygen \rightarrow Metal Oxide
- Metal + Water \rightarrow Metal Hydroxide + hydrogen
- Metal + acid \rightarrow Metal salt + Hydrogen

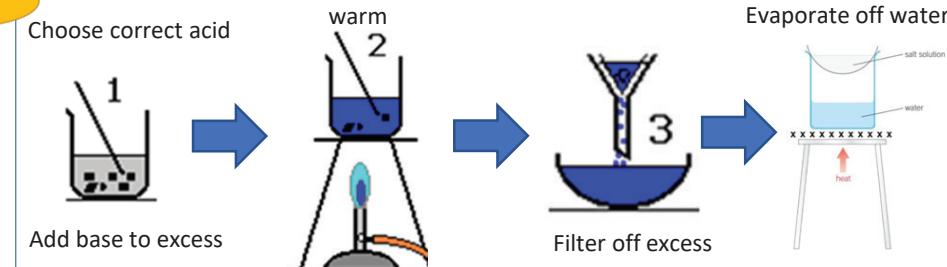
SC8 Reactions of acids

Acid + metal \rightarrow salt + hydrogen
Acid + alkali \rightarrow salt + water
Acid + insoluble base \rightarrow salt + water
Acid + carbonate \rightarrow salt + water + carbon dioxide

HT: OILRIG
e.g. $2HCl + Mg \rightarrow MgCl_2 + H_2$
Magnesium is oxidised
 $Mg \rightarrow Mg^{2+} + 2e^-$

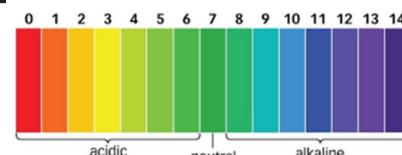
Hydrochloric Acid \rightarrow Chlorides
HCl
Nitric Acid \rightarrow Nitrates
HNO₃
Sulphuric Acid \rightarrow Sulphates
H₂SO₄

RP: Preparation of a dry sample of a soluble salt

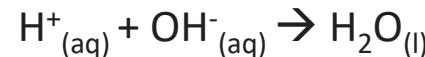


SC8, SC10 & SC11

SC8 Neutralisation

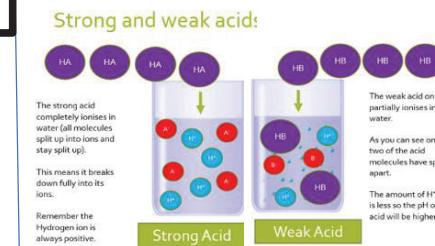


Acids produce H⁺ ions
Alkalies produce OH⁻ ions



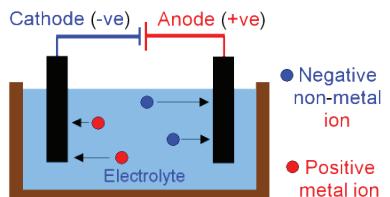
HT: Strong and Weak acids

Concentration of hydrogen ions in mol/dm ³	pH
0.10	1.0
0.010	2.0
0.0010	3.0
0.00010	4.0



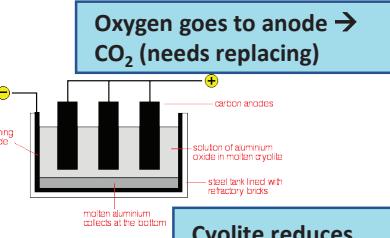
SC10 Electrolysis

..of molten:



Higher:
At the cathode
 $2Br^- + 2e^- \rightarrow Br_2$
or
 $2Br^- - 2e^- \rightarrow Br_2$

..to extract aluminium:



..of solutions:

At the anode: Halide (Gp7) Oxygen

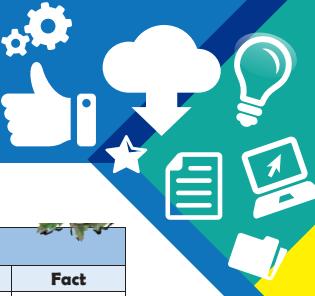
At the cathode: Least reactive

History





World War 1



Main Participating Countries					
ALLIED POWERS			CENTRAL POWERS		
Country	Date Joined	Death Toll	Country	Date Joined	Death Toll
FRANCE	3 rd Aug, 1914	approx. 1,700,000 4.3% of population in 1914	GERMAN EMPIRE	1 st Aug, 1914	approx. 2,500,000 4% of population in 1914
BRITISH EMPIRE	4 th Aug, 1914	approx. 900,000 2% of population in 1914	AUSTRIA-HUNGARY	28 th Jul, 1914	approx. 1,900,000 3.7% of population in 1914
RUSSIA	1 st Aug, 1914	approx. 3,100,000 13.7% of population in 1914	OTTOMAN EMPIRE	31 st Oct, 1914	approx. 3,000,000 14% of population in 1914
USA	6 th Apr, 1917	117,466 0.13% of population in 1914	BULGARIA	12 th Oct, 1915	187,500 3.4% of population in 1914

Key People					
Archduke Franz Ferdinand – (1863-1914) was a high-ranking member of the Habsburg Dynasty, who was the presumed heir to the Austro-Hungarian throne. As was customary of Habsburg men, he had begun his military career young (aged just 12). He rose through the ranks quickly, becoming inspector general of the armed forces in 1913. This role brought him to Sarajevo in 1914, where he was assassinated alongside his wife, Sophie. The perpetrator was Gavrilo Princip, a member of the Serbian Black Hand secret society. Austria-Hungary's subsequent declaration of war on Serbia prompted a chain of events that led to World War I.		Kaiser Wilhelm II – (1859-1941) was the last German Emperor (Kaiser), reigning between 15 th June 1888 until 9 th November 1918. Wilhelm was a grandson of Queen Victoria, and was related to many of the monarchs of Europe, including George V of the UK and Nicholas II of Russia. His support for Austria-Hungary in the crisis of July 1914 was a leading factor in the outbreak of World War I. Many sources suggest that he was not respected as a leader, and as a result, his two leading generals Paul von Hindenburg and Erich Ludendorff dictated most of German policy and strategy during the war. He abdicated in 1918, and fled to the Netherlands.			
Woodrow Wilson – (1856-1924) was the 28 th President of the United States, serving between 1913 and 1921. At the outbreak of World War I, in 1914, the US was neutral, but remained an important supplier to Great Britain and the Allies. However, after 2½ years of war, America declared war on Germany on 6 th April 1917, after Germany continued to attack neutral boats and ships. In early 1918, Wilson gave his outline of 14 points that he thought would bring lasting peace. This influenced the eventual Treaty of Versailles. He received the 1919 Nobel Peace Prize for his efforts.		David Lloyd George – (1863-1945) was the Prime Minister of the United Kingdom throughout the latter part of the war effort, and in the years following the war. He was integral to reorganising the Allied military strategy to work more cohesively under one military commander. Lloyd George also played an important role after the war, being one of the 'Big Three' (alongside the leaders of France and the US) to negotiate the Treaty of Versailles with Germany. He represented the halfway point between the harsh demands of Clemenceau and the more lenient requests of Wilson.			
Tsar Nicholas II – (1868-1918) was the last Emperor of Russia, ruling from 1894 until his forced abdication on 2 nd March 1917. Throughout his reign, Russia fell from being one of the foremost great powers of the world, to economic and military collapse. These factors, coupled with the perception of Nicholas' weak leadership, led to the events of the Russian Revolution, Nicholas' abdication, and his eventual execution. The Russians' catastrophic losses forced them to leave the war effort before the end of the war, with Russia eventually becoming a part of the communist Soviet Union.		Wilfred Owen – (1893-1918) Wilfred Edward Salter Owen was a British poet and soldier. He was one of the most prominent World War I poets, detailing the horrors of trench warfare in a similar style to his mentor: Siegfried Sassoon. His poetry brought a sense of realism to public perceptions of war in stark contrast to the earlier works of poets such as Rupert Brooke. He composed almost all of his poetry in just over a year, from August 1917 to September 1918. Among the most famous are <i>Dulce et Decorum est</i> and <i>Anthem for Doomed Youth</i> . He was killed one week before the end of the war.			

Major Events				
Event	Image	Description	Date/s	Fact
Entangling Alliances		In the early 20 th Century, there was no one dominating European country. Consequently, each of the most powerful countries moved to make alliances with one another. Military defensive pacts were held between the allied powers of France, Great Britain, Russia and others, whilst an opposing central alliance was formed including Germany and Austria-Hungary.	1879-1914	Defensive pacts stated that participating countries must aid an ally under attack.
Assassination of Archduke Franz Ferdinand		Archduke Franz Ferdinand, the heir to the Austro-Hungarian throne, and his wife Sophie, were assassinated by Gavrilo Princip, a member of the Serbian Black Hand Society. The aim of the assassination was to make the South Slav provinces a part of Yugoslavia.	28 th June 1914	Earlier, another assassination attempt against the Archduke had failed.
July Crisis		After Serbia's failure to make amends for the assassination, Austria-Hungary declared war on them. Russia (in pact with Serbia) declares war on Austria-Hungary, before Germany consequently declares war on Russia. By the 4 th August, all of the European powers from the Allied and Central Powers are at war.	July-August 1914	Britain were the last of the powers to declare war, on 4 th August 1914.
Trench Warfare		To prevent enemy advances, both sides built large trenches, which stretched from the North Sea, through Belgium and France. As a result, neither side made much ground from late 1914 until early 1918. Attacks involved going across No Man's Land (in the middle) where attackers were open to machine gun fire, mines, and shells. Casualties were huge. Life in the trenches were awful, with diseases like trench foot rife. Mustard gas was a war agent used, causing blisters on skin and lungs. It caused excruciating pain and often death.	From September 1914 until November 1918 (the end of the war)	The enemy trenches were generally 50 to 250 metres apart. In between, No Man's Land was littered with barbed wire, mines, and bodies.
Gallipoli Campaign		The Gallipoli campaign was an unsuccessful attempt by the Allies to control the sea route from Europe to Russia. It included a failed naval attack in February 1915, and a major land invasion on 25 th April, which resulted in major losses to the Ottoman Empire.	19 th February 1915 – 9 th January 1916	The Allies eventually evacuated in Dec 1915/ Jan 1916.
Battle of the Somme		The Battle of the Somme was the largest battle of World War I on the Western Front. More than 3 million fought in the battle, with more than 1 million killed or injured. At the end of the battle, the Allies had advanced 6km.	1 st July 1916 – 18 th November 1916	The battle is known for being the first use of the tank.
America Declares War		President Woodrow Wilson declared war on Germany, citing Germany's violation of its pledge to suspend unrestricted German warfare in the Northern Atlantic and Mediterranean. This had caused sinking of US ships.	6 th April 1917	The arrival of fresh US troops helped to turn the war.
Second Battle of Marne		The Second Battle of Marne was the last major German offensive in the war. They were defeated as the Allies counter-attacked. This triggered the start of the Allied advance which led to the Armistice 100 days later.	15 th July – 6 th August 1918	There were 168,000 German casualties.
Armistice of 11 th November		The Armistice of the 11 th November 1918 signalled the end of the fighting between the Allies and Germany. Previous armistices had already been agreed with the other central powers. It came into force at 11am. It marked a victory for the Allies and defeat for Germany although was not officially a German surrender.	11 th November 1918	The fighting ended on the 11 th hour of the 11 th day of the 11 th month in 1918.
The Treaty of Versailles		The Treaty of Versailles was the most important of the peace treaties bringing to an end World War I, ending conflict between Germany and the Allied Powers. It was signed in Versailles, but mostly negotiated in Paris. The most contentious of the requirements in the peace treaty was that Germany had to accept responsibility for all of the loss and damage in the war. They had to make massive reparations to other countries.	28 th June 1919	Many suggest that the treaty was too harsh on Germany, and created tensions which partially escalated World War II.

Timeline of Major Events

28 Jun, 1914 – Archduke Franz Ferdinand is killed by a Serbian	28 Jul 1914 – Austria-Hungary declares war on Serbia. Russia steps in to help Serbia	Aug 1-4 1914 – Keeping promises to their allies, Germany, France, and Britain all enter the war.	Sep 5-12 1914 – The advancing German army is stopped by British and French forces before Paris. 4 years of trench warfare begins.	11 Nov 1914 – The Ottomans declare war on the Allies.	25 Apr 1915 – The Ottomans defeat the Allies at the Battle of Gallipoli.	1 Jul 1916 – The Battle of the Somme begins. Over 1 million soldiers will be killed or wounded	8 Mar 1917 – The Russian Revolution begins. Tsar Nicholas II is removed from power.	6 Apr 1917 – The U.S enters the war, declaring war on Germany.	15 Jul 1918 – The Allies decisively win at the Second Battle of Marne.	11 Nov 1918 – Armistice signed. The fighting ends.
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Geography





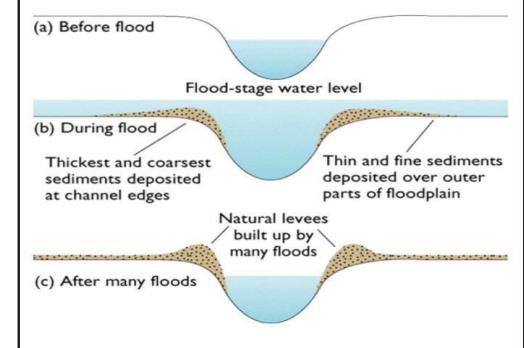
Upper Course of a River
Near the source, the river flows over steep gradient from the hill/mountains. This gives the river a lot of energy, so it will erode the riverbed vertically to form narrow valleys.

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.

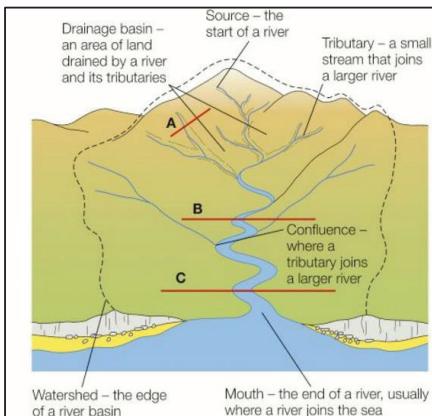
Lower Course of a River
Near the river's mouth, the river widens further and becomes flatter. Material transported is deposited .

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.

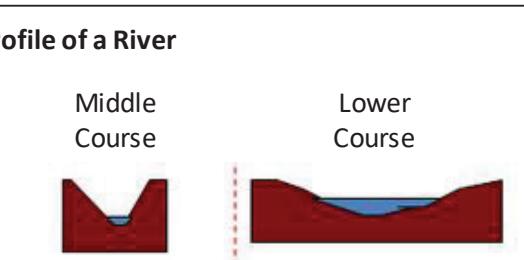
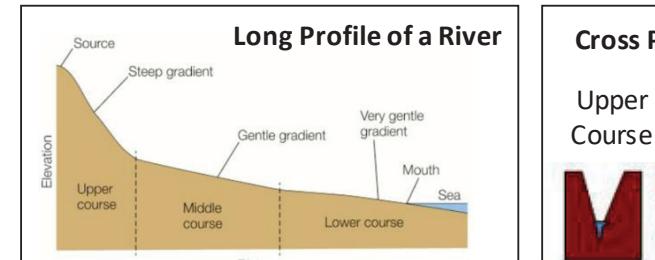
Formation of Floodplains and levees
When a river floods, fine silt/alluvium is deposited on the valley floor. Closer to the river's banks, the heavier materials build up to form natural levees.



Key Words:
Source
Mouth
Watershed
Tributary
Confluence
Vertical and Lateral Erosion
Deposition
Sediment



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.

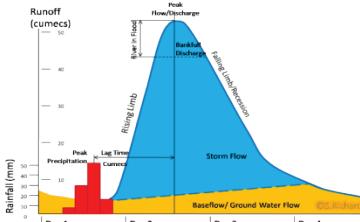


Geography

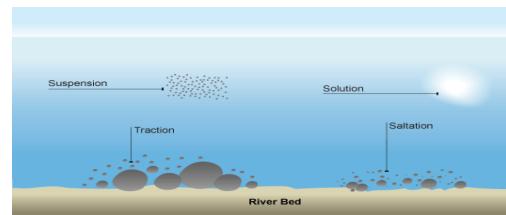


Types of Erosion	
The break down and transport of rocks – smooth, round and sorted.	
Attrition	Rocks that bash together to become smooth/smaller.
Solution	A chemical reaction that dissolves rocks.
Abrasion	Rocks hurled at the base of a cliff to break pieces apart.
Hydraulic Action	Water enters cracks in the cliff, air compresses, causing the crack to expand.

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.

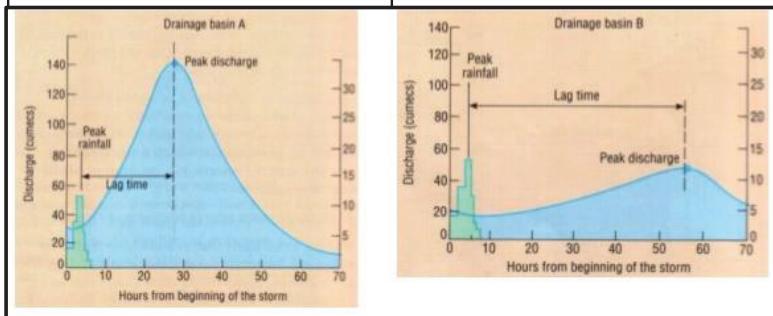
Hydrographs and River Discharge	
River discharge is the volume of water that flows in a river.	
Hydrographs show discharge at a certain point in a river changes over time in relation to rainfall	
<ol style="list-style-type: none"> Peak discharge is the discharge in a period of time. Lag time is the delay between peak rainfall and peak discharge. Rising limb is the increase in river discharge. Falling limb is the decrease in river discharge to normal level. 	
	

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.



Physical and Human Causes of Flooding	
Physical: Prolong & heavy rainfall Long periods of rain causes soil to become saturated leading runoff.	Human: Deforestation when trees are removed, this will increase surface runoff as the water will not be intercepted.
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.
Physical: Geology Impermeable rocks causes surface runoff to increase river discharge.	Human: Agriculture Farming of crops can often leave the soil exposed and leads to rapid surface run off.

