

Year 10

Knowledge Organiser

September – December 2022

FIVE ACRES HIGH SCHOOL

AMBITION – CONFIDENCE – CREATIVITY – RESPECT – DETERMINATION





Why do we have knowledge organisers?

Knowledge organisers are a collation of the basic essential knowledge for success in each subject area that will underpin your learning for the term.

They are designed to provide the information you need to be committing to your long-term memory through recall exercises in Low Stakes Quizzing.

How do we use knowledge organisers?

You should be using these KOs to create your homework quizzes so that you are practising retrieving this knowledge from your brain and therefore solidify those cognitive pathways to allow you to remember it for longer and recall it quicker.

1. You can do this by testing yourself on the definitions of key terms (both recalling the key term and then swapping to recall the definition), practice labelling diagrams, retrieve reasons and justifications for the main learning points.
2. They can also be used for 'memory dumps' where you try to recall as much of the information about a topic as possible and then use the KO to fill in the gaps.
3. They can also be used in class to assist with the retrieval of the core knowledge needed for each subject.

You should have these with you at all times in school and out on your desk in all lessons.

If you lose your KO or it becomes too dishevelled, please purchase a new one from your Head of Year or the School Office.

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English Literature

Macbeth Literature Paper 1

Characters	Macbeth Literature Paper 1	Context
Macbeth	Eponymous protagonist, ambitious and ruthless	Queen Elizabeth
Lady Macbeth	Defies expectations, strong and ambitious, but is driven mad through guilt	King James I
Witches	Supernatural beings, give prophecies, could represent conscience or fate	Guns Powder Plot
Banquo	M's friend, sons prophesied to rule, killed and returns as ghost	Supernatural
Duncan	Good king, praises M at start, murdered in Act 2	Scottish Society
Macduff	Wife and children killed; kills M; born by caesarian	
Malcolm	Heir to throne, good man, finally crowned	
Fleance	Banquo's son, represents innocence and justice	
Key Vocabulary		
Ambition	A strong desire to achieve something (<i>Latin ambire – to canvas for votes</i>)	
Regicide	Killing a king (<i>Latin rex – king, French – cide kill</i>)	
Antithesis	Direct opposite (<i>Greek – opposition, resistance, placing against</i>)	
Hallucination	To see something that does not exist (<i>Greek allusein – be uneasy or distraught</i>)	
Atrocity	Cruelty (<i>Latin atroc – cruel, terrible</i>)	
Treason	Betraying one's country (<i>Latin traditio – handing over, surrender, a giving up</i>)	
Divine	Of, or like God (<i>Latin divinus – of a god</i>)	
Manipulation	The act of manipulating someone in a skillful manner (<i>Latin manipulus – handful, handling of objects</i>)	
Remorseless	Without guilt or regret (<i>Re – again Latin mordere – to bite</i>)	
Virtuous	Having high moral standards (<i>Latin virtus – virtue</i>)	
Prophecy	A prediction of the future (<i>Latin prophetia – gift of interpreting the will of gods</i>)	
Masculinity	Qualities considered to be of a man (<i>Latin – masculus – male</i>)	
Equivocator	Someone who uses language to hide the truth (<i>Latin equivocator – agent</i>)	
Key themes		
Order and Disorder	The natural world becomes chaotic after Duncan dies	
Ambition	The Macbeths' ambition to be powerful drives the play	
Appearance and reality	People and events are not always as they seem	
Supernatural	Witches; ghosts; prophecies; apparitions	
Power and Conflict	Many battles throughout the play and strives for power	

What makes it a tragedy?

Shakespeare's use of metre and form

Hamartia – Macbeth's 'vaulting ambition' is his tragic flaw	Most of the play is written using iambic pentameter and blank verse (not rhyming). This controlled metre conveys power and authority	Iambic Pentameter
Hubris – excessive pride and confidence – the witches instil this in Macbeth when they tell him 'None of woman born shall harm Macbeth.'	Tip - Look for moments where the character slip into prose to show they are 'falling.'	
Peripeteia – a turning point – when Macbeth goes from good to bad.	The witches speak in this verse making it sound eerie and chanting. "DOUBLE DOUBLE TOIL and TROUBLE"	Trochaic Tetrameter
Anagnorisis – Crucial discovery – Macbeth realizing he is not invincible when he finds out Macduff was born by caesarean.	This means normal speech without a set rhythm – shows a lack of power or a loss of control.	Prose
Catharsis – a cleansing of anxiety – This occurs for the audience at the end of the play when Macbeth is killed. Order returns.	A speech to oneself – but heard by the audience, allowing them to understand character's inner thoughts.	Soliloquy

A Christmas Carol Literature Paper 1

Characters		Context
Ebenezer Scrooge	Transforms from misanthrope to philanthropist	Poor Laws 1834
Bob Cratchit	Represents the noble poor, challenges perceptions of the poor	
Ghost of Christmas Past	Shows us Scrooge was not always hard and cold, importance of memory	Capitalism
Ghost of Christmas Present	Shows Scrooge what Christmas spirit really is. Introduces ignorance and want to teach Scrooge the error of his ways	
Ghost of Christmas Yet to Come	Shows Scrooge his dire fate unless he changes	Poverty
Tiny Tim	Represents Christian values, a key character in Scrooge's transformation	
Jacob Marley	Scrooge's dead business partner, the catalyst for Scrooge's transformation	Industrial Revolution
Key Vocabulary		
Misanthropy	Dislike of humankind (Greek <i>miso</i> – hating, Greek <i>anthropos</i> – man)	
Philanthropy	Desire to help others, usually through charity (Greek <i>philanthropos</i> – man-loving)	
Stave	The parallel lines music is written on (English – staff, support)	The Noble Poor
Novella	A short novel (Italian – novel)	
Avarice	Greed (Latin – avarus – greedy)	Rev. Thomas Malthus
Penitence	Sorrow for committing sin (Latin – poenitent – repenting)	
Industrial	Related to industry and factories (French – industriel – resulting from labour)	
Revolution	A great change (Latin – revolve – turn, roll back)	
Apparition	Supernatural appearance (Latin – apparitionem – an appearance)	
Benevolent	Wishing to do well, kindly (Latin – benevolentum – wishing someone well)	
Covetous	Desiring to obtain and own (French – covetous – desire, eagerness, ambition)	
Ominous	An indication of coming evil (Latin – ominosus – full of foreboding)	
Tremulous	Shaking (Latin – tremulus – shaking, quivering)	
Key themes		
Redemption	Dickens shows Victorians it is possible to change their ways through the transformation of Scrooge	
Family	Offers warmth and love – complete contrast to Scrooge's chosen life	Antithesis
Christmas	A time of love, hope, charity and kindness to show Dickens' moral message	
Social Injustice	Dickens highlights the social injustice of Victorian England to bring about reform	
Threat of Time	Scrooge needs to act quickly or he will walk in purgatory for all time	Allegory

These changes to the Poor Laws created a centralized system where those in poverty ended up working in dreadful and dangerous conditions in workhouses.