Flashy Hydrograph	Low Hydrograph
<ul style="list-style-type: none"> Steep Slopes Small drainage basin Impermeable surface Low levels of vegetation High levels of precipitation 	<ul style="list-style-type: none"> Gentle slopes Large drainage basin Permeable surface High levels of vegetation Low levels of precipitation

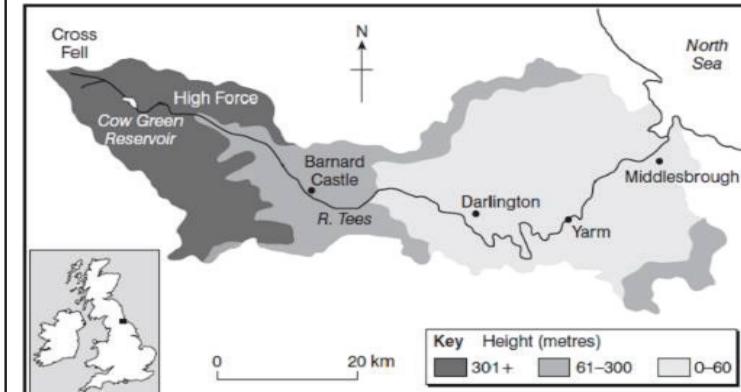




River Management Schemes	
Soft Engineering	Hard Engineering
Floodplain zoning -restrict land use to certain locations	Dams and reservoirs – regulate river flow eg Rutland
River restoration – return river to original course e.g. River Quaggy	Straightening Channel – increases velocity to remove flood water.
Demountable Flood Barriers put in place when warning raised. E.g. Bewdley	Artificial Levees – heightens river so flood water is contained.
Managed Flooding – naturally let areas flood, protect settlements. E.g. Banbury	Flood relief channel – man made channel to by-pass an urban area e.g. Jubilee River

Named Example: Managing Floods at Banbury	
Why required	Banbury is located in the Cotswold Hills and much of the town is on a floodplain of the River Cherwell, a tributary of the Thames. Population = 45,000 . Banbury has a history of devastating floods. Flooding in 1998 – closure of railway station, roads closed and caused £12.5 million of damage.
Management Strategy - 2012	<ul style="list-style-type: none"> ➢ 2.9km earth embankment along M40 – flood storage area ➢ Flow control structures in the embankment – controls the rate of flow downstream to Banbury. ➢ Raised A361 and improvements in road drainage. ➢ New earth embankments and floodwalls. ➢ New pumping station ➢ New Biodiversity Action Plan (BAP)
Social, Economic and Environmental Issues	<p>Social - Raised A361 will be open - Improved quality of life for locals – footpaths/ green areas - Reduced levels of anxiety</p> <p>Economic - Cost £18.5 million Donors – Environment Agency Cherwell District Council - Protects 441 houses 73 businesses benefits +£100m.</p> <p>Environmental - 100000 tonnes earth needed to build embankment. New BAP – ponds, hedgerows. Part of floodplain – allowed to flood.</p>

Named Example: 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	<p>Upper – Features include V-Shaped valley, rapids and waterfalls. Highforce Waterfall drops 21m and is made from harder Whinstone and softer limestone rocks. Gradually a gorge has been formed.</p> <p>Middle – Features include meanders and ox-bow lakes. The meander near Yarm encloses the town.</p> <p>Lower – Greater lateral erosion creates features such as floodplains & levees. Mudflats at the river's estuary.</p>
Management	<ul style="list-style-type: none"> -Towns such as Yarm and Middleborough are economically and socially important due to houses and jobs that are located there. -Dams and reservoirs in the upper course, controls river's flow during high & low rainfall. - Better flood warning systems, more flood zoning and river dredging reduces flooding.

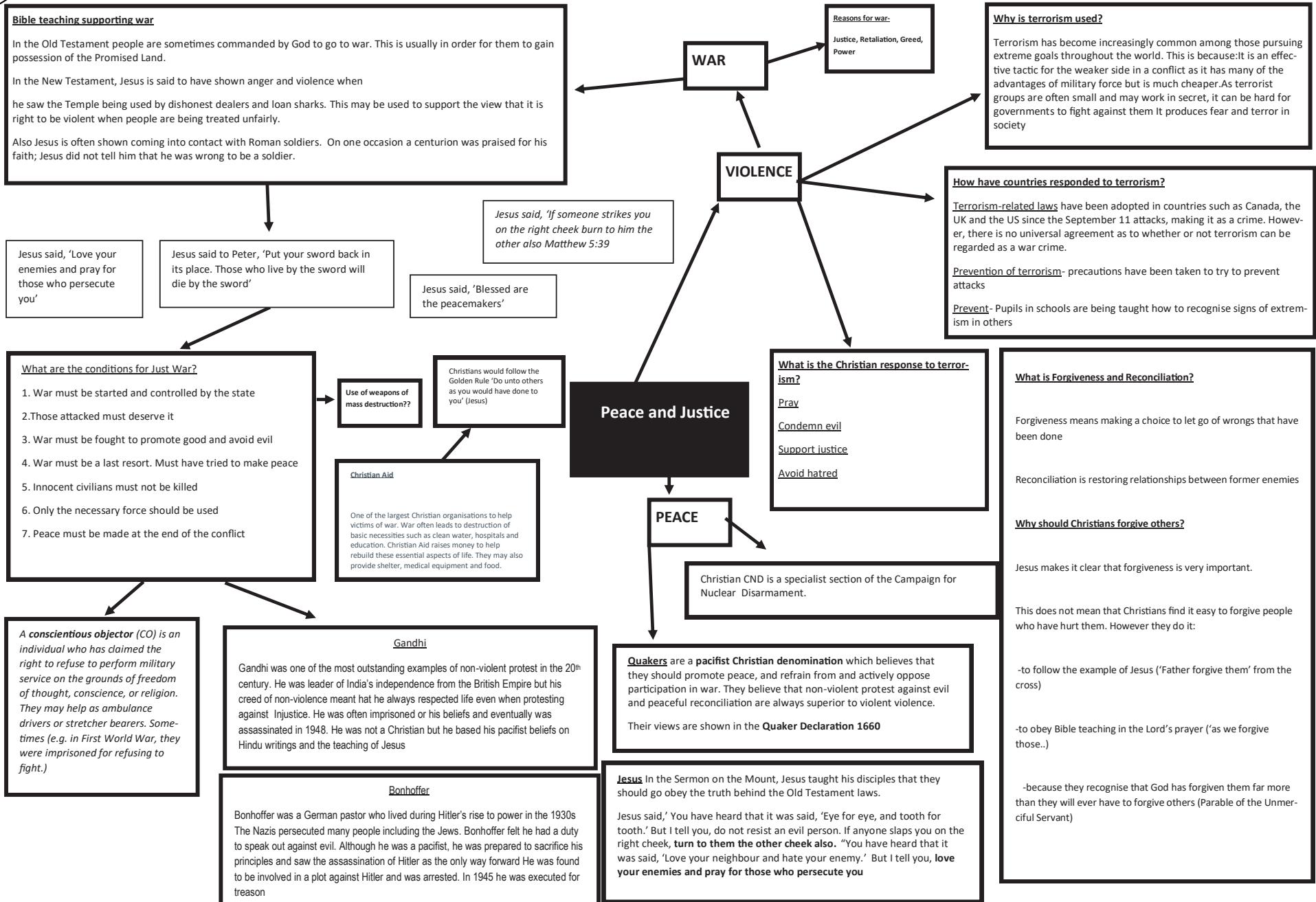


Religious Studies





Religious Studies - Peace and conflict



Spanish





GCSE Spanish Tier Module 2 - Mi vida en el Insti



¿Te interesa(n)...? - Are you interested in...?

¿Qué opinas de...? - What do you think of...?

me chifla(n)	I love
me interesa(n)	I'm interested in
odio	I hate
prefiero	I prefer
el arte dramático - drama	
el dibujo	art / drawing
el español	Spanish
la biología	biology
la educación física - PE	
la física	physics
la lengua	language
la química	chemistry
los idiomas	languages
las empresariales	business studies
la asignatura	subject

¿Cómo es tu insti? - What is your school like?

En mi insti hay - In my school there is...
Mi insti tiene - My school has...
un salón de actos - a hall
un comedor - a canteen
un campo de fútbol - a football pitch
un patio - a playground
un gimnasio - a gym
una biblioteca - a library
una pista de tenis - tennis court
unos laboratorios - some laboratories
muchas aulas - lots of classrooms

¿Cómo son tus profes? - What are your teachers like?

joven	young
viejo/a	old
severo/a	strict
tolerante	easy-going
impaciente	impatient
paciente	patient
gracioso/a	funny
serio/a	serious
simpático/a	nice / friendly
antipático/a	unfriendly
más divertido/a que	more fun than
menos creativo/a que	less creative than
tan interesante como	as interesting as

Antes y ahora - Before and now

En mi escuela primaria - In my primary school...	(no) había 0 there was/were (not any)
exámenes	exams
deberes	homework
instalaciones (deportivas)	(sports) facilities
actividades extraescolares	extra-curricular activities
la educación infantil	pre-school education
la educación primaria	primary education
la educación secundaria	secondary education
el bachillerato	A levels
la formación profesional	vocational training

¿Qué llevas en el insti? - What do you wear at school?

(No) llevo - I (don't) wear...	
(No) llevamos - We (don't) wear...	
Tengo que llevar - I have to wear...	
Tenemos que llevar - We have to wear...	
un jersey (de punto) - a (knitted) sweater	
una camisa	a shirt
una camiseta	a t-shirt
una chaqueta (a rayas)	a (striped) jacket
una corbata	a tie
una falda	a skirt
unos pantalones	trousers
unos calcetines	socks
unos zapatos	shoes
oscuro / claro	dark / light
a rayas / a cuadros	striped / checked
bonito / feo	pretty / ugly

cómodo / incómodo

formal / informal

elegante

práctico

En el futuro - In the future

el próximo trimestre - next term

voy a continuar con - I'm going to continue with... things

voy a ir al club de - I'm going to go to... club

Los clubs extraescolares - Extra-curricular clubs...

son divertidos / geniales / - are fun / great /

Interesantes - interesting

El uniforme... Uniform...

mejora la disciplina - improves discipline

limita la individualidad - limits individuality

Las diferencias económicas

no son tan obvias - the economic

Differences are not as obvious

Mi instituto / colegio es - My school is...

mixto - mixed

femenino / masculino - all girls / all boys

público / privado - state / private

El edificio es / son - The building (s) is/are

nuevo(s) - new

antiguo(s) - old

amplio(s) - spacious

atractivo(s) - attractive

lo bueno / malo es que - the good / bad thing is that...

lo mejor / peor es que - the best / worst thing is that...

ni...ni - (n)either...nor...

nada - nothing / anything

tampoco - not either

Te ayudan a - They help you to...

aprender cosas interesantes - learn interesting

things

hacer nuevos amigos - make new friends



GCSE Spanish Tier Module 2 - Mi vida en el Insti



¿Cómo vas al insti? - How do you get to school?		¿Cuáles son las normas de tu insti? - What are the rules in your school?		¿Hay problemas en tu insti? - Are there problems in your school?	
Voy al insti - I go to school...		Está prohibido - It is forbidden...		Voy a - I'm going to...	Un problema es - One problem in my school is...
a pie / andando - on foot / walking		No se permite - You are not allowed...		Vamos a - We're going to...	el estrés de los exámenes - exam stress
en bici - by bike		No se debe - You / One must not...		participar en un intercambio - take part in an exchange	el acoso escolar - bullying
en autobús - by bus		comer chicle - to chew chewing gum		viajar con mi clase - travel with my class	la presión del grupo - peer pressure
en coche - by car		usar el móvil en clase - to use your phone in lessons		Conocer - meet / get to know	Estoy estresado/a - I am stressed out.
en metro - by underground		llevar uniforme - to wear a uniform		visitar - visit	Tengo miedo de - I am scared of...
en taxi - by taxi		ser agresivo o grosero - to be aggressive or rude		llegar - arrive	suspender mis pruebas - fail(ing) my assessments.
en tren - by train		correr en los pasillos - to run in the corridors		Estar - be	aprobar mis exámenes - pass my exams
Salgo de casa a las - I leave home at...		llevar piercings - to have visible piercings		asistir a clases - attend lessons	Hay (algunos) alumnos que - There are (some) pupils who...
Las clases empiezan a las - Lessons start at	at	ser puntual - to be on time		ir a pie - walk	Intimidán - intimidate
y terminan a las - and finish at...		salir del instituto durante - to leave the school during		llevar ropa de calle - wear (my/your/our) own clothes	abusan - abuse
Tenemos... clases - We have... lessons		el día escolar - the school day		ir / comer juntos - go / eat together	sienten pánico - feel panic
al día - per day				ir de excursión - go on a trip	hacen novillos - skip lessons
por la mañana - in the morning		¿Qué opinas? - What is your opinion?		hacer turismo - see the sights	quieren ser parte de - want to be part of
por la tarde - in the afternoon		estoy de acuerdo - I agree		hacer una visita guiada - do a guided tour	la pandilla - the gang
Cada clase dura - Each lesson lasts		no estoy de acuerdo - I disagree		ver los edificios - see the buildings	son una mala influencia - are a bad influence
el recreo - break		Pienso que / Creo que - I think that...		Va a ser - It's going to be	hice / hicimos - I did / we did...
la hora de comer - lunch		es justo - it's fair		fácil / guay - easy / cool	una prueba - a test / exam
participé en - I took part in...		es injusto - it's unfair	Éxitos - Successes / Achievements	soy miembro del - I am / have been a member of the...	una película - a film
un maratón - a marathon		no es justo - it's not fair	practico el judo - I do / have been doing judo	club de teatro - drama club	gané / ganamos - I won / we won...
un torneo - a tournament		¡Qué va! - No way!	toco la trompeta - I play / have been playing the trumpet	club de periodismo - reporters club	un trofeo - a trophy
un concierto - a concert		Las normas son - The rules are...	canto en el coro - I sing / have been singing in the choir	club de lectores - reading club	un premio - a prize
un campeonato - a championship		buenas / malas - good / bad	voy al - I go / have been going To	club de fotografía - photography club	toqué un solo - I played a solo
un concurso - a competition		necesarias - necessary	club de (ajedrez) - (chess) club	desde hace...años - for... years	iFue un éxito! - It was a success!
		demasiado severas - too strict		el trimestre pasado - last term...	este trimestre - this term



GCSE Spanish Tier Module 2 - GRAMMAR



Present tense = I do

	-AR	-ER	-IR
	Hablar	Comer	Vivir
(yo)	Hablo	Como	Vivo
(tú)	Hablas	comes	Vives
(él/ella)	Habla	Come	Vive
(nosotros)	Hablamos	Comemos	Vivimos
(vosotros)	Habláis	Coméis	Vivís
(ellos/ellas)	Hablan	Comen	Viven

Ser	Soy	Poder	Puedo
Estar	Estoy	Poner	Pongo
Dar	Doy	Saber	Sé
Ir	Voy	Traer	Traigo
Hacer	Hago	Querer	Quiero
Tener	Tengo	Ver	Veo
Salir	Salgo	Conocer	Conozco
Jugar	Juego	Traducir	Traduzco

Haber = hay (there is /are)

Preterite tense = I did.

	tomar	comer	decidir
yo	tomé	comí	decidí
tú	tomaste	comiste	decidiste
él/ella	tomó	comió	decidió
nosotros	tomamos	comimos	decidimos
vosotros	tomasteis	comisteis	decidisteis
ellos/ellas	tomaron	comieron	decidieron

Ser	Fui	Poder	Pude
Estar	Estuve	Poner	Puse
Dar	Di	Saber	Supo
Ir	Fui	Jugar	Jugué
Hacer	Hice	Llegar	Llegué
Tener	Tuve	Haber	Hubo

SPANISH GCSE VERB TENSES

Immediate future = I am going to do

	Ir	B	Infinitive
(yo)	voy		comer
(tú)	vas		beber
(él/ella)	va		ir
(nosotros)	vamos		jugar
(vosotros)	vais		llevar
(ellos/ellas)	van		tener

Pure future = I will do

Tener	tendré	INFINITIVE + ENDINGS
Hacer	haré	Trabajar
Poner	pondré	Trabajare
Querer	querré	Trabajará
Decir	diré	Trabajaremos
Salir	saldré	Trabajareis
Saber	sabré	Trabajaran
Venir	vendré	
Haber	habrá	

Imperfect tense = I used to do

	AR	ER	IR
Yo	andaba	comía	vivía
Tú	andabas	comías	vivías
El / Ella	andaba	comía	vivía
Nosotros	andábamos	comíamos	vivíamos
Vosotros	andabais	comíais	vivíais
Ellos / ellas	andaban	comían	vivian

	SER (to be)	IR (to go)
I	era	iba
You	eras	ibas
He	era	iba
We	éramos	ibamos
You pl	erais	ibais
They	eran	iban

Conditional tense = I would do

INFINITIVES + ENDINGS

Trabajar	I would work
Trabajaría	You would work
Trabajarias	He would work
Trabajaria	We would work
Trabajariámos	You (pl.) would work
Trabajariais	They would work

Irregulars:

Hacer	haría	Poder	podría
Salir	saldría	Decir	daría
Tener	tendría	Venir	vendría
Querer	querría	Saber	sabría
Poner	pondría	Haber	habría

Perfect tense = I have done

I have (auxiliary verb) + done (past participle)

He	I have
Has	You have (singular)
Ha	He/she/ it has
Hemos	We have
Habéis	You (all) have
Han	They have

AR	take off the AR add -ado Hablar > hablado Empezar > empezado
ER	take off ER or IR add -ido Comer > comido vivir > vivido

He **comido** = I have eaten

Has **comprado** = You have bought

Hemos **decidido** = We have decided

He **hecho*** = I have done (*irregular of **hacer**)



GCSE Spanish Tier Module 2 - GRAMMAR



ADJECTIVES

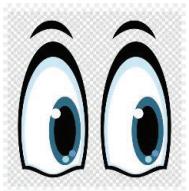
An **ADJECTIVE** is a word that describes a noun.

In Spanish, adjectives have different endings depending on whether the word they are describing is masculine, feminine, singular or plural.

Making adjectives agree

The table shows the patterns that adjective usually follow to agree with the noun they are describing:

Adjectives ending in:	Masculine singular	Feminine singular	Masculine plural	Feminine plural
o/a	bueno	buena	buenos	Buenas
e	interesante	interesante	interesantes	interesantes
a consonant	útil	útil	útiles	útiles



Opinions and reasons with adjectives

When using adjectives to give reasons for your opinions on something they also must agree in gender and number.

E.g. Adoro el español porque es divertido (masc singular noun = masc singular adjective)

Adoro la historia porque es divertida (fem singular noun = fem singular adjective)

Adoro los deportes porque son divertidos (masc plural noun = masc plural adjective)

Adoro las ciencias porque son divertidas (fem plural noun = fem plural adjective)

Look at the following website for more information and practise on adjectives

<https://www.bbc.co.uk/bitesize/guides/zr742sg/revision/1>

French





Y10 French AQA Module 3: My studies



Les matières = School subjects

le commerce = business studies
le dessin = art
le français = French
la biologie = biology
la chimie = chemistry
la géographie = geography
la musique = music
la physique = physics
la religion = religious studies
la technologie = technology / DT
l'allemand (m) = German
l'anglais (m) = English
l'art dramatique (m)/le théâtre = drama
l'EPS (f)/le sport = PE
l'espagnol (m) = Spanish
l'étude des médias (f) = media studies
l'histoire (f) = history
l'informatique (f) = ICT
l'instruction civique (f) = citizenship
les arts ménagers = food technology
les maths = maths

L'emploi du temps = The timetable

à neuf heures = at nine o'clock
à neuf heures dix = at ten past nine
à neuf heures et quart = at a quarter past nine
à neuf heures et demie = at half past nine
à dix heures moins vingt = at twenty to ten
à dix heures moins le quart = at a quarter to ten
lundi/mardi/mercredi/jeudi/vendredi = (on)
Monday(s)/Tuesday(s)/Wednesday(s)/Thursday(s)/Friday(s)
La récré(ation) = break time
l'heure du déjeuner = lunchtime
Lundi à neuf heures, j'ai histoire/math. = On Monday at
nine o'clock, I have ...history/math.
Vendredi, j'ai deux heures de français. = I have two French
lessons on Fridays.
La récré commence à ... = Break time starts at ...

Ce que j'aime et ce que je n'aime pas = What I like and what I don't like

Quelle est ta matière préférée? = What is your favourite subject?
Ma matière préférée est ... = My favourite subject is ...
J'adore/j'aime/je n'aime pas/je déteste ... I
love/like/don't like/hate ...
Je suis fort(e) en ... = I am good at ...
Je suis faible en ... = I am weak at ...
Je (ne) suis (pas) doué(e) en ... = I (don't) have a talent
for ...
C'est ... = It's ...
facile/difficile = easy/difficult
utile/inutile = useful/useless
intéressant/ennuyeux = interesting/boring
fascinant/passionnant = fascinating/exciting
Le/La prof est ... = The teacher is ...
bon(ne)/marrant(e)/sympa/gentil(le) =
good/funny/nice/kind
sévère/impatient(e) = strict/impatient
On a trop de devoirs. = We have too much homework.

Les succès au collège = Successes at school

Je suis fier/fière de moi. = I am proud of myself.
Je joue dans l'orchestre. = I play in the
orchestra.
Je suis membre du conseil d'administration. = I'm
a member of the school council.
J'ai gagné ... = I won ...
un prix pour mes efforts en classe = a prize for
my efforts in class
un tournoi de foot/basket = a football/basketball
tournament
un concours de slam/danse = a slam/dance
competition
J'ai participé à ... = I participated/took part in ...
un spectacle/un échange/une sortie scolaire = a
show/an exchange/a school trip
J'ai récolté de l'argent pour une association
caritative. = I raised money for a charity.

L'école chez nous, l'école chez vous = School here and with you

En Grande-Bretagne/En France, ... = In Britain/In France ...
l'école commence à ... et finit à ... = school starts at ... and finishes at ...
on porte un uniforme scolaire = we wear school uniform
ils portent leurs propres habits = they wear their own clothes
on étudie la religion = we study RE
ils n'étudient pas la religion = they don't study RE
on ne redouble pas = we don't repeat a year
ils redoublent = they repeat a year
les grandes vacances durent ... = the summer holidays last ...
Je préfère le système britannique/ français parce que = I prefer the
British/French system because ...
le redoublement (n')est (pas) une bonne idée = repeating a year is (not) a good idea
les horaires sont plus raisonnables = the hours are more reasonable
les vacances sont plus longues = the holidays are longer
l'uniforme scolaire est pratique/inutile = school uniform is practical/useless



Y10 French AQA Module 3: My studies



Mon collège = My school

Comment s'appelle ton école? = What is your school called?
Mon école s'appelle ... = My school is called ...
C'est quelle sorte d'école? = What sort of school is it?
C'est ... = It's ...
une école mixte = a mixed school
une école publique/privée = a state/private school
une école pour filles/garçons = a school for girls/boys
pour les élèves de 11 à 16 ans = for pupils aged 11 to 16
Il y a combien d'élèves? = How many pupils are there?
Il y a (750) élèves et (45) professeurs = There are (750) pupils and (45) teachers.
Quels sont les horaires? = What are the school hours?
La journée commence à (8h30) et finit à (16h ou à 17h). = The school day starts at (8.30 a.m.) and finishes at (4 or 5 p.m.).
Il y a combien de cours par jour? = How many lessons are there per day?
Il y a (huit) cours par jour. = There are (eight) lessons per day.
Comment sont les professeurs? = What are the teachers like?
En général, les profs sont gentils/ un peu sévères. = In general, the teachers are kind/a bit strict.
Qu'est-ce que tu penses de ton collège? = What do you think of your school?
Je pense que les journées sont longues et qu'on a trop de contrôles. = I think the days are long and we have too many tests.

Mon collège = My school

J'ai (deux) heures de (musique) par semaine. = I have (two) hours of (music) per week.
Il n'y a pas de cours de ... dans mon emploi du temps. = There are no ... lessons in my timetable.
J'apprends (deux) langues vivantes. = I learn (two) foreign languages.
Mes cours finissent à (16h00) tous les jours. = My lessons finish at (4.00 p.m.) every day.
Je n'ai pas cours (le mercredi après-midi). = I don't have lessons (on Wednesday afternoon).
Je trouve ... = I find ...
Je pense que ... est/sont ... = I think that ... is ...

Mon bahut = My school

Les cours commencent à 8h30. = Lessons start at 8.30 a.m.
La récré est à 10h15 et dure quinze minutes. = Break is at 10.15 a.m. and lasts 15 minutes.
On a une heure et demie pour le déjeuner. = We have an hour and a half for lunch.
Les cours finissent à 16 heures. = Lessons finish at 4.00 p.m.
Il y a sept cours de cinquante-cinq minutes par jour. = There are seven lessons of 55 minutes per day.
Le mercredi après-midi, il n'y a pas cours. = There are no lessons on Wednesday afternoon.
Quelles matières étudies-tu? = What subjects do you study?
J'étudie douze matières dont ... = I study 12 subjects, including ...
Toutes mes matières sont obligatoires. = All my subjects are compulsory.
J'adore (cuisiner) car ... = I love (cooking) because ...
je suis doué(e) pour ça = I'm talented at that
Je trouve que ... = I find that ...
les profs sont sympa/excellents/sévères = the teachers are nice/excellent/strict.

L'école chez nous, l'école chez vous =

School here and with you

En Angleterre/Écosse/Irlande du Nord, ... = In England/Scotland/ Northern Ireland

...
Au pays de Galles, ... = In Wales ...
on va à l'école de ... ans à ... ans = we go to school from ... to ... years old
on porte un uniforme scolaire/ses propres vêtements = we wear a school uniform/our own clothes
on achète ses propres stylos et règles = we buy our own pens and rulers
on ne redouble pas = we don't repeat the year
on étudie ... = we study ...
Mais en France/au Canada/au Mali, ... = But in France/Canada/Mali ...
ils vont ... = they go ...
l'école commence ... = school starts ...
ils portent ... = they wear ...
ils achètent ... = they buy ...
ils (ne) redoublent (pas) = they (don't) repeat the year
ils étudient ... = they study ...
Je préfère le système (anglais/français) parce que ... = I prefer the (English/French) system because ...
l'école fournit l'équipement = the school provides the equipment
le redoublement (n')est (pas) une bonne idée idea = repeating the year is (not) a good
on (n')étudie (pas) ... = we/they (don't) study ...



Y10 French AQA Module 3: GRAMMAR



verb type	infinitive	present tense	perfect past tense	near future tense
regular -er verbs	jouer (to play)	je joue (I play)	j'ai joué (I (have) played)	je vais jouer (I am going to play)
regular -ir verbs	finir (to finish)	je finis (I finish)	j'ai fini (I (have) finished)	je vais finir (I am going to finish)
regular -re verbs	vendre (to sell)	je vends (I sell)	j'ai vendu (I (have) sold)	je vais vendre (I am going to sell)
key irregular verbs	être (to be) avoir (to have) faire (to do/make) aller (to go)	je suis (I am) j'ai (I have) je fais (I do/make) je vais (I go)	j'ai été (I have been) j'ai eu (I have had) j'ai fait (I did/made) je suis allé(e) (I went)	je vais être (I am going to be) je vais avoir (I am going to have) je vais faire (I am going to do/make) je vais aller (I am going to go)

Simple Future		
SUBJECT PRONOUN	FUTURE ENDING	Meaning
je (I)	jouerai	I will play
tu (you - 1 friend)	travailleras	you will work
il/elle/on (he/she/we)	habitera	he/she/we will live
nous (we)	mangerons	we will eat
vous (you-plural/polite)	finirez	you will finish
ils/elles (they)	vendront	they will sell

SUBJECT PRONOUN	CONDITIONAL ENDING	Meaning
je (I)	jouerais	I would play
tu (you - 1 friend)	travaillerais	you would work
il/elle/on (he/she/we)	habiterait	he/she/we would live
nous (we)	mangerions	we would eat
vous (you-plural/polite)	finiriez	you would finish
ils/elles (they)	vendraient	they would sell

IRREGULARS

être (to be) → ser je serai (I will be)
 avoir (to have) → aur j'aurai (I will have)
 faire (to do/make) → fer je ferai (I will do/make)
 aller (to go) → ir j'irai (I will go)

IRREGULARS

être (to be) → ser je serais (I would be)
 avoir (to have) → aur j'aurais (I would have)
 faire (to do/make) → fer je ferais (I would do/make)
 aller (to go) → ir j'irais (I would go)

IT



Y10 IT Half Term 2 Preparing for coursework



To be able to import and manipulate data to develop a solution to meet an individual need

Summary

A **database** is a way of storing information in an organised, logical way. **Validation and verification** are two ways to check that the data entered into a computer is correct. Data entered incorrectly is of little use.

There are two main methods of verification:

Double entry - entering the data twice and comparing the two copies. This effectively doubles the workload, and as most people are paid by the hour, it costs more too.

Proofreading data - this method involves someone checking the data entered against the original document. This is also time-consuming and costly.

Validation is an automatic computer check to ensure that the data entered is sensible and reasonable. It does not check the accuracy of data.

Relational databases

A relational database has more than one table and the tables are linked using **key fields**. For example, a library database could have three tables:

Customer - when a customer joins the library a **record** is created. It stores their details such as their first name and surname and includes a unique Customer ID.

Book - each book in the library has a record. It stores details about the book, such as the author and title and includes a unique book ID.

Lending - when a customer borrows a book, the lending table stores the customer's unique ID and the book's unique ID in a record. The record could also include additional information such as when the book was borrowed and when it's due back.

Why use a database?

- ◆ Databases can store very large numbers of records efficiently (they take up little space).
- ◆ It is very quick and easy to find information.
- ◆ It is easy to add new data and to edit or delete old data.
- ◆ Data can be searched easily, e.g. 'find all Ford cars'.
- ◆ Data can be sorted easily, for example into 'date first registered' order.
- ◆ Data can be imported into other applications, for example a mail-merge letter to a customer saying that an MOT test is due.
- ◆ More than one person can access the same database at the same time - multi-access.

Validation

For example, a secondary school student is likely to be aged between 11 and 16. The computer can be programmed only to accept numbers between 11 and 16. This is a **range check**.

Types of validation

There are a number of validation types that can be used to check the data that is being entered.

- ◆ Lookup table
- ◆ Range check
- ◆ Spell check
- ◆ Format check
- ◆ Presence check
- ◆ Length check

Key Vocabulary

Criteria	A set of rules or conditions that must be met. Often used in searches.
Database	A data store designed in an organised way, making it easier to search for the information you need.
Field	An element of a database record in which one piece of information is stored. For example 'name' in an electronic address book.
Front-end	The part of an application seen and used by the end user.
Flat-file database	A database in which all the data is stored in a single table is known as a flat file database.
Key Field	A unique identifier for a database record or table entry.
Multi-Access	A system that can be used by several users simultaneously via a local area network (LAN).
Query	A search or question performed inside a database.
Record	All of the data relating to one entity in a database.
Validation	Checking input data is sensible and in the right format.
Verification	Verification is performed to ensure that the data entered exactly matches the original source.

Data capture

Before setting up a database the data must be collected. This can be done using a data capture form.

A data capture form is designed to collect specific data.

Deals on Wheels	
Registration No.	D 0 5 T V Y
Make	M I N I
Model	COOPER S
Price	£ 6 5 0 0
Sold	Y ✓ N
Date sold	0 2 0 1 2 0 1 4

Set amount of spaces

Data capture forms often use **boxes** or a **set amount of spaces** and occasionally provide examples too.

This is to make sure each field is completed correctly.

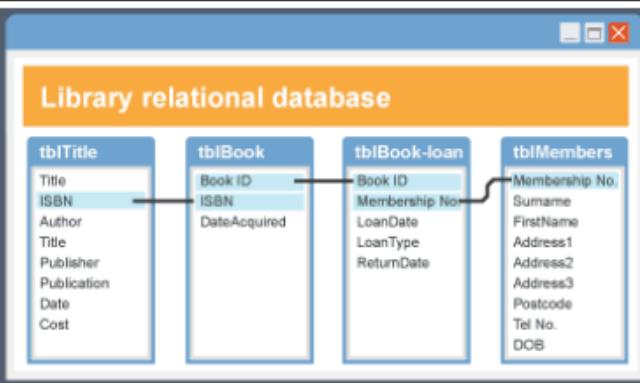


Diagram illustrating a Library relational database with four tables: **tblTitle**, **tblBook**, **tblBook-loan**, and **tblMembers**. Relationships are shown between the tables: **tblBook** and **tblBook-loan** share the **Book ID** field, and **tblBook-loan** and **tblMembers** share the **Membership No.** field.

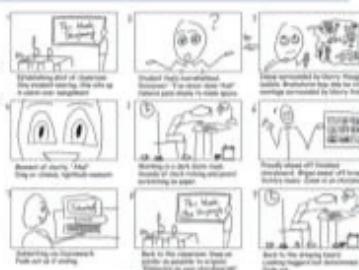
Computer Science



Y10 Creative iMedia Half Term 1



RO81 Pre-production Skills

Pre-production Documents		Legislation	Key points
Storyboard	An effective way to share the vision for a design. The product follows a clear sequence and idea for what each shot would include.	Copyright	Copyright, Designs and Patents Act 1988 It is illegal to use created material without permission. People can copyright protect their literary, dramatic, musical, artistic work, films and sound recording You could face legal action - Fine of up to £325,000 Imprisonment of up to five years for a first offence. Subsequent offences, fine of up to £0.6 million Imprisonment of up to 10 years.
Visualisation Diagram	Used to show the layout of a web page, multimedia display, game scene, comic book, etc. It will show the position and content of different elements, e.g. images, graphics, text and navigation.	Trademarks	A word, symbol, or phrase, used to identify a particular manufacturer or seller's products and distinguish them from the products of another. Once registered a trademark cannot be used without permission (diluted). Injunctions and damages can be granted
Mind maps	Often used for planning and creating ideas. Considers the main point and the branches out with different nodes.	Creative Commons	A Creative Commons (CC) license is one of several public copyright licenses that enable the free distribution of an otherwise copyrighted work. A CC license is used when an author wants to give people the right to share, use, and build upon a work that they have created. CC provides an author flexibility (for example, they might choose to allow only non-commercial uses of their own work) and protects the people who use or redistribute an author's work from concerns of copyright infringement as long as they abide by the conditions that are specified in the license by which the author distributes the work. Works are governed by Copyright Law.
Mood board	A type of collage consisting of images, text and samples of objects. This can be physical or digital. This visualisation tool can show the theme, colour schemes, font, textures and general appearance of the product.	Patent	Patents Act 1977 Patents protect inventions stop anyone from making or using the invention without the owner's permission. Last up to 20 years. Only exists in the country for which a patent has been granted. Generally speaking patents are used to protect the markets in which an invention is to be exploited.
Scripts	A document that outlines the aural (speaking), visual (what you can see), behavioral (body language) and lingual elements required.		
What are work plans?		  <ul style="list-style-type: none"> Work plans are created to organise the sequence of steps that need to be performed to complete a project. They show the order the steps should be performed They show the time allocated to complete each step They may include information about required resources They may include information about the location for each step (eg different filming locations to record a video) They should include a contingency plan They can be displayed as a table or graphically in a Gantt chart. 	



Y10 Creative iMedia Half Term 2



RO82 Creating Digital Graphics

LO1 – Understand the purpose and properties of digital graphics.

Digital Graphic Definition: An image that can be used in the entertainment industry for a particular purpose, with a specific target audience in mind.

Examples of Digital Graphics: Magazine front covers/adverts, CD/DVD covers, Book cover jackets, film posters, Comics cartoon, web images and graphics, concept art from games, logos.

File Format used for Digital Graphics: PSD, TIFF, PNG, GIF

Raster Images: A raster image is like a mosaic made up of pixels.

Vector Images: A vector image is made up of blocks of colours, no pixels.

White Space: It is any blank space and can be used effectively to emphasise key parts of a graphic.

Book Cover/Jacket Conventions: Title, Author name, Publisher (name and logo), Slogan, Main Image, Mini Review, Barcode, Blurb.

LO3 – Be able to create digital graphics.

Image Editing Software: For example Photoshop, a program that's allows you to manipulate the style and dimensions of still images.

Image Editing Tools: Cropping, Rotating, Brightness/Contrast, Colour, Adjustment, Adding text, Cloning, Red Eye Removal, Filters, Magic Wand tool, Lasso tool, Blur tool.