A form of economy where you keep what you earn. Under Victorian capitalism many were forced to work in difficult and dangerous conditions in order to maximise the profits for the owners of the factories and the suchlike.

Many people moved to towns and cities to work but the conditions were often very bad as was the pay. Poverty in Victorian England meant that living conditions were difficult with many living in quickly constructed, very small homes. There were also high numbers of homeless. The most desperate would seek refuge in the workhouses but conditions here were very poor.

The invention of steam power led to many factories being constructed. Working with this machinery could be very dangerous and it led to unemployment as not so many workers were needed when the machinery took their place. Workers increasingly became seen as commodities instead of human beings. Children were often employed as they were small and could get inside the machinery, but they were also cheap labour.

Many poor people were viewed as being lazy, immoral and criminal. Dickens tries to counter this stereotype by giving us characters such as the Cratchits to show that poor people suffered at the hands of society, not because of their own doing.

An economist who put forward the idea that there would never be enough resources for everyone to live comfortably, therefore poverty was inevitable and we could do little to stop it. He cautioned against intervening when people were hungry because it would lead to a population that was too large to sustain.

Devices used

Dickens makes use of a narrator that is not a direct part of the story. They provide us with an overview of the story but focus specifically on Scrooge and his responses to what is happening. They do not offer a sympathetic portrait, often the style is one of mockery. It is clear we are meant to distrust Scrooge at the beginning but the gradual unfolding of his story allows us to like him by the end.

A technique that links human emotion to the weather. Throughout the novella warmth is linked to community and love and coldness is linked to hard-heartedness and a lack of love. This is further emphasized with Scrooge when we find out that 'no warmth could warm, no wintry weather chill him.' Scrooge is the most extreme version of the effects of self-interested capitalism.

The opposite of someone or something, antithesis is used throughout the novella to show that there is a better way. Fezziwig's form of business is an antithesis to Scrooge's, the first stave is the antithesis of the final stave, Bob is the antithesis of Scrooge...

A story that teaches a moral lesson, using the characters as symbols. In ACC Scrooge represents the Victorian businessmen that take advantage of the poor. Fred represents the ideal of the middle class. The Cratchits represent the noble poor. Tiny Tim represents children and their vulnerability. Fezziwig represents an alternative way of doing business.

Key vocabulary and terminology

- Assonance** – repetition of a vowel sound of emphasis
- Atmosphere**- mood or feeling
- Couplet** – 2 lines of rhyming poetry
- Caesura**- punctuation in the middle of a line for emphasis
- Dramatic monologue**- narrative told only from the narrator's viewpoint
- Enjambement**- overlapping sentence into the following the line.
- Extended metaphor** – metaphor running through the poem rather than singular reference
- Form**- the shape of a poem
- Free verse**- poem that does not have a regular rhyme structure
- Half rhyme**- partial rhyme scheme
- Iambic pentameter** – 10 syllables with 5 stressed syllables
- Narrative**- account of events
- Oxymoron** – contradictory placement of words – eg bitter sweet
- Prose**- any writing not in verse form
- Rhyme scheme** – pattern of rhyming eg ABAB
- Simile** – comparison to enhance understanding using like or as
- Sonnet form**- 14 lines in iambic pentameter. Either Italian/Petrarchan or English/Shakespearean
- Octet** – 8 lined stanza (posing the problem or question in a Petrarchan sonnet.
- Sestet** –(6 lines stanza, often presenting the answer or question to the octet)
- Cinquain/quintet** – 5 line stanza
- Quatrain/quartet** – 4 line stanza
- Tercet**- 3 line stanza
- Volta**- turning point of a sonnet between the octet and the sestet (Line 9)
- Natural imagery** – imagery inspired by nature

Love and Relationships Anthology

Poetry Knowledge organiser KS4

Love and Relationships Anthology key themes

- Love
- Loss
- Separation
- Parent/child
- Nature
- Distance
- Closeness
- Changing relationships
- Reconciliation/renewal
- Death of a relationship
- Parting
- Differences between generations

Structuring your response:

Your thesis statement introduction introduces your main argument and how each poem relates to the theme of the question.

3 points of comparison, where each point adds something new to your argument about the theme in the question and the poems are similar or different in this respect. Use what, how, why to develop your response

Conclusion which sums up your ideas about both poems and what the author is telling you about the them.

Language of comparison:

- Similarly, likewise, in the same vein.
- However, although, conversely.

The poems and suggested links between poems:

- 'When We Two Parted'**: compares well with Neutral Tones, Love's Philosophy, Sonnet 29
- 'Love's Philosophy'**: compares well with Neutral Tones, When We Two Parted, Singh Song, Sonnet 29
- Porphyrion's Lover**: compares well with The Farmer's Bride, Love's Philosophy, Sonnet 29
- Sonnet 29**: compares well with Love's Philosophy, Porphyria's Lover, Neutral Tones
- Neutral Tones**: compares well with Winter Swans, When We Two Parted, Sonnet 29
- The Farmer's Bride**: compares well with Porphyria's Lover, Neutral Tones, Sonnet 29
- Walking Away**: compares well with Mother, any Distance, Follower
- Letters From Yorkshire**:
- Eden Rock**: Compares well with When We Two Parted, Walking Away, Follower
- Follower**: Compares well with Walking Away, Mother, any distance, Before You Were Mine
- Mother, any Distance**: compares well with Before You Were Mine, Follower, Walking Away
- Before You Were Mine**: compares well with Follower, Walking Away
- Winter Swans**: compares well with Neutral Tones, Sonnet 29, When We Two Parted
- Singh Song!**: compares well with When We Two Parted, Love's Philosophy, Sonnet 29
- Climbing My Grandfather**: compares well with Before You Were Mine, Mother Any Distance, Follower, Walking Away

Evaluative Verbs

Satirises – using satire (a way of criticising people or ideas in a funny way) to show that people or ideas have bad qualities and are wrong - usually political.

Presents – introduces an idea.

Demonstrates – provides a clear explanation or example.

Amplifies – emphasises using extra impact and returning to the same idea/point. It makes this idea/point seem very important.

Conveys- carries or presents

Contrasts – presents ideas in opposition

Insinuates – hints at, implies.

Alludes to- references or suggests

Language of comparison:

Similarly, likewise, additionally, also.

However, although, conversely, contrastingly.

Phrases to show writer's purpose:

The writer is inviting the reader...

The writer is perhaps suggesting...

The writer indicates that...

The writer has used this to...

Phrase to show comparison of effect on the reader: (8 mark question)

Similarly, this also makes the reader...

Conversely, the reader then feels...

Unseen poetry KO

AO1 = 12 marks	You are being judged on how well you: Read, understand and respond to texts. - maintain a critical style and develop an informed personal response - use textual references, including quotations, to support and illustrate interpretations.
AO2 = 12 marks	You are being judged on how well you: Analyse the language, form and structure used by a writer to create meanings and effects. use relevant subject terminology where appropriate.

Strategic exam response tips:

Read the question- this will tell you what the poem is about

Read the title- This will help you to know what the poem is about

Read the poem through, annotating key ideas, techniques and language as you go.

What form does the poem take? This will further help to unlock meaning.

Where is the punctuation? - Can you identify where the enjambment and caesura are? Why are they there?

Look for patterns in language- are key words repeated? Is there a semantic field? Why has the writer chosen this?

Identify a key image- what does the writer use this to suggest about the theme of the poem?

How are the ideas structured- what stays the same or changes in the poem? (The first 2 and last 2 lines are good places to look.)

How to answer the 24 mark question:

You should spend 30 minutes in total on this question in the exam.

You should spend 5 minutes reading and annotating the poem using the checklist on the left hand side – language, form and structure.

Always ask yourself 'WHAT, HOW, WHY.

Identify and explore 3 ideas linking to your thesis statement. (preferably a combination of form, language, structure and techniques

Introduce these in your thesis statement introduction and then explore each of these ideas throughout the essay.

Remember to include a quotation with your summative idea about the poem and the theme.

How to answer the 8 mark question:

You should spend 15 minutes on this question in the exam. (3 minutes reading the second poem and planning, 12 minutes writing)

Unpick the second poem (3 mins).

Pick 3 METHODS(HOW) to compare – use words from the table on the left to compare them.

Start with the method and then analyse the WHAT and WHY (effect on the reader)

Compare the effect on the reader.

Adjectives - writers try to choose effective adjectives to increase the reader's understanding of the people, places and things in their text.
Adverbs - writers carefully select effective adverbs to improve their description.
Simile - a descriptive technique that compares one thing with another, usually using 'as' or 'like'.
Metaphor - a descriptive technique that names a person, thing or action as something else.
Hyperbole - a use of obvious exaggeration for rhetorical effect.
Personification - a metaphor attributing human feelings to an object.
Pathetic fallacy - a type of personification where emotions are given to a setting, an object or the weather.
Onomatopoeia - words that sound a little like they mean.
Oxymoron - a phrase combining two or more contradictory terms.
Emotive language - language intended to create an emotional response.
Opinion - a personal viewpoint often presented as if fact.
Hyperbole - exaggerated language used for effect.
Personal pronouns - 'I', 'you' and 'we'.
Imperative command - instructional language.
Triples - three points to support an argument.
Emotive language - vocabulary to make the audience/reader feel a particular emotion.
Statistics and figures - factual data used in a persuasive way.
Rhetorical question - a question which implies its own answer.

Paper 1

1. List 4 details - reading comprehension (4 marks)
2. Analyse the use of language - discuss techniques, words and phrases (8 marks)
3. Analyse the use of structure (8 marks)
4. Evaluate the statement - to what extent do you agree - analyse and explain (20 marks)
5. Descriptive/Narrative writing (24 + 16 marks)

Structural Features

Focus

Time

Perspective

Internal Structure

Beginning/Ending

Repetition/Sequencing

WritingSentence starters to add interest:

Double adjective

Adverbial fronted

Simile

Present participle verb

Paragraph rules:

New topic

New person

New place

New time

Paper 2

1. Select the 4 correct statements - reading comprehension (4 marks)
2. Summarise the main differences between the two extracts - difference, quotation (8 marks)
3. Analyse the language in one of the sources - discuss techniques, words and phrases (12 marks)
4. Compare the attitudes presented in both sources - analysis and comparison (16 marks)
5. Non-fiction writing - letter/article/report/blog/speech (24 + 16 marks)

P - purpose

A - audience

F - format

Format

Letter - address in the top right, date,

Dear..., Yours Sincerely/Faithfully

Article - headline, by-line

To remember:

- Start with your strongest point
- Finish with second strongest point
- Develop an argument throughout
- Use a range of techniques

Punctuation

A comma (,) separates elements in a list (or a series), as in "I like pepperoni, sausage, and bacon on my pizza." A comma can also separate two a subordinate clause

A semicolon (;) can connect two complete sentences that are closely related in place of a connective or full stop. For example: "My brother is sad; he can't play outside today."

A colon (:) can introduce an explanation, an example, a quotation, or a series. For example: "I need a few things from the grocery store: bread, milk, and cheese."

Question marks (?) come at the end of a sentence to indicate a question, like "What time is the party?" An exclamation point (!) ends an emphatic sentence, like "Wow!" or "I love this dress!"

Parentheses, (), contain words that further explain a sentence. An example is: "The three boys (all of whom were brothers) played in the park."

Parenthetical dashes or parenthetical commas are used to isolate a subordinate clause within a sentence.