The best type of file type for print media: TIFF

The best type of file type for online media: PNG/JPEG

Naming Conventions: Make sure every file type has the correct name and is then organised in a named folder.

The purpose of naming conventions: So that the file is instantly recognisable to the user/producer and so that the file name is appropriate for the client.

LO2 – Be able to plan the creation of a digital graphic.

Client Requirements: The person you will be working for and what they want you to plan, design and create for them.

Target Audience: The demographic/group that the product is aimed at.

NRS Social Grade: Identifying an audience based on their interests and desires.

Psychographics: Identifying an audience based on their interests and desires.

Work plan: An important tool that helps a project to assign tasks, manage workflow and track the various components and milestone deadlines.

Mood board: A mood board is a collage (digital or on paper), of objects (images, colours, screenshots, patterns, text etc) which try to capture a feeling, theme or design.

Mind map: A mind map is a diagram in which information is represented visually, usually with a central idea placed in the middle and associated ideas arranged around it.

Asset: An asset is a convention/image that media producers use to make a media product.

Resources needed: Computer, Mouse, Keyboard, Photoshop, Hard Drive, Camera, SD Card.

Legislation to consider: Copyright, Intellectual Property, Trademark, Royalty free assets.

LO4 – Be able to review a digital graphic.

Review: The process of analysing the overall effectiveness of a product in relation to the clients and target audience requirements.

Structure of a review:

1. How does the product meet the requirements of the brief.
2. How does the product successfully appeal to the target audience.
3. Three strengths of the final digital graphic.
4. Three weaknesses of the final digital graphic.
5. Three different ways that the digital graphic can be improved.

Business



Y10 Business Half Term 2



Market Research

Primary market research	First hand research that is specific to businesses needs as they design and undertake it themselves.
Secondary market research	Second hand research where a business uses research found from someone else.
Types of primary research	Survey, questionnaire, focus group, observation
Types of secondary research	Internet, market reports, government reports.
Qualitative Research	research with lots of depth and opinion. It is gained through asking open questions.
Quantitative Research	statistical research with quantifiable answers. This is gained through asking closed questions.

Segmentation

Market Segmentation is splitting up the mass market into different parts so businesses can target and meet the needs of a small group of people with the same wants and needs.

Location	This is where a business will target customers based on the area in which they are/live.
Demographics	Targeting a group of the population who have similar characteristics
Age	Meeting the needs of customers within a specific age group. For example Children's toys
Lifestyle	Targeting and meeting needs of customers who live in a particular way. For example Vegans choose products through lifestyle choice.
Income	Targeting customers based on how much they earn. For example shops who sell products at a lower price for people on a lower income.

By targeting a specific group of people it ensures those needs are identified and successfully met.

Market Maps

Benefits	Drawbacks
<ul style="list-style-type: none"> Easy to interpret Shows gaps in the market Can understand target market 	<ul style="list-style-type: none"> Doesn't consider external factors Can be difficult if business has multiple products

Customer Needs

A customer need is what the customer wants from a specific product or service. By ensuring customer needs are met, it promotes business survival and increase in sales

Price-	The amount charged to purchase the good/service must be justified.
Quality-	Ensuring the product is made well and is fit for purpose
Choice-	Allowing customers to choose from variety
Convenience-	Allowing customers to purchase a product quickly and efficiently

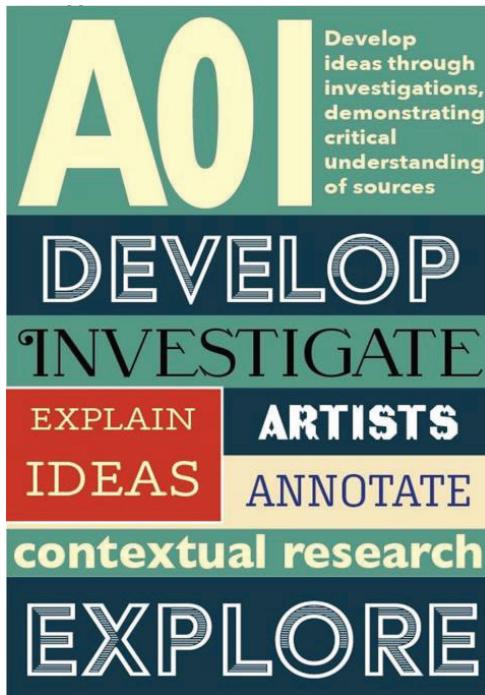
Competition

Competitive market is where several businesses operate, offering the same or similar products/services.

Benefits of Competition
<ul style="list-style-type: none"> Promotes fair prices as businesses will compete for sales, meaning customers won't be overcharged. Allows a variety of choice for customers to select from. Ensures products are constantly being updated to ensure quality and reliability.

Art





For every theme/project you will explore

- More than one relevant artist
- Copy the artist work
- Research why and how the work was made
- Give your own opinions through written annotations

Expectations:

- It is expected that you will complete quite a lot of work for this course through the homework programme, approximately two hours per week
- It is advisable to attend GCSE Art club sessions each week
- You will need to hand in a sketchbook as part of your portfolio component.

You need to be able to analyse and evaluate images, objects and artefacts showing understanding of context.

To fulfil this objective you need to be able to look at work, by both past and contemporary artists and assess it critically, with reference to the time and culture in which it was produced. To do this you will need to research the background of the piece and gain a good understanding of why and how the artists produced it. You could look at what his/her motives and influences were, whether the piece is exemplary of a particular movement or style, how the piece might have been received at the time etc. The examiner will also be looking to see whether you can understand and use the specialist vocabulary used in Art and Design.



Introduce
Analyse
Annotate
Evaluate
Give opinions
Make Links
Describe

Assessment

At the end of each project your work will be formally assessed by you and your teacher. However as your project progresses your teacher will assess your progress both with written and verbal feedback in lessons. This should give you a good indication of how well you have met the success criteria for each assessment objective and whether you are meeting your targets.

Please remember grades are not set in stone and any improvements you make to your work can be re assessed by your teacher.

Design Technology



Design Technology - Timbers and Manufactured Boards

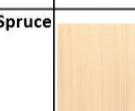


Materials and their properties- Timbers & Manufactured Boards

Y10 GCSE D&T TIMBER

Natural Timbers		Manufactured Boards
Hardwood	Softwood	
 Hardwoods are usually obtained from deciduous trees, which lose their leaves in autumn.		 Softwoods are usually obtained from coniferous trees, which keep their leaves in winter and are also known as evergreens. These grow quickly which makes them sustainable as they are renewable. This also makes them cheaper when compared to hardwoods.
<ul style="list-style-type: none"> <input type="checkbox"/> usually grow in warmer more humid climates, mainly in South America and Asia <input type="checkbox"/> grow slowly (80+ years) <input type="checkbox"/> are more difficult to sustain than softwoods <input type="checkbox"/> are more expensive than softwoods <input type="checkbox"/> are strong and hardwearing. 	<ul style="list-style-type: none"> <input type="checkbox"/> Usually grow in colder climates and are mainly grown in Scandinavia and Northern Europe <input type="checkbox"/> Grow thin, needle-like leaves <input type="checkbox"/> Grow relatively quickly (30 years) <input type="checkbox"/> Are easier to sustain than hardwood trees <input type="checkbox"/> Are easy to cut and shape <input type="checkbox"/> Are usually cheaper than hardwoods 	Manufactured boards are made from the waste sections of felled trees – the parts which are of little use as planks. The wood is reduced to pulp, particles or thin strips and bonded together using special adhesives or resins. Manufactured boards are made as alternatives to natural timber. <ul style="list-style-type: none"> <input type="checkbox"/> Come in sheet form (usually 1.2 x 2.4m) <input type="checkbox"/> Are extremely stable and of uniform thickness <input type="checkbox"/> Are less expensive than laminating planks of timber <input type="checkbox"/> Can be covered with veneers <input type="checkbox"/> Are available in a variety of thicknesses (3, 6, 9, 12, 15, 18, 22mm)

Types of Softwoods

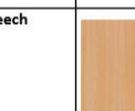
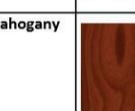
	Example	Properties	Uses
Larch		Tough and durable, good water resistance and finishes well	Fencing, cladding, decking, furniture
Pine		Lightweight easy to work with but can be knotty	Interior joinery and furniture and window frames.
Spruce		Easy to work with and is lightweight	Furniture, musical instruments and construction

Finishing Natural Timbers

Timbers can be treated with a number of surface finishes these include Paint, Stain, Wax & Varnish. Applying these finishes can:

- Seal the wood to protect the surface from heat and water
- Enhance the grain & surface
- To colour the surface
- To give a specific aesthetic appeal.

Types of Hardwoods

	Example	Properties	Uses
Ash		Tough and flexible, wide grained, shock resistant and finishes well	Sports equipment, hand tools and ladders
Beech		Strong, dense close grain but is prone to warping and splitting	Furniture, children's toys, bench tops
Mahogany		Strong and durable, easy to work with finishes well.	High end furniture
Oak		Strong and lightweight	Flooring, furniture and timber framed buildings
Balsa		Strong and durable but very lightweight. If too thin can snap & break.	Model making, floats and rafts

Finishing Manufactured Boards

Veneer

A sharp blade cuts very thin layers of wood called veneer. A layer of veneer can be glued onto less expensive manufactured board to produce a more attractive finish and imitate natural timbers but maintain the properties of the manufactured board.



Lamination

Laminating involves bonding by gluing strips of materials together in layers to create a strong structure. An example of this is wooden beams. If thinner materials are used for lamination the curves can be more complex.



	Example	Properties	Uses
Medium Density Fibreboard (MDF)		This compressed board is rigid and stable and is easy to work with. It has a smooth surface but it is very absorbent.	Flat pack furniture, kitchens and toys
Plywood		This is a laminated board. It is stable due to its alternate layering at 90°. It has good water resistance.	Furniture, shelving, skateboards and exterior fencing

	Example	Properties	Uses
Chipboard		This compressed board is not as strong as MDF or plywood. It is prone to chipping.	Flooring, low end furniture, kitchen units & cupboards

Sustainable Timber

Wood is considered to be a sustainable material as trees can be grown to replace those used for timber or fuel. A big issue is in many parts of the world timber is being used faster than trees are being replanted. This causes deforestation which is seen as a key factor to global warming.

To regulate this The Forest Stewardship Council (FSC) are dedicated to ensuring that timber supplies are regulated and sustainably harvested.



Engineering Design



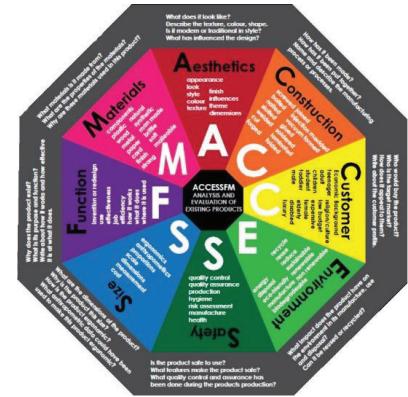
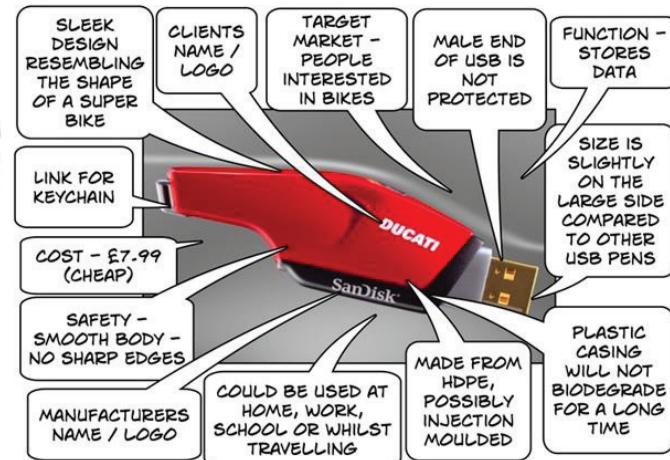
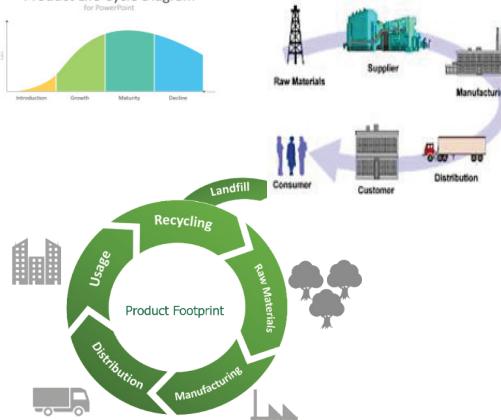


R106: OCR Engineering Design

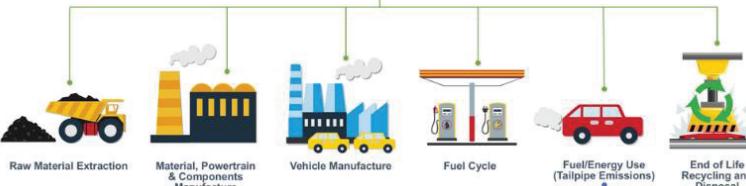


R106: OCR Engineering design Product Analysis and Disassembly

Product Life Cycle Diagram
for PowerPoint



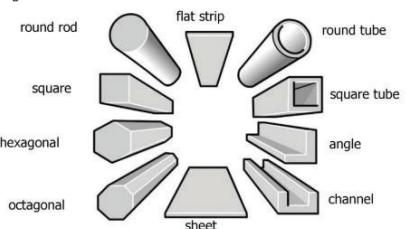
LCA-Based Vehicle Emissions
Regulatory Focus



When manufacturing a product, there are several considerations that need to be planned for. These considerations often include:

- Standard Components
- Stock Forms
- Supply Chains
- Durability and Maintenance
- Product Safety
- Costs and Budget

A **standard component** is usually an individual part or component, manufactured in thousands or millions, to the same specification. These are often bought in bulk and saves companies money, rather than them trying to make their own. The sizes of standard components are often internationally recognised, making manufacturing easier to communicate



Disassembly may refer to any of the following:

1. When referring to **hardware**, **disassemble** is the process of breaking down a device into separate parts. A device may be disassembled to help determine a problem, to replace a part or take the part and use them in another device or sell them individually. For example, if a computer has a bad processor, may need to open the computer case, disassemble the heat and processor, and manually replace it.



Specification Points	Meaning
Aesthetics	What the product will look like, style, colour, etc.
Customer	Who the Target Market is, how it will appeal to them, what Anthropometrics and Ergonomics will be used, etc.
Cost	Cost to make, as well as cost to sell
Environment	Where it will be used
Safety	How it will be safe to use, what standards and regulations it will have to meet
Size	What dimensions it will be, as well as components and parts
Function	What the purpose of the product will be, and what Features it will have
Materials	What it will be made from
Manufacture	How it will be made



Hospitality & Catering





Hospitality and Catering



AC1.1 describe the structure of the hospitality and catering industry

Job Role	Examples	Responsibilities
Manager	General Manager	In charge of the running of the venue
	Assistant Manager	Finance
	Sales Manager	Employment of staff
	Head Chef	Business development
		Legal compliance
Admin	Secretary	Correspondence
	Accountant	Organising appointments
	Financial assistant	Filing and organising paperwork
Front of House	Bartender	Meeting and greeting
	Waiting staff	Taking orders
	Receptionist	Serving food and drink
	Concierge	Taking bookings
Back of House	Chef	Preparing and cooking food
	Cleaner	Cleaning and maintenance of the venue
	Room attendants	Setting up bedrooms
	Maintenance	Gardening



£££££

Type of Service	Description
Cafeteria	Food displayed on a long counter. Customers use a tray and pick what they want. They pay at a central till.
Buffet	Food is displayed in containers. Customers choose what they want using a plate.
Fast Food	Food and drink ordered, paid for and collected from the same till. Food is often quick and convenient to eat
Carvery	Roasted meat often carved by a chef, customers choose what vegetables they want.
Table	Food and drink order is taken at the table by a member of staff, food served at the table, payment taken at the table.
Gueridon	A high class service, food is either cooked or finished at the table by a chef or trained waiting staff

Chef	Responsibility
Chef De Cuisine (Head Chef)	In charge of the whole kitchen—menus, staff, ordering
Sous Chef (second chef)	Second in command—deputises for the head chef
Chef De Partie (Station Chef)	In charge of a section of the kitchen
Entremetier (Vegetable chef)	Prepares the vegetables, soups and pasta dishes
Garde Manger (Pantry Chef)	Prepares cold foods such as salads
Grillardin (Grill Chef)	Prepares and cooks all grilled foods
Patisserie (Pastry Chef)	Prepares all deserts and baked items
Saucier (Sauce Chef)	Prepares all sautéed items and sauces
Commis (Trainee Chef)	Training—works in all sections while learning
Plongeur (Kitchen Porter)	Washing up and cleaning of the kitchen

Sector	Description	Example	
Commercial—Residential	Open to the public, makes a profit, offers accommodation	Hotel, Guest house, B&B	Michelin Star
Non-commercial—Residential	Not generally open to the public, may take money but not much of a profit (subsidised), offers accommodation	Armed forces, NHS, Prison, Nursing homes	AA rosette
Commercial—Non-residential	Open to the public, makes a profit, does not offer accommodation	Restaurants, Pubs, Cafes,	Hotel/B&B Star Rating
Non-commercial Non-residential	Not generally open to the public, may take money but not make much profit, does not offer accommodation	School canteen, staff canteen, day care centre	Food hygiene rating

Music



Music - BTEC Unit 1 Working in the Music Industry



Venues

- Large Venues
- Medium Venues
- Small Venues

Choosing a Venue

Consider location and transportation, noise pollution, staging, power, weather, potential audience

Health and Safety

- Risk Assessment
- Security
- Stewards

Venue Manager

Performance Related

- Musical Director
- LIVE Sound Engineer
- Roadie
- Solo Artist
- Backing Artists

Supporting Artist

Sound check

Behind the Scenes

PR/Marketing Company

Promoter

Tour Manager

Ticket Distribution

Booking agent

Organisations

PRS

APRS

PLASA

BECTU

MU

Equity

Record Labels

Independent

Major

Job Roles

A&R

Marketing team

Production team

Manufacturing team

Distributor

Recording Artist

Music Manager

Legal team

Organisations

PPL

PRS

MU

MCPS

Publishing

Self Publishing

Publishing house

Job Roles

A&R

Marketing team

Producer

Songwriter/Composer

Arranger

Legal Team

Organisations

PRS

MU

MCPS

MPG

Recording Studio Job Roles Coming into a Studio

- Recording Artist
- Session Musician
- Producer

Working in a Studio

- Venue Manager
- Instrument technician
- Sound/Recording Engineer
- Mastering Engineer
- Runner

Risk Assessment

- Organisations
- APRS
- MPG
- BECTU
- MU

UNIONS

BECTU

MU

Equity

Union Support

- Networking
- Contractual Advice
- Fee Advice
- Instrumental Insurance
- Public Liability Insurance

Employment Types

- Full Time
- Part Time
- Freelance
- Self-Employed
- Permanent
- Casual
- Temporary

Employment Terms

- National Insurance
- Income Tax
- Commission
- Invoice
- Contract

Promotion

- Social Media
- Give aways
- Busking
- Open Mic Nights
- Social media
- Music Manager
- Music Agent

Trade Bodies

- MPG
- APRS
- PLASA

Royalties

- MCPS
- PRS
- PPL

Identify – state a point

Advantages / Disadvantages

Opportunities / Challenges

Explain – make a point and explain it

Evaluate – make a point and discuss the pros and cons

Journalist/Radio

Roles

- Music Blogger
- Music Journalists

Radio Roles

- Radio Manager
- Programme Controller
- Marketing Team
- Broadcaster
- DJ
- Producer

Organisations

- BECTU
- PRS/PPL/MCPS



Music - BTEC Unit 4 Introducing Music Composition



Learning Aim A: Explore Creative Stimuli to meet a brief

You should create four brief musical ideas that try to capture a range of moods or atmospheres suitable for any four of the following:

TV and Film

- Haunted House
- Detective
- Romance



Commercial

- Smartphone game
- Perfume or aftershave

Take ideas from at least two of the following starting points:

- melodic ideas and fragments
- rhythmic patterns – layered rhythmic patterns
- chords and chord progressions – 1, 4 ,5 and 6 (I,IV,V,vii)
- Textures – interweaving melodies, melody with chords, bass line and percussion, singing with harmony backing vocal.
- riffs and hooks –repetitive ideas. E.g. mission impossible bass line and “We will rock you” drum rhythm.
- improvisation and experimentation – made up solo over chord progression in jazz music. Call and response patterns.
- non-musical starting points such as themes, texts and images.
- **Record all your ideas as audio. You can use software like Audacity, Bandlab or Sibelius to do this. Store your pieces as MP3's on the Google Drive in school.**

These ideas can be short (under 30 seconds) but should make use of appropriate textures and timbres and have some melodic and rhythmic interest. Your ideas should be varied and have at least two different musical starting points.

Example ideas

Haunted House: Low pitched strings with long held notes. Minor key. (experimentation) No pulse or tempo. High tinkly bells or piano played quietly (use of riff). Menacing chords come in later. Staggered texture with layers building up to create tension.

Detective: Ride cymbal swing rhythm with acoustic bass riff. Mute trumpet or saxophone jazzy melody with added blues scale notes. See “Theme from Pink Panther” Listen to the first 42 seconds.

<https://www.youtube.com/watch?v=lp6z3s1Gig0>



Romantic: Perhaps a chord progression using an acoustic guitar. (I,IV,V and vii) This could be broken chords with a slow tempo. A flute or oboe melody in a major key over the top. Question and answering even phrases in the melody. No percussion.

Advert-Running shoes: Continuous bass line perhaps using a synth bass. Fixed jogging tempo or faster. Chords play over the top but bass remains the same like the runners rhythm. Chords on a synth pad sound or strings. Use of drum beat track. Dramatic use of dynamics (louds and softs) in chords to keep the audience listening. E.g. Chariots of Fire Theme
<https://www.youtube.com/watch?v=CSav51fVIKU>



Music - BTEC Unit 4 Introducing Music Composition



Learning Aim B: develop, extend and shape music for performances

Learning Aim B: Select two contrasting ideas from your original four to develop further.

In both, you should develop and extend them harmonically and melodically, to create and maintain your intended mood. (Melody=tune Harmony= accompaniment/backing/chords)

You should develop pieces by use of appropriate melodic and harmonic **compositional techniques** such as:

- **repetition** Melodies can be repeated but with some variation and decoration.
- **variation** Drum beats can continue but with changes to percussion instruments. Bass lines can be extended with slight changes to the original idea.
- **Modulation and changing tonality (major to minor)** Music can change key, commonly into the dominant (5th higher), relative minor key or just up a semitone like a pop song sometimes does.
- **melodic transformations** Melodies can be written out backwards, inverted in pitch if this fits the genre.
- **instrumentation** Use of different instruments from music already composed in learning aim A.
- **textures.** Parts could be doubled by new instruments. Played an octave higher as well. Change in accompaniment style from chords to broken chords. Counter melodies can be added as harmonies to a voice.

One of the extended musical ideas should be developed into a **fully completed composition**. You should consider techniques commonly used to shape musical ideas into full compositions.

Binary	Sections A with a contrasting B section.
Ternary	ABA but often there is variation in the returning A section.
Rondo	ABACAD etc where A keeps repeating followed by new sections.
Introductions/ Codas (endings)	These sections can be added on later as part of development of the structure.
Song structures	E.g. 12-bar blues or verse chorus structures.
Effective use of repetition and contrast- do the changes create enough interest and momentum?	

Sport



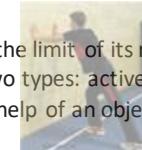
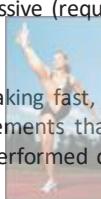
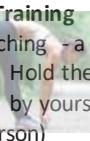


Sport - Fitness for Sport and Exercise Half Term 2 - Methods of Training



Flexibility Training

Static stretching - a slow stretch of the muscle to the limit of its range of movement. Hold the stretch for 10-20 seconds. Two types: active (performed by yourself) and passive (requires the help of an object or another person)

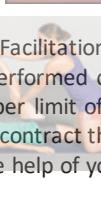


Ballistic stretching - involves making fast, jerky movements. This can incorporate sport-specific movements that take a joint past its normal range of movement. Must be performed carefully as incorrect technique can lead to injury.



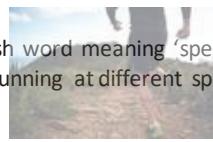
Proprioceptive Neuromuscular Facilitation (PNF) - advanced form of passive stretching. It must be performed carefully with a partner.

1. Stretch the muscle to the upper limit of its range of movement
2. With the help of your partner, contract the muscle for 6-10 seconds.
3. Relax the muscle and with the help of your partner stretch the muscle even further



Aerobic Endurance Training

Continuous training - performers train at a steady pace and moderate intensity for at least 30 minutes.



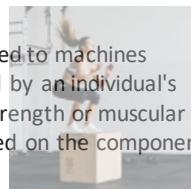
Fartlek training - Swedish word meaning 'speed play'. The performer varies the intensity by running at different speeds or over different terrains.

Interval training - periods of work alternated with periods of rest. Minimum intensity for work interval is 60% MHR.

Strength, Muscular Endurance and Power Training

Circuit training - moving from one exercise to another at a series of stations with a specified work and rest period.

Free weights - these are weights that are not attached to machines (barbells or dumb-bells). The intensity is determined by an individual's 1RM and whether they are focussing on muscular strength or muscular endurance. The number of reps and sets will be based on the component of fitness being trained.



Plyometrics - develops sport-specific explosive power and strength and is used in sports such as athletics, netball, basketball and volleyball. Muscles are quickly and repeatedly stretched/lengthened and then contracted/shortened which produces great force.

Speed training

Hollow sprints - a series of sprints separated by a 'hollow' period of jogging or walking.

Acceleration sprints - the pace is gradually increased from a standing or rolling start to jogging, then striding, then maximum sprint.

Interval training - periods of work alternated with periods of rest. The work periods should be at high intensity, close to maximum effort.

Memory Technique

(acronyms)

Flexibility Training:

- F Bendy (ballistic)
- People (PNF)
- Stretch (static)

Strength, Muscular Endurance and Power Training:

- Flex (free weights)
- Pose (plyometrics)
- Camera (circuits)

Aerobic Endurance Training:

- I (interval)
- Can (continuous)
- Finish (fartlek)

Speed Training:

- In (interval)
- A (acceleration sprints)
- Hurry (hollow sprints)

Sport - Flexibility Training



The acronym to remember the methods of training for flexibility is: Bendy People Stretch

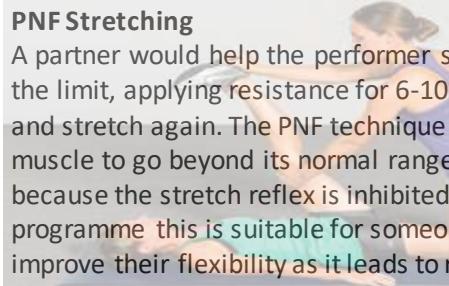
Ballistic Stretching

This involves fast, jerky movements, usually by bouncing or bobbing through the full range of movement. This stretching can use sport specific movements that take a joint past its normal range of movement. In a training programme, this is not suitable for those with low levels of flexibility.



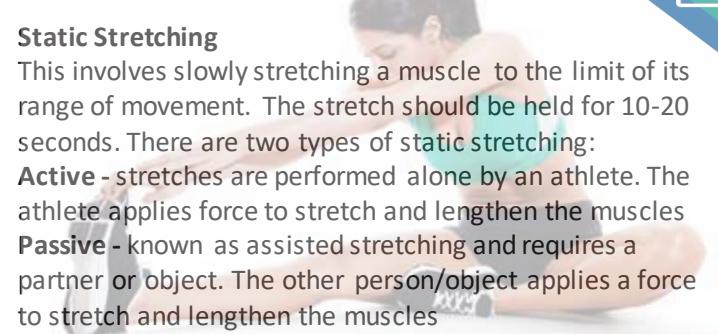
PNF Stretching

A partner would help the performer stretch muscles to the limit, applying resistance for 6-10 seconds, then relax and stretch again. The PNF technique allows for your muscle to go beyond its normal range of movement because the stretch reflex is inhibited. In a training programme **this is suitable for someone looking to improve their flexibility as it leads to rapid improvements.**



Static Stretching

This involves slowly stretching a muscle to the limit of its range of movement. The stretch should be held for 10-20 seconds. There are two types of static stretching:
Active - stretches are performed alone by an athlete. The athlete applies force to stretch and lengthen the muscles
Passive - known as assisted stretching and requires a partner or object. The other person/object applies a force to stretch and lengthen the muscles



Advantages

- For trained athletes/elite sport it is the most effective as it prepares the muscles and joints for movement at speed required in sport
- Can replicate sport specific movements
- Prepares you to go beyond the normal range of movement

Advantages

- Leads to rapid improvements in flexibility
- Can be made sport specific
- Good for rehabilitation
- Improved flexibility may help to reduce risk of injury

Advantages

- Easy to carry out
- Safe method of stretching
- Good for beginners or during a warm up/cool down

Disadvantages

- Can lead to injury (lack of flexibility or incorrect technique)
- Can cause muscle soreness
- Not suitable for those with low levels of flexibility

Disadvantages

- Need to be experienced to perform PNF safely
- Requires someone to assist you
- Risk of injury if not performed correctly

Disadvantages

- Slowest method with regards to improvement in range of movement
- Does not replicate sport specific movement
- Does not prepare athletes for speed of sport

Suitability

This method is most suitable for trained athletes/those competing in sport. For example it is suitable for hurdlers as it prepares them to stretch their leg to clear the hurdle at speed with the correct technique

Suitability

This method is most suitable for someone who has low levels of flexibility and is looking to improve their flexibility in a training programme or someone who is looking to recover from injury

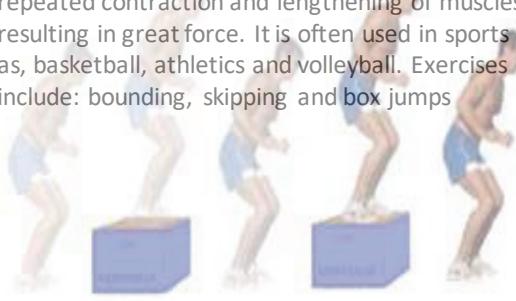
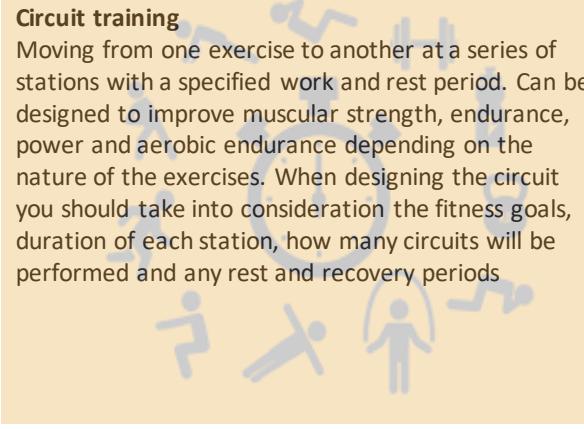
Suitability

This method is most suitable during a warm up or a cool down to help reduce muscle soreness and aid in the removal of lactic acid. It is also suitable for beginners.

Sport - Flexibility Training

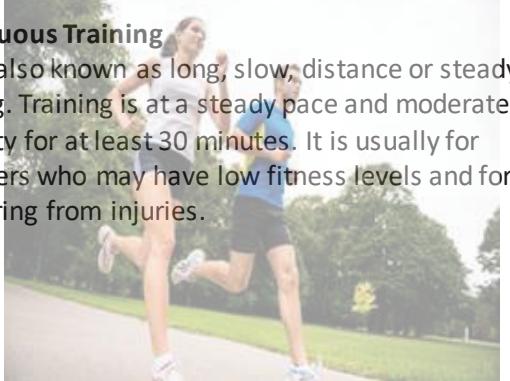
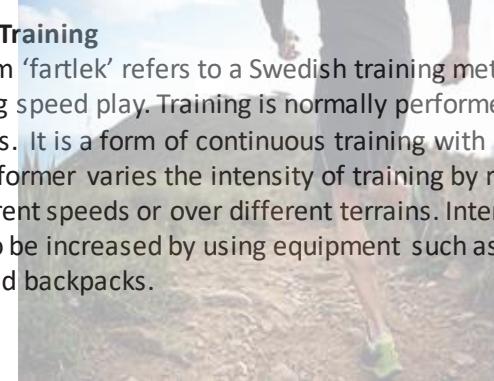


Muscular Strength, Muscular Endurance and Power Training

<p>Free weights Barbells or dumbbells are types of free weight and are used to perform a range of exercises. Examples include: bicep curls and squats. Core exercises should be completed before assistance exercises.</p> <p>Requirements:</p> <ul style="list-style-type: none"> • Spotter • Warm up/cool down • Correct technique • Correct weight <p>Maximum strength - 90% 1RM Elastic strength - 75% 1RM Strength endurance - 50-60% 1RM</p>	<p>Plyometrics Develops sport specific explosive power. It is the repeated contraction and lengthening of muscles resulting in great force. It is often used in sports such as, basketball, athletics and volleyball. Exercises include: bounding, skipping and box jumps</p> 	<p>Circuit training Moving from one exercise to another at a series of stations with a specified work and rest period. Can be designed to improve muscular strength, endurance, power and aerobic endurance depending on the nature of the exercises. When designing the circuit you should take into consideration the fitness goals, duration of each station, how many circuits will be performed and any rest and recovery periods</p> 
<p>Advantages</p> <ul style="list-style-type: none"> • Training can be made sport specific by targeting specific muscles and muscle groups • Effective method for strength and endurance gains 	<p>Advantages</p> <ul style="list-style-type: none"> • It allows sport specific movement • Improves explosive power • Performed at 'game' speed 	<p>Advantages</p> <ul style="list-style-type: none"> • Can be tailored to individual needs and the needs of the sport • Can be adapted to train a range of components of fitness • Variety of exercises can help prevent boredom
<p>Disadvantages</p> <ul style="list-style-type: none"> • Greater risk of injury than fixed-resistance machines • Session needs careful organisation to ensure safety • Equipment can be expensive and you may need access to a gym 	<p>Disadvantages</p> <ul style="list-style-type: none"> • Can cause muscle soreness • It is high intensity • Can lead to injury 	<p>Disadvantages</p> <ul style="list-style-type: none"> • You need to allow time for planning • Setting up and packing away can be time consuming • You need to allow time to provide demonstrations of each activity
<p>Suitability Suitable for any sport and any level of fitness as it can be easily adapted</p>	<p>Suitability Example - it is good for hurdlers because it can develop the power required to clear the hurdles with correct technique and at speed</p>	<p>Suitability Example - this can be used by footballers as stations can be made sport specific to develop fitness and skills for the sport</p>



Aerobic Endurance Training

<p>Interval Training</p> <p>This is when periods of work is alternated with periods of rest. Work periods should be at a minimum of 60% of MHR. Work time varies from 30 seconds to 5 minutes and rest could be a walk, jog or a complete rest. Need to consider:</p> <ul style="list-style-type: none"> • Duration of work interval • Duration of rest interval • Intensity of work interval • Total number of intervals 	<p>Continuous Training</p> <p>This is also known as long, slow, distance or steady state training. Training is at a steady pace and moderate intensity for at least 30 minutes. It is usually for beginners who may have low fitness levels and for those recovering from injuries.</p> 	<p>Fartlek Training</p> <p>The term 'fartlek' refers to a Swedish training method meaning speed play. Training is normally performed outdoors. It is a form of continuous training with no rest. The performer varies the intensity of training by running at different speeds or over different terrains. Intensity can also be increased by using equipment such as weighted backpacks.</p> 
<p>Advantages</p> <ul style="list-style-type: none"> • No specialist equipment is needed • Allows clear progressive overload to be built into training (easy to apply FITT) • Distance, time and intensity can meet individual needs 	<p>Advantages</p> <ul style="list-style-type: none"> • No specialist equipment is required • Training can be made sport specific • Easy to carry out and organise • Good for building an endurance base 	<p>Advantages</p> <ul style="list-style-type: none"> • Adds variety and interest to training • Athletes are able to develop pace judgment skills and staff awareness • Athlete is able to change the intensity • Can take place anywhere
<p>Disadvantages</p> <ul style="list-style-type: none"> • Performer may lose interest due to repetition • Needs careful planning to be successful 	<p>Disadvantages</p> <ul style="list-style-type: none"> • Training for long distances can be boring • Higher risk of injury if running on a hard surface 	<p>Disadvantages</p> <ul style="list-style-type: none"> • Need good self-discipline and motivation • Need to be able to control intensity carefully
<p>Suitability</p> <p>This method of training is suitable for cross country runners. Carrying out interval training will improve aerobic endurance allowing the runner to run for a longer period of time without tiring.</p>	<p>Suitability</p> <p>This method of training is suitable for long distance swimmers. It is suitable as it will help to build an endurance base and can be planned to match the demands of the event.</p>	<p>Suitability</p> <p>This method of training is suitable for games players. Using fartlek training replicates the change of pace and intensity that is present throughout a game. For example, in football, a player may need to sprint to get the ball and then reduce their speed to a jog.</p>