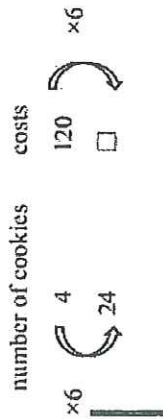
An apostrophe (') shows where letters have been omitted from a word. In *can't* (a contraction of *cannot*) the apostrophe shows where the letters *N* and *O* were omitted.

KPI 1 – Ratio & Proportion U577 U921 U676 U138 U407

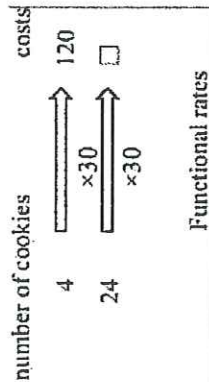
Link between ratios and fractions

→ Boys to girls in ratio 2:3
 $\frac{2}{5}$ are boys, $\frac{3}{5}$ are girls.

Multiplicative Reasoning



Scalar ratios



Functional rates

KPI 5 – Sequences U498 U978 U680 U206

n th term of an arithmetic (linear)

sequence is $bn + c$

→ n th term of 5, 8, 11, 14, ... is $3n + 2$
(always increases by 3; first term is $3 \times 1 + 2 = 5$)

n th term of a quadratic sequence is $an^2 + bn + c$

→ First three terms of

$n^2 + 3n - 1$ are 3, 9, 17, ...

KPI 2 – Algebraic proportion/proof U582

y is directly proportional to x :

$y = kx$ for a constant k

→ b is directly proportional to a^2 ;

$a = 6$ when $b = 90$. Find b if $a = 8$.

$b = ka^2$; $a = 6$ and $b = 90$ for k ;

$90 = k \times 6^2$ so $k = 2.5$, $b = 2.5a^2$

$b = 2.5 \times 8^2 = 160$

y is inversely proportional to x :

$yx = k$ or $y = \frac{k}{x}$ for a constant k

n	A number
$2n$	An even number
$2n + 1$	An odd number
$n, n+1, n+2$ etc.	Consecutive numbers
$2n, 2n+2, 2n+4$ etc.	Consecutive even number
$2n+1, 2n+3, 2n+5$ etc.	Consecutive odd number

KPI 5 – Sequences U958

Geometric sequence; multiply each

term by a constant ratio

→ 3, 6, 12, 24, ... (ratio is 2)

Fibonacci sequence; make the next term by adding the previous two ...

KPI 3 – Sampling

Random sampling is where each member of a population is equally likely to be selected. Possible methods include using a random number generator from a computer programme, rolling a number of dice or using the random number button on a scientific calculator.

Stratified sampling is used to select a sample that is representative of different groups. If the groups are of different sizes, the number of items selected from each group will be proportional to the number of items in that group.

Capture-recapture method

$\frac{\text{number in 1st sample} \times \text{number in 2nd sample}}{\text{number in 2nd sample previously marked}}$
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KPI 6 – Surds

U633 U338 U872 U499

Look for the biggest square number factor of the number:

→ $\sqrt{80} = \sqrt{16 \times 5} = 4\sqrt{5}$

KPI 4 – Fractions, Decimals, %
U689

Make a recurring decimal a fraction:

→ $n = 0.23\bar{6}$
(two digits are in the recurring pattern, so multiply by 100)
 $100n = 23.\bar{6}$
(this is the same as $23.6\bar{6}$)
 $99n = 23.6\bar{6} - 0.23\bar{6} = 23.4$
 $\frac{23.4}{99} = \frac{234}{990} = \frac{13}{55}$

KPI 4 – Fractions, Decimals, % U773 & U671

Percentage increase or decrease; use a multiplier (powers for repetition)

→ Initially there were 20 000 fish in a lake. The number decreases by 15% each year. Estimate the number of fish after 6 years.

$20\,000 \times 0.85^6 = 7\,500$ (2sf)

KPI 6 – Surds

U633 U338 U872 U499

Rationalise the denominator

Multiply the numerator and denominator by an expression that makes the denominator an integer:

→ $\frac{4}{\sqrt{7}} = \frac{4 \times \sqrt{7}}{\sqrt{7} \times \sqrt{7}} = \frac{4\sqrt{7}}{7}$

→ $\frac{2}{4 + \sqrt{5}}$

$= \frac{2}{4 + \sqrt{5}} \times \frac{4 - \sqrt{5}}{4 - \sqrt{5}} = \frac{2(4 - \sqrt{5})}{11}$

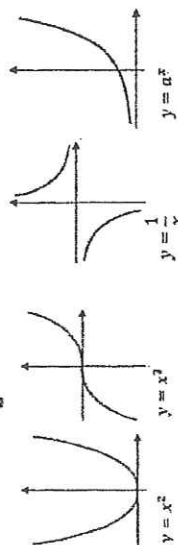
KPI 7 – Perpendicular lines U898

Parallel lines: gradients are equal;

perpendicular lines: gradients are "negative reciprocals".

→ $y = 2x + 3$ and $y = 2x - 5$ are parallel to each other; $y = 2x + 3$

and $y = -\frac{1}{2}x + 3$ are perpendicular



Equation of a circle A1

$x^2 + y^2 = r^2$ is a circle with centre (0,0) and radius r .

→ $x^2 + y^2 = 25$ has centre (0,0) and radius 5.

KPI 8 – Algebraic equations

U665 U397 U589 U769

If a quadratic equation cannot be factorised, use the formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

→ Solve $2x^2 + 3x - 7 = 0$

$x = \frac{-3 \pm \sqrt{9 - (-56)}}{2 \times 2} = -2.73$

or $x = \frac{-3 \pm \sqrt{9 - (-56)}}{2 \times 2} = 1.23$

Complete the square to find the turning point of a quadratic graph.

→ $y = x^2 - 6x + 2$
 $y = (x - 3)^2 - 9 + 2$
 $y = (x - 3)^2 - 7$

Turning point is at (3, -7)

Simultaneous Equations A19

U547 U760 U757

One linear, one quadratic;

→ Solve $\begin{cases} x + 3y = 10 \\ x^2 + y^2 = 20 \end{cases}$

Rearrange the linear, and substitute into the quadratic

$x = 10 - 3y$

so $(10 - 3y)^2 + y^2 = 20$

Expand and solve the quadratic

$100 - 60y + 9y^2 + y^2 = 20$

$10y^2 - 60y + 80 = 0$

$y = 2$ or $y = 4$

Finally, substitute into the linear and solve, pairing values...