Sport - Flexibility Training



Speed Training

Interval training Interval training is periods of work alternating with periods of rest. For speed training, the work intervals are shorter and more intense, where the individual will work at a high intensity, close to maximum. The rest periods should be increased to allow time to recover	Acceleration sprints This is when the pace is gradually increased from a standing or rolling start to jogging, then to striding and then a maximum sprint. Different drills can be included such as, resistance drills and hill sprints. Rest intervals of walking or jogging are used in between each repetition.	Hollow sprints This technique involves completing a series of sprints separated by a 'hollow' period of walking or jogging. A typical session could be: set out 10 cones at 20m intervals, sprint for 20 metres, then jog for 20m, alternating between the two until you reach the final cone. This is one set. Complete 8 sets in total. The 'hollow' jog could be a walk instead
Advantages <ul style="list-style-type: none">• No specialist equipment required• Can be tailored to specific sports• Can be tailored for speed and anaerobic endurance gains	Advantages <ul style="list-style-type: none">• No specialist equipment required• Easy training method to organise and carry out	Advantages <ul style="list-style-type: none">• No specialist equipment required• Easy training method to organise and carry out• Training can be made sport specific
Disadvantages <ul style="list-style-type: none">• Performer may lose interest due to repetition• Need to maintain focus and motivation throughout otherwise there will be no benefit	Disadvantages <ul style="list-style-type: none">• Performer may lose interest due to repetition• Need to maintain focus and motivation throughout otherwise there will be no benefit	Disadvantages <ul style="list-style-type: none">• Performer may lose interest due to repetition• Need to maintain focus and motivation throughout otherwise there will be no benefit
Suitability This method of training is suitable for long jumpers. It will improve their speed as they can train at a very high intensity. This will increase their speed on the approach which in turn will help them to jump further.	Suitability This method of training is suitable for sprinters who are looking to develop an explosive start. It is also suitable for games players to move from a standing position to sprinting such as running on to a through ball	Suitability This method of training is suitable for games players as it replicates the changes in pace that are needed throughout the game.

Exam question: Explain why acceleration sprints would be used by a hockey player

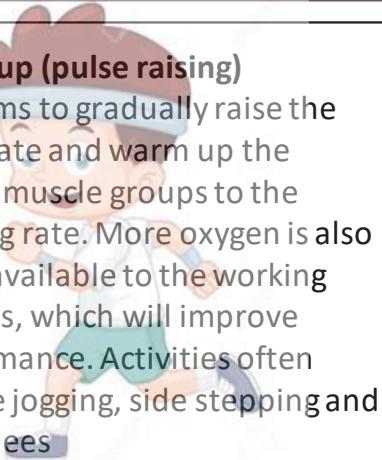
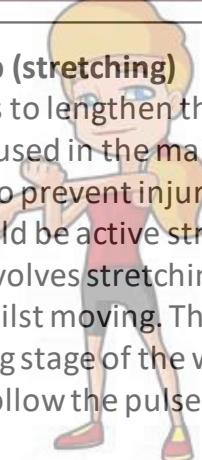
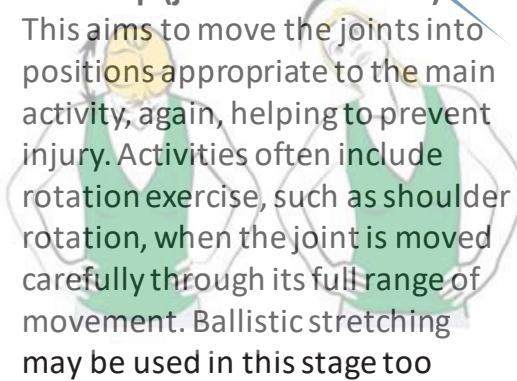
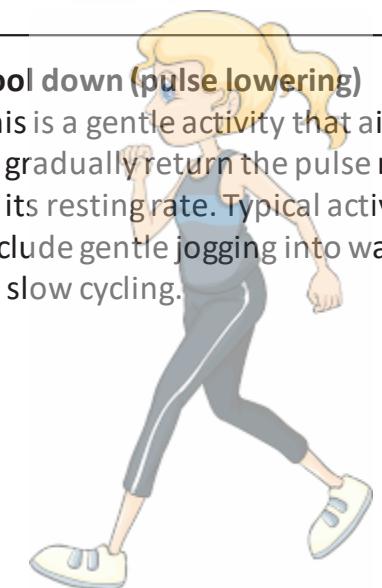
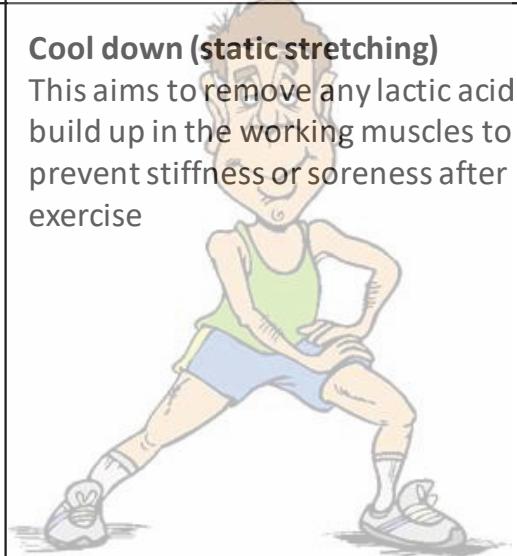
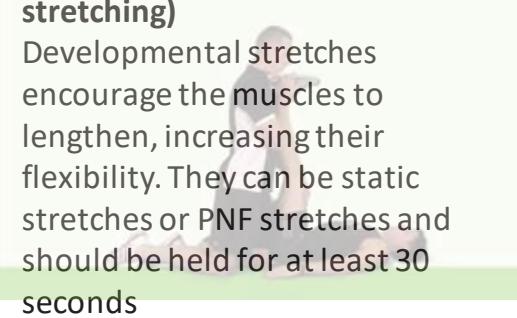
Acceleration sprints will improve increases in speed from a moving or standing start, replicating game situations in hockey. This type of speed will improve performance in hockey because the player will be better at running into space

Tip: For this type of question you must link the method of training to a specific example from within the sport and then how it will benefit performance

Sport - Flexibility Training



Preparation for Training - Warm up and Cool down

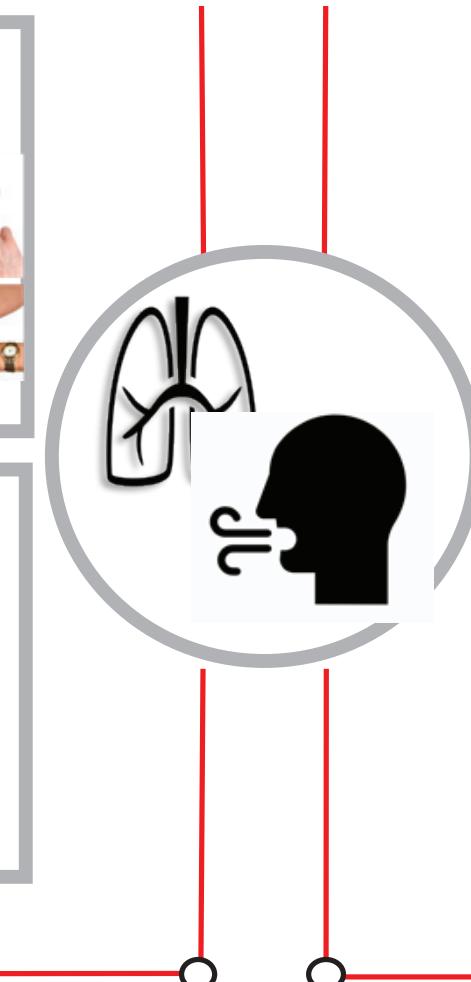
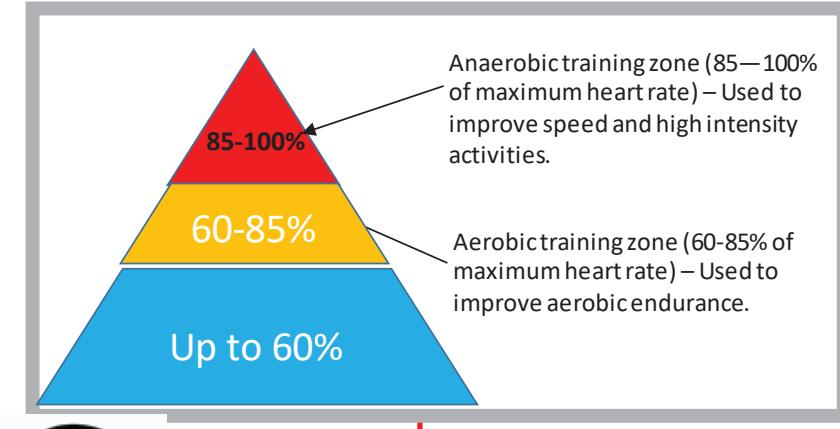
Preparation for training <p>Before undertaking any form of exercise it is important to consider safety aspects of the session. This includes being aware of:</p> <ul style="list-style-type: none"> • The safe and correct use of any equipment • The safe and correct application of training techniques • Undertaking a warm up before beginning training • Performing a cool down after training to aid recovery • Applying the FITT principles correctly for each training method • Ensure the method of training is appropriate for the area of fitness you are trying to develop 	Warm up (pulse raising) <p>This aims to gradually raise the heart rate and warm up the largest muscle groups to the working rate. More oxygen is also made available to the working muscles, which will improve performance. Activities often include jogging, side stepping and high knees</p> 	Warm up (stretching) <p>This aims to lengthen the specific muscles used in the main activity, helping to prevent injury. Most of this should be active stretching, which involves stretching the joints whilst moving. The stretching stage of the warm up should follow the pulse raiser</p> 	Warm up (joint mobilisation) <p>This aims to move the joints into positions appropriate to the main activity, again, helping to prevent injury. Activities often include rotation exercise, such as shoulder rotation, when the joint is moved carefully through its full range of movement. Ballistic stretching may be used in this stage too</p> 
	Cool down (pulse lowering) <p>This is a gentle activity that aims to gradually return the pulse rate to its resting rate. Typical activities include gentle jogging into walking or slow cycling.</p> 	Cool down (static stretching) <p>This aims to remove any lactic acid build up in the working muscles to prevent stiffness or soreness after exercise</p> 	Cool down (developmental stretching) <p>Developmental stretches encourage the muscles to lengthen, increasing their flexibility. They can be static stretches or PNF stretches and should be held for at least 30 seconds</p> 

Sport - The Respiratory System - What you need to know



Exercise Intensity

- Heart rate can be measured at the wrist or at the side of the neck.
- Heart rate is measured in 'beats per minute'
- During training, athletes use a target heart rate to improve their fitness.



BORG (RPE) SCALE

RPE = Rating of Perceived Exertion

- Used to measure how hard an athlete thinks they are working
- Scale 6-20 (6 = no effort, 20 = maximum effort)
- Can be used to estimate heart rate to monitor whether they are in the correct training zone.
- Anywhere between 12 and 14 on the scale is moderate level of intensity and will improve aerobic endurance

6	No exertion
7	
8	
9	
10	
11	Light
12	
13	
14	
15	Somewhat hard
16	
17	
18	
19	Hard (heavy)
20	Very hard
	Maximal exertion

To predict heart rate use the formula:
 $RPE \times 10 = \text{Heart rate}$

e.g. billy has been playing football, he rates his exercise intensity as 13 on the Borg scale. $13 \times 10 = 130 \text{ bpm}$

Maximum heart rate.

You need to be able to calculate your maximum heart rate as this will help you to work out your training zones.

To work out your maximum heart rate, use the following formula.

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

Training Zones

To improve AEROBIC ENDURANCE = 60 to 85% of max HR
 To improve high intensity activities (ANAEROBIC) = 85 to 100% of max HR.





Sport - Exercise Intensity



Heart Rate

Heart rate is measured in beats per minute (bpm). You can find your pulse in two locations:

- Radial artery (thumb side of your wrist)
- Carotid (either side of your neck)

When you find your pulse, you should count for 60 seconds.

Heart Rate Training Zones

To be able to calculate your heart rate training zones, you first need to calculate your maximum heart rate.

$$\text{HRmax} = 220 - \text{age (years)}$$

$$\text{Example} = 220 - 15 = 205 \text{ bpm}$$

The lower heart rate training zone is 60% of your HRmax.

$$205/10 = 20.5 \text{ (10\%)}$$

$$20.5 \times 6 = 123 \text{ bpm}$$

$$60\% \text{ HRmax} = 123 \text{ bpm}$$

The upper heart rate training zone is 85% of your HRmax

$$205/10 = 20.5 \text{ (10\%)}$$

$$20.5/2 = 10.25 \text{ (5\%)}$$

$$20.5 \times 8 = 164 \text{ (80\%)}$$

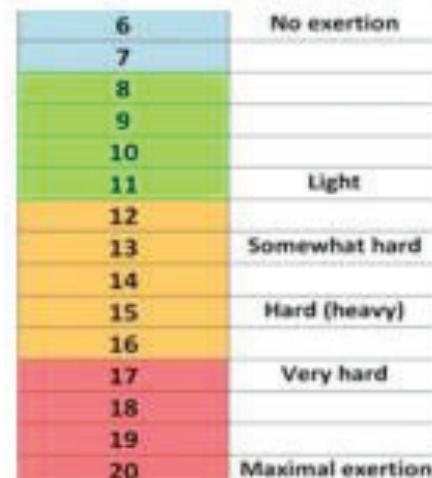
$$164 + 10.25 = 174.25 \text{ or } 174 \text{ bpm}$$

$$85\% \text{ HRmax} = 174 \text{ bpm}$$



Rating of Perceived Exertion (RPE) - Borg Scale

This is another way of determining exercise intensity. The scale starts at 6 and goes up to 20. 6 means no exertion at all and 20 is maximal exertion. It requires practice to learn how to use the scale correctly.



Relationship between RPE and HR

You can use the RPE scale to predict the exercise HR of an individual using the following relationship:

$$\text{RPE} \times 10 = \text{HR (bpm)}$$

For example, if someone says they are working at 12 on the scale then $12 \times 10 = 120 \text{ bpm}$.

Memory Technique (memory story)

Maximum HR

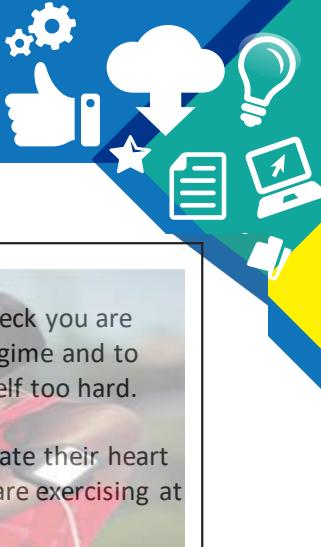
My mum is **40 years old**. For her 40th birthday she wanted a nice ring. The ring cost **£220** but this was out of my budget. I asked the shop keeper if he could take £40 off since it was her 40th birthday. Kindly he agreed and said that was the **maximum** he could take off. So the ring now cost **£180 (220 - my mums age)**.

Exercise Intensity

I was trying to buy some bluetooth headphones. They were currently on sale at **60%** of the max price. However, the following week it was going to be Black Friday when the sale was going to increase to **85%**. That was a deal too good to miss!!



Sport - Training Intensity



Measuring heart rate

Heart rate is measured in beats per minute (bpm). A person's resting heart rate is a good indication of their fitness levels



Measuring resting heart rate

At rest, heart rate should be measured on radial artery (wrist).

You should count the number of beats you feel for 60 seconds. This is your resting heart rate in beats per minute (bpm)

Measuring exercise heart rate

Heart rate should be monitored to check you are progressing well with your training regime and to make sure you are not pushing yourself too hard.

Athletes and sports performers calculate their heart rate training zone to make sure they are exercising at the correct intensity

Maximum heart rate

To work out your heart rate training zone, you first need to know your maximum heart rate (HRmax).

$$\text{HRmax} = 220 - \text{age (years)}$$

Example: Anna is 30 years old

$$\text{HRmax} = 220 - 30 = 190 \text{ bpm}$$

Heart rate training zones

$$\text{Lower heart rate training zone} = 60\% \text{ of HRmax}$$
$$(0.6 \times \text{HRmax})$$

$$\text{Upper heart rate training zone} = 85\% \text{ of HRmax}$$
$$(0.85 \times \text{HRmax})$$

When training for aerobic fitness you should be between these two numbers

Example

Adnan is 20 years old

$$\text{Adnan's HRmax:}$$
$$220 - 20 = 200 \text{ bpm}$$

$$\text{Adnan's lower heart rate training zone (60\% of HRmax):}$$
$$0.6 \times 200 = 120 \text{ bpm}$$

$$\text{Adnan's upper heart rate training (85\% of HRmax):}$$
$$0.85 \times 200 = 170 \text{ bpm}$$

Exam tip: If it asks you about training zones in the exam, it will ask you to show your working out. It is vital that you show your step by step working out. For example, if it asks you to calculate someone's lower heart rate training zone you should show the following steps:

1. $220 - \text{age} = \text{HRmax}$
2. $0.6 \times \text{HRmax} = \underline{\hspace{2cm}} \text{ bpm}$
3. $\text{Lower heart rate training zone (60\% HRmax)} = \underline{\hspace{2cm}} \text{ bpm}$

Sport - Exercise Intensity - RPE scale



Using the RPE scale to measure exercise intensity

One way to determine exercise intensity is to use the Rating of Perceived Exertion (RPE) scale.

The scale can be used to rate an individual's level of physical exertion during physical activity or exercise

How to use the scale

The scale starts at 6 and goes up to 20. 6 means 'no exertion at all' (rest) and 20 is 'maximal exertion'.

When giving a rating the individual needs to consider all sensations of physical stress, effort and fatigue that they are feeling.

Relationship between RPE and HR

You can use the RPE scale to predict the exercise HR of an individual.

$$\text{RPE} \times 10 = \text{HR (bpm)}$$

Example

$$\begin{aligned}\text{RPE} &= 14 \\ 14 \times 10 &= 140 \text{ bpm}\end{aligned}$$

Example

Frida is 33 years old and is exercising in the gym. She records her RPE during the following activities:

Exam Question

Frida wants to work at 70% of HRmax. Using the table, work out which type of exercise would give her this HR training zone.

$$\text{Frida's HR max} = 220 - 33 = 187 \text{ bpm}$$

$$0.7 \times 187 = 130.9 \text{ bpm}$$

Frida should work on the exercise bike to work in this training zone



Exam question: Describe the relationship between heart rate and the RPE scale

The RPE scale is a way of predicting a person's HR. A person's heart rate can be predicted by using the following calculation: $\text{RPE} \times 10 = \text{HR (bpm)}$

Tip: When answering a question like this, try and break down your description to show a clear understanding.

Sport - Fitness testing - What you need to Know



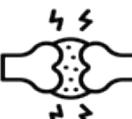
TYPES OF BONES



SKELETON



SHAPE OF BONES CAN DETERMINE TYPE OF MOVEMENT:
FLAT BONE / IRREGULAR BONE: PROTECTS ORGANS
LONG BONE: GROSS MOVEMENTS LIKE RUNNING
SHORT BONE: FINE MOVEMENTS LIKE WRIST BREAK BOWL



CONNECTIVE TISSUE



CARTILAGE: SHOCK ABSORBER AT ENDS OF BONE
LIGAMENT: STRONG FIBROUS MATERIAL **ATTACHES** BONE TO BONE
TENDON: STRONG NON-ELASTIC MATERIAL ATTACHES MUSCLE TO BONE

AXIAL SKELETON: FORMS THE LONG AXIS OF THE BODY AND INCLUDES THE BONES OF THE SKULL, SPINE AND RIB CAGE
APPENDICULAR SKELETON: THE BONES OF THE UPPER AND LOWER LIMBS AND THEIR GIRDLES THAT JOIN TO THE AXIAL SKELETON
MAIN BONES



TYPES OF JOINT



COMPONENTS OF A SYNOVIAL JOINT YOU WILL NEED TO KNOW: SYNOVIAL MEMBRANE, SYNOVIAL FLUID, JOINT CAPSULE, BURSAE, CARTILAGE, LIGAMENTS

MOVEMENTS YOU WILL NEED TO KNOW: FLEXION, EXTENSION, ADDUCTION, ABDUCTION, ROTATION, CIRCUMDUCTION, DORSI FLEXION, PLANTAR FLEXION.

HINGE: THE KNEE AND ELBOW
BALL AND SOCKET: THE SHOULDER AND HIP
GLIDING: BETWEEN THE VERTEBRAE OF THE SPINE
PIVOT: RADIO ULNA
CONDYLOID: WRIST

SAGITTAL: DIVIDES THE BODY INTO LEFT AND RIGHT
FRONTAL: DIVIDES THE BODY INTO ANTERIOR AND POSTERIOR
TRANSVERSE: DIVIDES THE BODY INTO SUPERIOR AND INFERIOR PARTS



STRUCTURE OF A SYNOVIAL JOINT

PLANES OF MOVEMENT



FINISH

Dance



Tech Award Dance Component 1 - Lion King the Musical



Interesting Facts

- Disney's The Lion King the Musical has been performed around the world for 13 years and has become one of the most popular shows in musical theatre history.

- Lion King the Musical debuted its first ever performance in Africa in Johannesburg, South Africa. The show debuted at the West End's Lyceum Theatre in 1999 and is still running.

- It takes 114 people to prepare for each performance of The Lion King.

- There are 5 different languages used in the Lion King including Zulu, Xhosa and Swahili.

FURTHER RESEARCH?

<https://www.londontheatredirect.com/news/things-you-didnt-know-about-disneys-the-lion-king>

Meet the choreographer

- **Garth Fagan** - born 3 May 1940
- A Jamaican modern dance choreographer
- Fagan's choreography incorporates elements of modern dance, ballet, Afro-Caribbean dance and social dance
- <https://www.garthfagandance.org>



Meet the Characters

- **Simba**: a male lion who is next in line to become king, son of Mufasa
- **Scar**: a male lion, Simba's uncle and Mufasa's brother; he kills Mufasa in order to become king
- **Mufasa**: a male lion, King of the Pridelands; Simba's father and Sarabi's husband
- **Nala**: a lioness who later becomes Simba's love interest
- **Rafiki** : a female mandrill who serves as narrator
- **Timon**: a male meerkat who becomes a friend with Simba
- **Pumbaa** : a male warthog who also becomes a friend with Simba
- **Zazu** : a male hornbill, Mufasa's majordomo



Tech Award Dance Component 1 - Lion King the Musical



Screen to stage

<https://www.youtube.com/watch?v=8RB9wnK5BmY>

The purpose of The Lion King

The Lion King's main purpose is to entertain and not fix all the things in the world right. More than an entertaining tale about exile and triumphant return, it's also a celebration of the music, language, costumes and culture of South Africa.

"The heart of this show is African. It's about life, love, death, ancestry. That's important to the show."

The show combines low comedy (side-kicks Timon and Pumba) with shades of 'Hamlet', resulting in a near perfect and original story that delights both children and adults.

Styles of dance



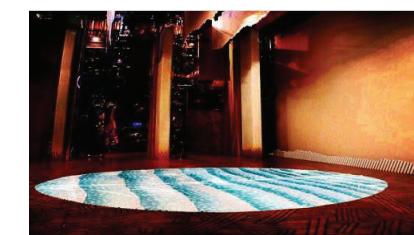
Set Design



The Circle of Life



The Stampede



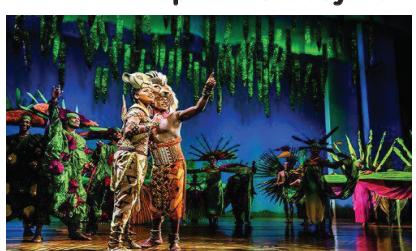
The Watering Hole



The Grasslands



Elephant Graveyard

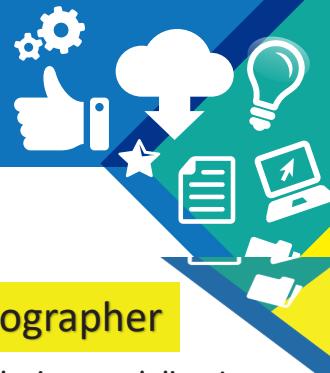


The Jungle Act 1

How does the Set Design create scale, shape, location, mood and atmosphere.



Tech Award Dance Component 1 - The Role of the Choreographer



What is choreography

Choreography is the art or practice of designing sequences of movements of physical bodies. In the performing arts, choreography applies to human movement and form. In dance, choreography is also known as dance choreography or dance composition.

Leadership

Choreographers must have strong leadership skills, because groups of dancers and actors depend on them for the execution of their routines. They are responsible for physically demonstrating routines for dancers to learn. Choreographers communicate decisively and assertively, and must be able to enforce the rules of routines that they create. Providing clear direction and helping dancers work together as a team are part of the leadership a choreographer must provide.

Creativity

Choreographers must have creative talent because they rely on their own ideas to choreograph dance routines. They must be able to translate ideas into physical movements. They exercise their creativity when deciding on music, dance steps, body movements, costumes and cast placements to ensure that performances are seamless. A willingness to experiment with new ideas, if original ideas don't pan out, is borne out of the choreographer's artistic ability.

Dance Technique

A choreographer must have a thorough knowledge of dance steps, styles and routines. Directors rely on choreographers to pull together dance routines that are stylistically appropriate for the production and that best express the story ideas in the production. The choreographer must also know what to look for in dancers to audition and cast them in appropriate roles. Dance concepts such as rhythm, balance, coordination, and musicality are familiar to a choreographer.

Discipline

Choreography involves many long, tedious hours of rehearsing to get dance moves right. Audiences pay a lot of money to see film, dance company and musical productions, and a lot of pressure weighs on the choreographer to ensure total success. To achieve this, choreographers must be disciplined, persistent, and not afraid to demand that dancers and actors try and try again until they get every move perfect. Physical stamina is also an essential component to a choreographer's skill at remaining disciplined.

Famous Choreographers

A choreographer designs and directs routines used in dances and performances
Planning, creating and realising the dance or movement design concept for Directors, Producers and Designers
Training Dancers and Actors in dance routines and movement

Skills and responsibilities

What is a choreographer

A choreographer designs and directs routines used in dances and performances
Planning, creating and realising the dance or movement design concept for Directors, Producers and Designers
Training Dancers and Actors in dance routines and movement



Tech Award Dance Component 1 - The Role of the Dancer



What is a Professional dancer

A *dancer* is expected to:

- Train, exercise, and attend regular dance classes to maintain a high level of technical proficiency, physical ability, and physical fitness.
- Apply, prepare and audition for dance positions or to become a member of a dance company.
- Be responsible for own safety, diet, sleep, hydration and general health.
- Arrive for rehearsals on time, prepared and focused.
- Fully engage in rehearsals collaborating with the choreographer to create, refine, modify and suggest movement material and work positively with other dancers.
- Have a well-developed understanding of their own physical capabilities and limitations, to be able to warm up independently and guard against injury.
- Use any free time in rehearsals to practise and perfect movements or ideas that may require attention to detail.

Dancer Case study 1: Antonia Grove



What is your professional dance experience?

- I trained at the Rambert School and then joined Rambert Dance Company (1998-2003).
- I have worked with choreographers including Christopher Bruce and Merce Cunningham

Dancer Case Study 2: Ben Duke



Where did you train?

I trained at the Guildford School of Acting and then at Lewisham College and then London Contemporary Dance School.



What style(s) of dance do you use in performance?

Dance Theatre. Everything I have been involved in involves either combining text and movement or a very theatrical style of dance.



Tech Award Dance Component 1 - Lion King the Musical



Production Musical Numbers

Who wrote each one? Who performs in each one? Which Act is each musical piece in?

"Hakuna Matata"

"Circle of Life"

"Grasslands Chant"

"The Lioness Hunt "

"I just can't wait to be King"

"Chow Down"

"They Live in You"

"Be prepared"

"The Stampede"

"Rafiki Mourns"

Production Scenes

Which characters perform in each one?

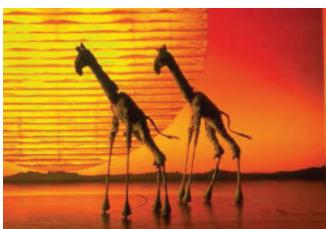


One by One

Shadowland

Can you feel the love tonight

Simba confronts Scar



The madness of King Scar

Endless night

He lives in you

King of Pride Rock



Tech Award Dance Component 2 - Exploring different styles of dance



The contemporary style

Contemporary dance has gathered a cult following among professional, trained dancers and dance aspirants around the world and is currently, one of the only dance styles that offer a perfect blend of classical, modern, ballet, flamenco, jazz and non-western dance elements. Contemporary dance is often observed as being closely connected to classical ballet and modern dance and is identified by its strong foot-work, swift torso movements, ballet leaps, varying rhythms and directions and lines in the body. Although not much emphasis is given to the facial expressions in this dance form, in recent times, modern contemporary dance encourages the use of facial expressions to express the dancer's moods or to narrate a story.

Famous Contemporary Choreographers

A number of famous contemporary dancers like Martha Clarke, Virginia Tanner, Travis Wall, Dada Masilo, Terence Lewis, Sang Jijia and Tadashi Endo, have made their mark in this form of dance around the world. For most contemporary pieces, there are choreographers who back the dancers with a poignant story line and are also in charge of making other creative decisions. Whether the piece is abstract or narrative will depend on the choreographer and the music that the dance is set to. Famous

What is contemporary dance

The Key Features of Contemporary Dance

1. Feet in parallel and all parts of the feet used sensitively.
2. Trunk/centre of body important in all movements.
3. Weight shifts into and out of balances.
4. Contractions and release with upward focus.
5. Tipping into and out of movements to create an on going feel.
6. Hips initiating moves or extending beyond the centre line.
7. Floor work - moves into, across on and out of the floor.
8. Natural opposition of arms and legs as in walking.
9. Emphasis on qualities of swing, impulse and impact.
10. Variety in length of phrases and rhythmic patterning.

Reviewing contemporary dance technique

What aspects of Contemporary Dance are you focusing on this week?

How well are you doing? Note some strengths and weaknesses

What are your plans to improve your technique?

What do you like best about this style?

Contemporary Technique Exercises/ Warm up

Circle arms, shoulders, reach roll
Tilting exercise

Feet exercise – through balls of feet

Trunk/centre of body important in all movements.

Feet in parallel and all parts of the feet used sensitively.



Tech Award Dance Component 2 - Exploring different styles of dance



Cunningham Technique



Cunningham Technique develops clarity, strength and flexibility in both the spine and legwork. The torso and legs are used either in coordination or opposition to one another.

For more than 50 years, **Merce Cunningham** has been a driving force in modern dance. Working with the idea that dance and music should be able to exist independently of each other while sharing the same time and space (a concept developed with long time musical collaborator and life partner John Cage), and making use of chance in developing choreographic phrases, Cunningham has challenged the way we create and view dance.

The technique is rigorous, and is designed to create strength and flexibility—of both body and mind. You have to be alert and focused in class. Cunningham technique challenges a dancer's ability to change direction within the body and in space, so explore your internal sense of direction as you move through.

Release Technique



The release technique focuses on the lack of tension and uses breath and momentum to ease movement instead of using pure muscular strength. The body deconstructs and all its members can move separately. To execute any movement, the technique addresses to a different body member each time. The rest of the members follow according to the natural mechanics of the body. Gravity, fluidity of energy, suspension and fall are some of the elements the students are going to practice on.



Contemporary dance techniques

What are the main differences

Graham Technique

As a dancer and choreographer, Martha Graham broke the rules. She created a dance technique that, along with her ground breaking choreography, helped spark the revolution known as modern dance.

In developing her technique, Martha Graham experimented endlessly with basic human movement, beginning with the most elemental movements of contraction and release. Using these principles as the foundation for her technique, she built a vocabulary of movement that would “increase the emotional activity of the dancer’s body.” Martha Graham’s dancing and choreography exposed the depths of human emotion through movements that were sharp, angular, jagged, and direct.



Tech Award Dance Component 2 - Exploring different styles of dance



Preparing for a Jazz class

How do we warm up?

Isolation – shoulder and hips into movement

Balls of Feet warming up

Travelling phrases – ball change

Movements initiated and isolated to specific body parts e.g. hips, shoulders

Accented beats and syncopated rhythms

Downward stressed grounded movements

* Start planning your own jazz warm up

* Identify key components of the jazz style

What is Jazz dance

The Key Features of Jazz Dance

1. Movements initiated and isolated to specific body parts e.g. hips, shoulders
2. Accented beats and syncopated rhythms
3. Downward stressed grounded movements
4. Sharp changes of direction and focus
5. Quick, shortsteps interspersed with long, smooth steps
6. Strong ,sharp (percussive) contractions of the centre of body and other body parts e.g. elbows
7. Use of still held positions
8. Emphasis on use of knees to give different qualities
9. Emphasis of medium level in space



Reviewing Jazz dance technique

What aspects of Jazz Dance are you focusing on this week?

How well are you doing? Note some strengths and weaknesses
What are your plans to improve your technique?

What do you like best about this style?

Jazz Isolations

One of the key aspects of Jazz Dance is the use of isolations, which means 'To move away from other body parts'. Play with the quick way that isolations occur in the body. Also play with different rhythms e.g. on the beat (quarter notes), and twice as fast. Here are some examples. Can you find any more?

Head – Look right, centre, left, centre (try quite fast.)

Shoulders – One at a time, in canon (one after another), circling, punching forward, shimmy.

Feet –Lifting the heels, and toes alternately to travel

Tech Award Dance Component 2 - Exploring different styles of dance



Jazz styles

1. CLASSIC JAZZ

What is it? "It's a style performed from the core, with clean and strong lines emanating from the hips and chest," Sue Samuels says.

Where did it come from? Jack Cole, Gus Giordano, Matt Mattox and Luigi were major influences.

How to spot it:

- strong contractions through the chest and hips
- isolations
- parallel passés
- shoulder twists
- hinges



2. CONTEMPORARY JAZZ

What is it? Tracie Stanfield says, "It challenges the rules and foundations of classic jazz by adding pedestrian movements, strong storylines and self-expression."

Where did it come from? Mia Michaels' earlier work popularized the style.

How to Spot it:

- initiation from the breath or an unconventional body part (elbow, rib, etc.)
- pedestrian movement
- classic steps—passé, battement, pirouette—with broken lines or changes in weight



4. LATIN JAZZ

What is it? "It's a style that allows a dancer to use the movements of various Latin dance styles without the assistance of a partner by adding elements of jazz," Maria Torres says.

Where did it come from? Maria Torres developed and popularized the fusion at Broadway Dance Center. Ashlé Dawson further popularized the style on "SYTYCD," "MADE" and "America's Got Talent."

Where you may have seen it:

- Swing!* on Broadway
- The films *El Cantante* and *Dance With Me*



3. COMMERCIAL JAZZ

What is it? "It's a mix of hip hop, jazz and the latest dance steps, choreographed to pop songs," Sean Cheesman says.

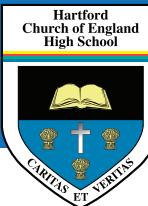
Where did it come from? When MTV debuted in 1981, it created a surge in the production of music videos. This style was developed to fill the need for backup dancers in these videos.