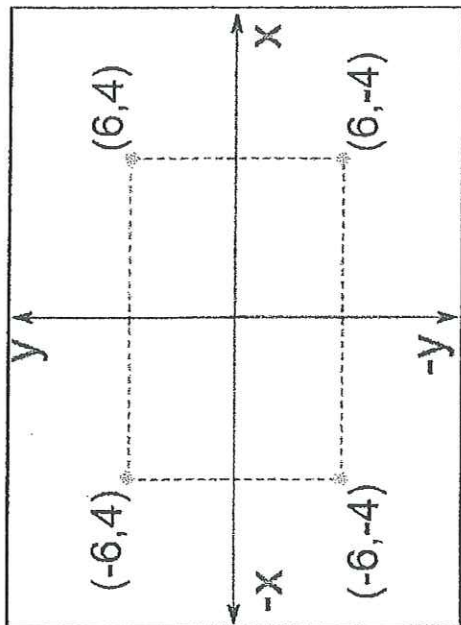
$x + 3 \times 2 = 10$ so $(x, y) = (4, 2)$

$x + 3 \times 4 = 10$ so $(x, y) = (-2, 4)$

Algebra M813 M608 M237 M960 Algebraic notation $ab = a \times b$ $3y = y + y + y$ $a^2 = a \times a$ $a^3 = a \times a \times a$ $a^2b = a \times a \times b$ $\frac{a}{b} = a \div b$ Laws of Indices For any value a: $a^x \times a^y = a^{x+y}$ $\frac{a^x}{a^y} = a^{x-y}$ $(a^x)^y = a^{xy}$ $\rightarrow \left(\frac{2pq^4}{p^3q}\right)^3 = \frac{8p^3q^{12}}{p^9q^3} = \frac{8q^9}{p^6} \text{ or } 8q^9p^{-6}$ Expanding brackets $\rightarrow p(q+r) = pq + pr$ $\rightarrow 5(x-2y) = 5x - 10y$ $\rightarrow (x+a)(x+b) = x^2 + ax + bx + ab$ $\rightarrow (2x-3)(x+5) = 2x^2 - 3x + 10x - 15 = 2x^2 + 7x - 15$ Reverse of expanding is factorising - putting an expression into brackets.	M184 M707 M509 M554 M852 Formulae and Equations The subject of a formula is the term on its own. Use rules that "balance" the formula to change its subject $\rightarrow$ Make x the subject of $2x + 3y = z$ Here, subtract $3y$ from both sides... $2x = z - 3y$...then divide both sides by 2... $x = \frac{z - 3y}{2}$ Equations, Inequalities and Sequences Equations and Inequalities An equation is true for some particular value of x... $\rightarrow 2x + 1 = 7$ is true if $x = 3$...but an identity is true for every value of x $\rightarrow (x + a)^2 \equiv x^2 + 2ax + a^2$ (note the use of the symbol $\equiv$) Simultaneous Equations Solve $\begin{cases} 2x + 3y = 11 \\ 3x - 5y = 7 \end{cases}$ Multiply to match a term in x or y $\begin{cases} 10x + 15y = 55 \\ 9x - 15y = 21 \end{cases}$ Add or subtract to cancel... $19x = 76, \text{ so } x = 4$ Finally, substitute and solve... $2 \times 4 + 3y = 11, \text{ so } y = 1$	U178 U150 U759 U206 U498 Quadratics Solve a quadratic by factorising. $\rightarrow$ Solve $x^2 - 8x + 15 = 0$ Put into brackets (taking care with any negative numbers)... $(x - 3)(x - 5) = 0$...then either $x - 3 = 0$ or $x - 5 = 0$, so that $x = 3$ or $x = 5$. Inequalities $x > 3$ $x < 3$ $x \geq 3$ $x \leq 3$ nth term of an arithmetic (linear) sequence is $an + d$ $\rightarrow n$th term of 5, 8, 11, 14, ... is $3n + 2$ [always increases by 3; first term is $3 \times 1 + 2 = 5$.] Geometric sequence; multiply each term by a constant ratio $\rightarrow 3, 6, 12, 24, \dots$ (ratio is 2) Fibonacci sequence; make the next term by adding the previous two ... $\rightarrow 2, 4, 6, 10, 16, 26, 42, \dots$
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Graphs U789 U933 U741 U848

Cartesian coordinates

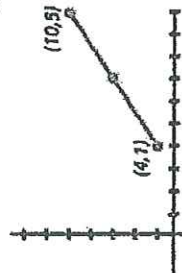


The Midpoint Formula

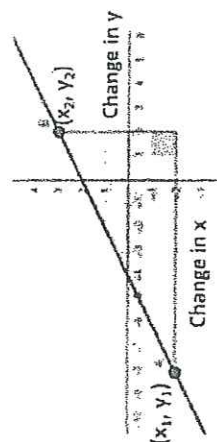
$$\text{midpoint} = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

$$= \left(\frac{4 + 10}{2}, \frac{1 + 5}{2} \right)$$

$$= (7, 3)$$



Gradient of a Straight Line



$$\text{Gradient} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{\text{Change in } y}{\text{Change in } x}$$

Graphs U741 U848

A9

Equation of straight line $y = mx + c$

m is the gradient; c is the y intercept:

→ Find the equation of the line

that joins $(0, 3)$ to $(2, 11)$

Find its gradient...

$$\frac{11 - 3}{2 - 0} = \frac{8}{2} = 4$$

...and its y intercept...

Passes through $(0, 3)$, so $c = 3$.

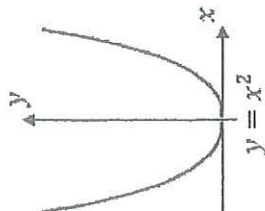
Equation is $y = 4x + 3$.