Where you may have seen it: The music videos of:

- Janet Jackson
- Michael Jackson
- Paula Abdul
- Britney Spears

How to spot it:

- emphasis on impressive tricks, such as leaps, flips and turns
- moments where the movement is a very literal interpretation of the lyrics
- changes in the music leading to changes in the choreographic theme



Tech Award Dance Component 2 - Exploring different styles of dance



The influence of Bob Fosse; Jazz Dance

Bob Fosse; Who is he?



Bob Fosse was born in Chicago, Illinois, on June 23, 1927. A trained dancer, **Fosse** achieved success as a choreographer and director of stage and screen musicals. He set records with Tony and Academy Awards won for his work, which includes *Pippin*, *Cabaret* and *Chicago*.

Bob Fosse; What inspired him?

Influenced initially by the work of Jack Cole, **Fred Astaire**, and **Jerome Robbins**, Fosse was fluent in a dizzying mix of styles: in *Redhead* alone he incorporated elements of the ballet, jazz, march, cancan, gypsy dance, and the traditional English music-hall.

Bob Fosse; His style

Notable distinctions of **Fosse's style** included the use of turned-in knees, the famous "**Fosse Amoeba**," sideways shuffling, rolled shoulders, and jazz hands. With **Astaire** as an influence, he used props such as bowler hats, canes and chairs. His trademark use of hats was influenced by his own self-consciousness. **Fosse's unique jazz dance style** was stylish, sexy, and easily recognized. After growing up in cabaret nightclubs, the nature of Fosse's signature style was sexually suggestive.



Bob Fosse; What is he best known for?

Bob Fosse is a **choreographer**, dancer and director best known for Tony Award-winning musicals including *Chicago* and *Cabaret*.

Bob Fosse; Dance career

After taking years of acting classes, Fosse moved to Hollywood to begin a film career. He appeared in several films including "Give A Girl A Break", "The Affairs of Dobie Gillis" and "Kiss Me Kate." Fosse's film career was cut short due to premature baldness, so he turned to choreography.

In 1954 he successfully choreographed "The Pajama Game." Fosse went on to direct five feature films, including "*Cabaret*", which won eight Academy Awards. Under his direction, "*All That Jazz*" won four Academy Awards, earning Fosse his third Oscar nomination.

Bob Fosse; Signature movements



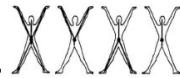


Tech Award Dance Component 2 - Exploring different styles of dance; The physical skills



Alignment-

The correct placement of the body parts in relation to each other.



Balance-

A steady or held position achieved by even distribution of



Co-ordination- The ability to use different parts of the body together smoothly and efficiently.

Dynamics-

The quality of movements based upon variations of speed, strength and flow.



Extension- Lengthening one or more muscles or limbs.



Facial expressions- Use of face to show mood or feelings.



Focus- Use of eyes to enhance the performance.



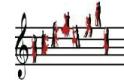
Posture- the way the body is held.



How can we improve these skills? How can we review them for each style we learn?



Musicality- Ability to make the unique qualities of the accompaniment evident in performance.



Projection- The energy the dancer uses to connect with and draw in the audience.



Spatial Awareness- Consciousness of the surrounding space and its effective use.



Stamina-

Ability to maintain physical and mental energy over periods of time



Flexibility-

The range of motion in your joints or joints and lengthening of muscles which cross a joint to enable motion.



Strength-

The quality of being physically strong and the ability to apply force



Movement memory

Remembering a set pattern of movements. This is when your whole body is able to copy the exact movements using neurological pathways.

Child Development





Child Development Tech Award -

A1 Understand the difference between growth and development



Fine motor skills

- Writing & Colouring, threading beads
- Fine manipulative movements
- Hand eye co-ordination
- Grips/ grasps

Physical Development

Physiological changes

- Growth spurts
- Height, weight, head circumference

Physical Development

Growth and other physical changes that happen in the body through the life stages.

Gross motor skills

- Throwing
- Running
- Locomotive movements
- Jumping

Developing Senses

What are our senses?

Taste

- When a baby is first born they love **sweet flavours** and enjoy breast milk or formula milk, which both contain sugar
- Does not like sour or bitter flavours
- At **4 months**, a baby can become fond of **salty flavours**.
- Depending on the range of food the baby tries, their **natural preferences** can vary.
- Those who have been **breastfed** may be more open to a **range of flavours** as a result of the taste of breast milk changing due to the food the mother eats

Touch

- When a baby is first born they love **skin-to-skin contact**
- At birth a baby can tell the difference in the **texture, shape** and **weight** of an object
- During the **first few months**, a baby will **explore** using their **mouth**
- At **6 months**, a baby will try to **grab everything** in reach to help them learn
- Between **6-9 months**, a baby will start to **crawl** and will able to **choose** what they touch.

Hearing

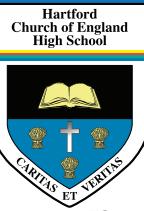
- When a baby is first born they can **remember sounds** from the womb, such as their mother's voice.
- A baby will move their eyes towards noises around them, such as the sound of a rattle
- At **3 months**, a baby may attempt to **copy sounds** that they hear, such as 'ahhhh' and 'ehhhh' by cooing
- At **5 months**, a baby enjoys to listen to their **own voice** and an adult's responses so will babble a lot
- At **8 months**, a baby will **understand the meaning** of many words and may be able to **say** a few, even if they aren't clear

Smell

- A newborn baby will have a **keen sense of smell** and will **recognise** comforting smells such as that of their mother
- When a baby can smell their mother they may turn their head or even stop crying
- A **breast fed baby** can recognise the smell of their mother and her milk and may even start to move their mouth as if feeding.

Sight

- When a baby is first born their vision is **blurry**.
- They are best able to see things 10 inches away
- Black and white patterns** fascinate babies
- At **2 months**, a baby can keep a **steady gaze on moving objects** but can still not make out **fine details**
- At **5 months**, a baby is developing **eye-body co-ordination**. If he/ she sees something, they will try to reach it
- At **6 months**, a baby can begin to understand that when something is **closer** they will appear **bigger**
- At **12 months**, a baby's vision is nearly **equal** to that of an adults.



Child Development Tech Award -

A1 Understand the difference between growth and development



Intellectual Development

Intellectual Development

The development of language, memory and thinking skills



- Intellectual development refers to the way children are able to increase their knowledge and understand their environment
- It is about the way our brains remember and think about information we have taken in.
- It is about a child's ability to learn, understand, recognise and reason.

Imagination

- **Imagination** is the ability to picture things when they are not in front of us or when they do not exist.
- Children use their imaginations to play pretend games and to tell stories
- They also use it when drawing, painting, reading, dancing, making models and dressing up

Problem solving

- Problem solving is the ability to solve both simple and complex problems, for example putting shapes into a shape sorter and riding a bike
- Problem solving in children involves exploring objects with hands and mouth
- It includes counting and sorting objects by colour and size.

Concentration

- Concentration is the ability to pay attention to one particular task
- Children tend to concentrate more on things they are interested in
- Children need to be able to concentrate so that they can learn, store and sort information.

What is **imagination**? How might children use their imagination?

What is meant by **short term and long term memory**?

Memory

- Memory is the ability to store and recall information, ideas and events
- It helps us to recognise familiar objects and people, songs and rhymes

We have both:

- Short term memory which allows us to remember things we need to, for example shopping lists
- Long term memory which allows us to store information until it is needed

- How long can an average 2 and a 1/2-year-old focus on a toy for?
- How long can a typical 4-year-old concentrate for?



Child Development Tech Award -

A1 Understand the difference between growth and development



Social Development

Social Development

The ability to form friendships and relationships, and to learn to be independent

- As children develop they learn to socialise.
- This is about how children develop friendships and relationships with other people and children.
- It is about friendships with other children but also the skills needed to maintain these friendships, such as turn taking, sharing and being co-operative.
- Successful social interactions leads to happier and healthier children.

What is a role model?

A role model is a person who serves as an example by influencing others. For many children, the most important role models are their parents and caregivers.

Children look up to a variety of role models to help shape how they behave, how they act in friendships, or when making difficult decisions.

The stages of play

Children learn basic social skills through play.

They develop a sense of self, learn to interact with other children, how to make friends and how to role play.

Solo (solitary) Play

- When infants play independently this is known as solo (solitary) play.
- This allows them to explore the environment at their own pace.
- This allows infants/children to learn by their own mistakes and increases their self esteem.

0-2 years

Spectator Play

This is when the child will observe what the other child is doing but not interact with them, they may even copy the other child. This is also called on-looker play.

2-2.5 years

Parallel play

Between the ages of 2-3 years old, infants move on from solo play to playing alongside others.

- They do not yet share and take turns.
- They have no interest in the others around them or what else is going on
- However, they still like to be in the presence of adults and other children.
- The child may play side by side with another child, often with similar materials, but without interacting.

2-3 years

Associative Play

- Children begin to play together, developing relationships through doing the same activities or playing with similar equipment or by imitating.
- While maintaining their independent interests, children play together.
- They may acknowledge what the other is doing and discuss what they are doing with each other, but they are not yet working toward a common goal.

Co-operative play

- Between 4-8 years children develop a wider social network and form relationships with their peers and other adults.
- They become more cooperative in their play, helped by their language development.
- By the age of five onwards, most children have established a number of important friendships and others may refer to one friend as their 'best friend'
- Play is essential for communication skills, negotiating roles and beginning to understand the feelings of others.



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Development of relationships with carers (parents).

Forming attachments with carers

- Babies have an innate tendency to interact with their primary caregivers (often mother and father)
- 2 months: baby will start to smile
- 3 months: they will respond when adults talk
- 5 months: infant can distinguish between familiar and unfamiliar people
- These social cues (social releasers) help infants begin to build their first relationships with primary carers

0-2 years

First social learning

- Young children are emotionally attached and dependent on the adults that care for them
- A family environment might provide a 'safe base' for children this can help them feel more confident to explore other relationships and friendships during play.
- As children grow older they become more independent and begin to form friendships of greater importance.

3-5 years

Social Development

What is meant by secondary socialisation?

Primary socialisation

- This is the way that children learn.
- This takes place within the family home or within relationships that are closest to children
- This is when children learn important values, norms and beliefs (for example, religion and how to treat others).
- They can learn about behaviour and the appropriate way to behave, for example manners and how to treat others.

What is meant by secondary socialisation?

Secondary socialisation

- Children begin to learn more complex norms, values and behaviours
- This will occur later in childhood such as at school and from friends and peer groups.
- Children can learn how to solve problems working together, make decisions and interact with others
- For example, a child may want to dress the same as their friends because they might feel that it is socially acceptable.

Building confidence and self-esteem

Building confidence and self-esteem

- High self-esteem often leads to healthy social interactions which then leads to higher self-esteem.
- There are several things that parents and carers can do to build their child self-esteem and confidence.

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Provide safety and independence

- It is crucial that parents make a child feel safe but also encourage children to explore
- To help develop healthy self-esteem, parents should provide care, safety but also age-appropriate independence

Praise abilities

- Giving children jobs or chores can help teach them responsibility and raise their confidence
- Confidence and self-esteem can raise when parents praise children especially when being kind

Encourage communication

- By showing they care, parents can encourage children's communication
- Asking questions such as 'How was your day?' or 'How did that make you feel?' can show that children matter and are important but help them explore their emotions too.

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What are our emotions?

- Emotions are feelings such as fear, excitement, affection, happiness, worry, sadness, anger, contentment, pride, jealousy, shyness, frustration, distress and disgust.
- Young children can show all these emotions and more.



Attachment:

a strong emotional connection between a child and caregiver. It is argued that these attachments form our first stages of emotional and social development.

Emotional Development

- Emotional development is the development of a child's ability to recognise and control their feelings.
- It is influenced by the child's inborn temperament (from their genes), their environment and their state of health

Bonds of attachment

- Emotional development can be affected by how well infants form bonds of attachment- this is strong feelings of attachment for loved ones.
- Babies and children need to feel wanted and cared for, this helps them feel safe and loved
- Babies and children have ways to attract the attention of caregivers to help create a bond, this includes:
 - Turning their head,
 - Smiling
 - Giggling
 - Cooing
- Skin-to-skin contact- like kangaroo care or when being breast-fed
- Eye-to-eye contact- when the baby gazes into her parent's eyes
- Familiar smells- a baby learns to recognise the smell of her mother's breast within a few days of birth
- Familiar sounds- a baby soon learns to recognise the voice of her mother and responds more readily to it than to other words

Encouraging children to develop positive relationships

- Children can be helped to develop positive relationships with others by having strong relationships with adults that they know.
- Adults should provide them with opportunities to be with other children, for example, during play and mealtimes
- Adults can help children to learn how to talk thoughtfully to others and even challenge unkind comments and actions to help support positive relationships



How can infants **build an attachment** to parents or carers?

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Stages of emotional development

- **0-1 years:** children are solely dependent on others.
- They are learning to communicate their needs.
- Contact is **sensory** through touch and eye contact, and by cries, smiles and coos.

Age range	Age	Development
0- 18 months	New born	<ul style="list-style-type: none"> ▪ Watches parent's/ carer's face ▪ Will maintain eye contact when feeding ▪ Wants to be held
	3 mon ths	<ul style="list-style-type: none"> ▪ Will smile and coo to show pleasure and enjoyment ▪ Likes to be cuddled, will enjoy being held by anyone
	6 mon ths	<ul style="list-style-type: none"> ▪ Laughs ▪ Enjoys being played with
	9 mon ths	<ul style="list-style-type: none"> ▪ Can tell the difference between family and strangers ▪ Will show fear of strangers, called separation anxiety (crying when held by/ left with people they don't know)
	12 mon ths	<ul style="list-style-type: none"> ▪ Will show affection for parents and family ▪ Will want to be close to familiar people

- **1-2 years:** children are very **egocentric**, only seeing things from their point of view.
- They can be **demanding** and **defiant**, they want their way and they want it now
- Emotions are **strong** and **temper tantrums** frequent, although they do occur **less often** as the child gets to 3 years old

Age range	Age	Development
18 months - 3 years	18 months	<ul style="list-style-type: none"> ▪ Will show strong and different emotions- fear, anger, happiness ▪ Will still be shy of strangers and needs a familiar adult close to them
	2 years	<ul style="list-style-type: none"> ▪ Prone to tantrums and show strong emotions, cannot wait for their needs to be met ▪ Will have strong sense of their own identity
	3 years	<ul style="list-style-type: none"> ▪ Begins to show feelings and concerns for other ▪ May not demand immediate and full attention from adults

Children are usually friendlier, more confident and more trusting

Age range	Age	Development
3- 5 years	4 years	<ul style="list-style-type: none"> ▪ Will show affection towards family, friends and familiar people ▪ Fewer tantrums and angry outbursts unless they are tired
	5 years	<ul style="list-style-type: none"> ▪ More confident, separates more easily from parents



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Communication and language development

What do you think is involved in communication and language development?

- Communication and language development is about being able to understand what others say, as well as being able to speak and make yourself understood.
- It is about learning to read and write.
- Talking helps people to exchange information, tell others about their feelings and discuss problems.

Communication and language development involves 3 main areas:

- **Listening and attention** - these skills support language learning and include the ability to identify sounds and maintain attention
- **Understanding** - young children gradually develop the ability to understand words in context, beginning with single words and building on this with phrases and more and more complex sentences
- **Speaking** - this allows children to express their feelings, needs and wants, their thoughts and ideas and be able to talk about what has happened and about creative or imaginative events.

How do you think babies communicate before they can speak?

Communication without words (non-verbal communication)

Babies have an **inborn desire** to communicate with other people.

Before they can talk, they use **other ways** of getting their message across:

- Using the eyes
- Tone of voice- a cry, a scream or gurgle tell us different things
- Expression on the face- this can show pleasure, anger, sadness
- Using the hands- pointing, clinging, throwing, pushing away, pulling



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Communication and language development

How do you think children learn to talk?

How children learn to talk

1. **Other people talking to them;** from birth, it is not what is said that is important that someone is talking to them
2. **Listening;** a child needs to be spoken to in a way that they understand
3. **Practising making sounds;** children enjoy having 'conversations' with others (without words) as they can practise sounds and taking it in turns
4. **Copying sounds made by other people;** if no-one bothers to talk to them, then they will not be able to speak very well. They learn by imitating the sounds that they hear
5. **Learning what the sounds mean;** children can understand the meaning of long words before they can say them

Stages of language development

Age range	Age	Language development
0-18 months	Birth	<ul style="list-style-type: none"> ▪ New babies are aware of the sounds in the environment.
	3 months	<ul style="list-style-type: none"> ▪ Infants begin to make babbling noises as they learn to control the muscles associated with speech. ▪ They will turn their head and smile when a familiar person speaks
	6 months	<ul style="list-style-type: none"> ▪ Babies begin to respond to the word 'no' and different tones of voice
	12 months	<ul style="list-style-type: none"> ▪ Infants begin to imitate sounds made by carers such as 'da da'. This develops into using single words. ▪ Babies listen when spoken to and turn when their name is called. They begin to recognise some words eg Daddy, car, eyes phone
	18 months	<ul style="list-style-type: none"> ▪ The toddler can begin to follow simple instructions 'go and get your shoes'. ▪ Can point to a few body parts when asked (nose, eyes, tummy)

Age range	Age	Language development
18 months-3 years	2 years	<ul style="list-style-type: none"> ▪ Infants begin to make two-word sentences, such as 'cat-gone' (meaning the cat has gone away). ▪ The infant begins to build their vocabulary (knowledge of words)
	2.5 years	<ul style="list-style-type: none"> ▪ Likely to have 200 words ▪ Asks simple questions such as 'what's this?' ▪ Enjoys books and turns pages

Age range	Age	Language development
3-5 years	3 years	<ul style="list-style-type: none"> ▪ Children begin to make simple sentences, such as 'I want drink'. This develops into the ability to ask questions, 'when we go?'. ▪ Knowledge of words (vocabulary) grows very rapidly ▪ Understands simple 'who?', 'what?' and 'where?' questions
	4 years	<ul style="list-style-type: none"> ▪ Children begin to use clear sentences that can be understood by strangers. ▪ Children can be expected to make some mistakes with grammar 'we met lots of peoples at the shops today' ▪ Children should understand nearly everything that is said
	5 years	<ul style="list-style-type: none"> ▪ Children can speak using full adult grammar. ▪ Uses complex sentences with words such as 'because' ▪ Can talk about what has happened and what might happen