Parallel lines: gradients are equal;

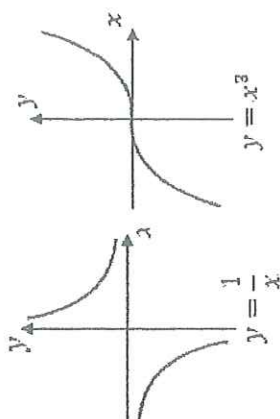
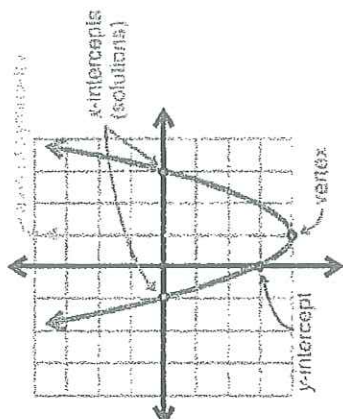
→ $y = 2x + 3$ and $y = 2x - 5$ are

parallel to each other; $y = 2x + 3$

Quadratic graphs U989 U593 U980



The graph of a quadratic function is curved. It is called a parabola.



Reciprocal graph

Cubic graph

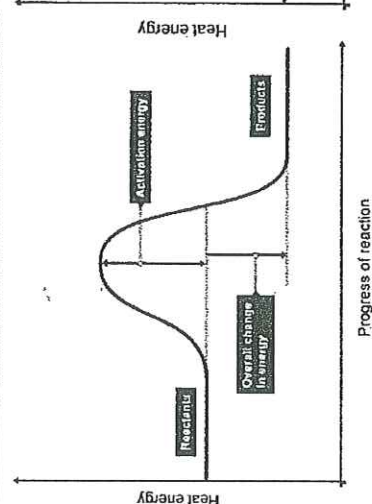
Year 10 Chemistry Knowledge Organiser - Energy Changes

Box 1 - Energy in reactions

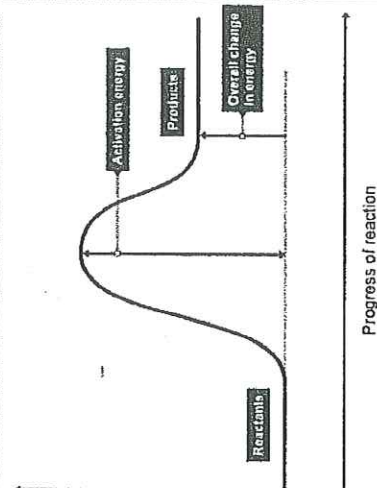
Type	What happens?	Effect on surroundings	Examples
Exothermic	Energy is transferred to the surroundings	Temperature Increases	Combustion reaction, reactions used in hand warmers
Endothermic	Energy is taken in from the surroundings.	Temperature Decreases	The reaction of citric acid and sodium hydrogen carbonate, the reactions used in ice packs

Box 2 - Reaction Profiles

This is the reaction profile of an **exothermic reaction**: the energy in the products is lower than that in the reactants.



This is the reaction profile of an **endothermic reaction**: the energy in the products is higher than that of the reactants.



Activation energy is the minimum energy that particles need to react. This is the energy taken in by the reactant. It is needed to break the bonds in the reactants.

Key Terms	Definitions
exothermic	A reaction that gives out heat to the surroundings. Exothermic reactions increase the temperature of the surroundings.
endothermic	A reaction that takes heat in from the surroundings. Endothermic reactions decrease the temperature of the surroundings.
reactant	Reactants are chemicals used in a chemical reaction.
product	Products are chemicals made in a chemical reaction.
reaction profile	A graph which shows the energies of the products and reactants in a chemical reaction.

Box 3 - Higher Tier: Calculating Bond Energies

In a chemical reaction, bonds are broken and bonds are made.
Breaking chemical bonds is endothermic.
Making a chemical bond is exothermic

Exothermic reactions have negative energy change
Endothermic reactions have positive energy change

Energy change = Energy to break bonds in reactants – Energy to make bonds in products

Example

Consider the reaction: $\text{N}_2 + 3\text{H}_2 \rightarrow 2\text{NH}_3$

Bond energies (in kJ/mol): $\text{N}\equiv\text{N} = 945\text{ kJ/mol}$ $\text{H}-\text{H} = 436\text{ kJ/mol}$, $\text{H}-\text{N} = 391\text{ kJ/mol}$,

Total energy to break bonds in reactants:

$1 \times \text{N}\equiv\text{N}$ and $3 \times \text{H}-\text{H}$, $945 + (3 \times 436) = 2253 \text{ kJ/mol}$

Total energy to make bonds in products:

$6 \times \text{H}-\text{N}$, so $6 \times 391 = 2346 \text{ kJ/mol}$

Energy change = $2253 - 2346 = -93 \text{ kJ/mol}$

The total energy change is negative, so the reaction is exothermic

In an exothermic reaction, the energy released from forming new bonds is greater than the energy needed to break existing bonds.

In an endothermic reaction, the energy needed to break existing bonds is greater than the energy needed to form new bonds.

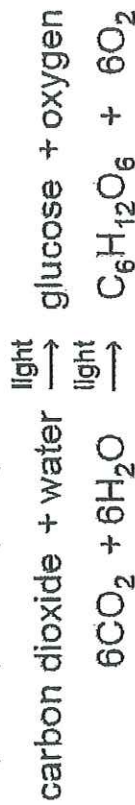
Year 10 Biology Knowledge Organiser – Bioenergetics 1 Photosynthesis

Box 1 - Photosynthesis

Photosynthesis is the chemical reaction that plants use to make food and transfer energy to the chemical store of glucose.

The reaction is **endothermic** – energy is absorbed from the surroundings.

The word and symbol equation for photosynthesis are:



Photosynthesis occurs in the **chloroplasts**.

Chlorophyll is a green pigment inside chloroplasts that **absorbs the light**.

Box 2 - Using The Glucose From Photosynthesis

Plants use the glucose in the following ways:

- Used in **respiration** in the cells of the plant/algae
- Converted into **starch** for storage.
- Used to produce **fats or oils (lipids)** for storage (particularly in seeds and nuts.)
- Used to produce **cellulose**, which is a component of the cell wall. Cellulose strengthens the cell wall.
- Used to produce **amino acids**, which in turn are used to synthesise (make) **proteins** (in the ribosomes). To produce amino acids, plants also require **nitrates** from the soil.

Box 3 - The Rate Of Photosynthesis

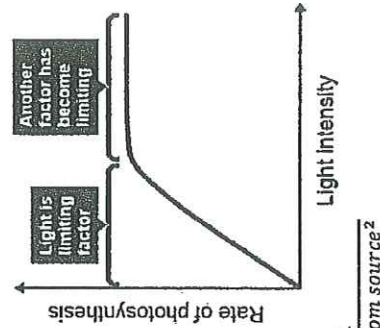
The following factors affect the rate of photosynthesis and are called limiting factors:

- Temperature:
- Carbon dioxide concentration
- Light intensity:
- Amount of chlorophyll:

HT: at any given time, any one of these factors may be **limiting** the rate of photosynthesis.

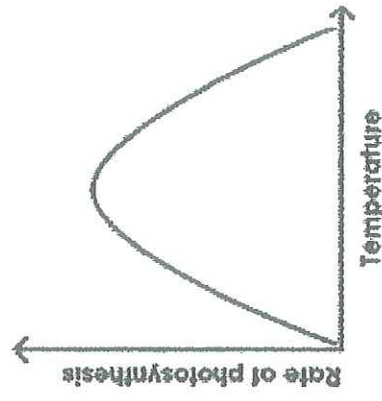
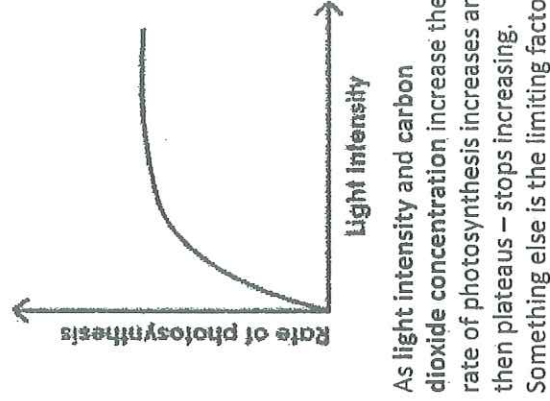
A limiting factor is something that prevents a reaction happening faster at that moment.

Light intensity decreases as distance increases according to an **inverse square law**: $\text{light intensity} = \frac{1}{\text{distance from source}^2}$



Key Terms	Definitions
nitrates	Ions containing nitrogen and oxygen. These are found in the soil; plants need nitrates to produce amino acids.
rate	How much a factor changes over time, for example how much glucose is produced every minute.
light intensity	The amount/strength of light. Use this term instead of 'amount of light'.
chlorophyll	The green pigment in leaves that absorbs light for photosynthesis. Chlorophyll is found in chloroplasts .
endothermic	A reaction that takes in energy from the surroundings.

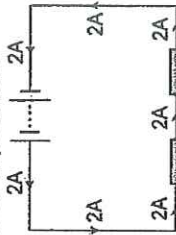
Box 4 – Limiting factor graphs



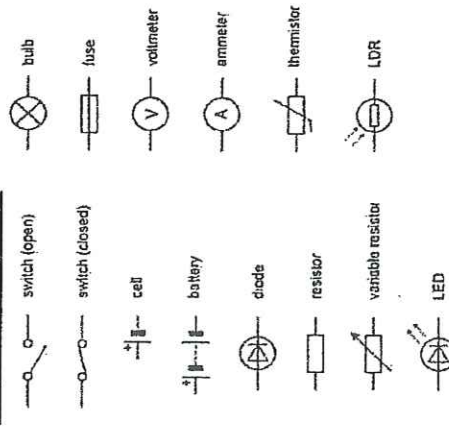
Year 10 Physics Knowledge Organiser - Electricity I

Box 1 - Electric charge and current

- Every atom contains particles with an electric charge: protons and electrons. When electrical charges flow, work can be done (i.e. energy is transferred)
- To make charges flow, a closed, or complete circuit is needed and a source of **potential difference**.
- Cells, batteries and mains provide a source of **potential difference**.
- Electric current** is the rate of flow of electrical charge.
- Charge flow, current and time are linked by the equation $Q=It$
- In a circuit, in any closed loop of the circuit, the size of the **current** is the same throughout the loop (see diagram)



Box 2 - Circuit symbols



Box 3 - Current, resistance and potential difference

- A component is any part of a circuit (e.g. a resistor, a bulb a motor etc.).
- The **current** through a component depends on this **potential difference** across the component, but also its **resistance**.
- The greater the resistance the smaller the current for a given potential difference.
- Current, potential difference and resistance can be calculated using the equation below.

$$\text{Potential difference} = \text{Current} \times \text{Resistance}$$

Box 5 - Series and parallel circuits

- We can connect components in a circuit in series or in parallel – see definitions in key terms.
- In some circuits, there are components in series AND components in parallel

Key Terms

Charge

potential difference

resistance

series

parallel

resistor

Definitions

A positive or negative charge – usually electrons.

The potential difference is a measure of how much work is done per coulomb of charge. Also known as voltage, or p.d.

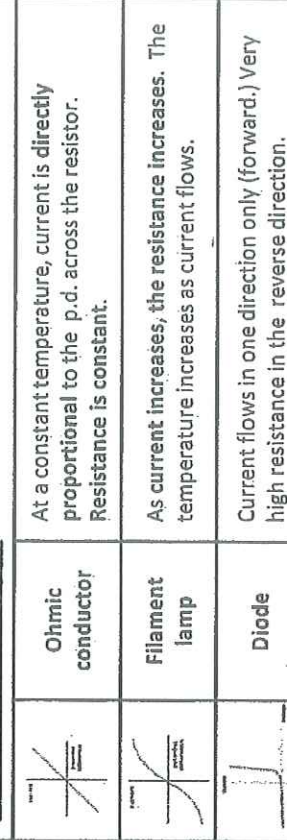
Resistance determines the size of the current for a particular potential difference.

Components connected one after another in a closed loop.

Components connected in different loops of a circuit.

An electrical component that regulates current in a circuit.

Box 4 - Resistors - I-V graphs

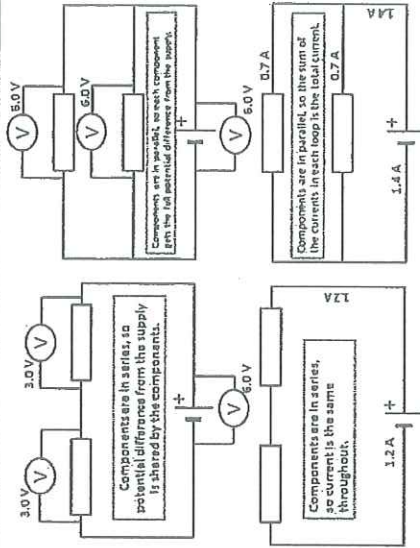


Thermistor - Resistance of a thermistor decreases as temperature increases. Used in thermostats (e.g. ovens or central heating)

LDR - Resistance of a thermistor decreases as light intensity increases. E.g. used to turn on night lights when it gets dark.

Components connected in parallel...

- Shared between the loops. The total current through the whole circuit is the sum of the currents through each loop of the circuit.
- The **potential difference** across each component is exactly the same, and the same as the potential difference provided by the power supply.
- The total resistance of two components in parallel is always less than the resistance of the smallest individual resistor



$$R_{\text{total}} = \text{total resistance (ohms, } \Omega \text{)}$$

$$R_1 = \text{resistance of first component (}\Omega \text{)}$$

$$R_2 = \text{resistance of next component (}\Omega \text{)} - \text{and so on}$$

Components connected in series...

- The **current** through each component is the same
- The **potential difference** provided by the power supply is shared between the components in series (not necessarily equally shared out – it depends on the resistance of each component).
- The total resistance of two components is the sum of the resistance of each component (see equation).

$$\text{Potential difference} = \text{Current} \times \text{resistance}$$

$$V = \text{potential difference (volts, V)}$$

$$I = \text{current (amperes, A)}$$

$$R = \text{resistance (ohms, } \Omega \text{)}$$

$$\text{for series circuits:}$$

$$R_{\text{total}} = R_1 + R_2$$

Quantity

Current

Potential difference

Resistance

$$Q = I t$$

$$Q = \text{charge flow (coulombs, C)}$$

$$I = \text{current (amperes, A)}$$

$$t = \text{time (seconds, s)}$$

$$V = I R$$

Year 10 Physics Knowledge Organiser Topic – The Particle Model of Matter Section 1

Box 1 - States of matter and changes of state

In a solid:

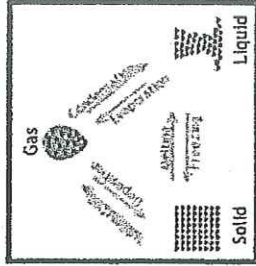
- Particles are fixed in position, vibrate and have least energy in their kinetic store.
- Strong forces of attraction between the particles.

In a liquid:

- Particles are very close together and randomly arranged.
- Particles can move/flow past each other.
- There are weaker forces of attraction between the particles.

In a gas:

- Particles are randomly arranged, further apart and move very quickly in random directions
- There are very weak (almost no) forces of attractions between the particles.
- Particles have most energy in their kinetic stores.



Box 2 - Density and the particle model

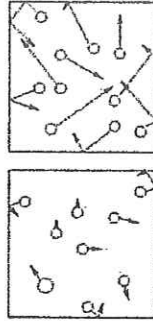
Density is a measure of the mass of a substance per unit volume.

Density can be calculated using the equation given below. You need to learn this equation.

Box 3 - Pressure in gases

Particles in a gas are constantly moving randomly. Gas pressure is the force exerted per unit area, by particles in a gas, when they hit the walls of a container.

Increasing the temperature of a gas (but keeping the volume the same) increases the pressure of the gas.



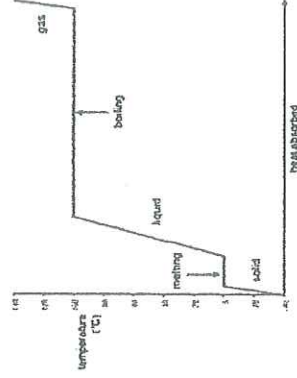
Key Terms	Definitions
particle model	The model that represents the arrangement and movements of the molecules. It is sometimes called the kinetic model.
melt	The change of state from solid to liquid
freezing	The change of state from liquid to solid
evaporation	The change of state from liquid to gas.
condensation	The change of state from gas to liquid.
sublimation	The change of state from a solid straight to a gas.

Box 4 - Internal energy and the particle model

Internal energy is the total kinetic energy and potential energy of all the particles (atoms and molecules) that make up a system.

Heating increases internal energy and either raises the temperature of the system or causes a change of state.

The temperature remains constant when the change of state (melting or boiling) occurs.



Box 5 - Specific heat capacity and temperature changes

Specific heat capacity. This is the amount of energy needed to heat 1kg of a substance by 1°C. The value for specific heat capacity is different for different substances.

When heating something, the temperature rise of the system depends on:

- the specific heat capacity of the substance being heated
- the mass of the substance
- the amount of energy put in to the system.

Box 6 - Changes of state and specific latent heat

The quantity of energy needed for a substance to change state is called the latent heat.

Specific latent heat is specific to a substance, and is the energy required to change the state of 1kg of the substance.

Specific latent heat of fusion is for changes from solid to liquid.

Specific latent heat of vaporisation is for changes from liquid to gas (vapour).

Equation	Meanings of terms in equation
$\rho = \frac{m}{V}$	Density = Mass ÷ Volume ρ = density (kilograms per metre cubed, kg/m^3) m = mass (kg) V = volume (metres cubed, m^3)
$\Delta E = m c \Delta \theta$	Energy change = mass x specific heat capacity x temp. change ΔE = change in thermal energy (J) m = mass (kg) c = specific heat capacity ($\text{J/kg } ^\circ\text{C}$) $\Delta \theta$ = temperature change ($^\circ\text{C}$)
$E = m L$	Energy to change state = mass x specific latent heat E = energy to change state (J) m = mass (kg) L = specific latent heat (J/kg)

Box 1 - Ionic Compounds

Giant Ionic Lattice e.g., NaCl, MgBr₂, CaO

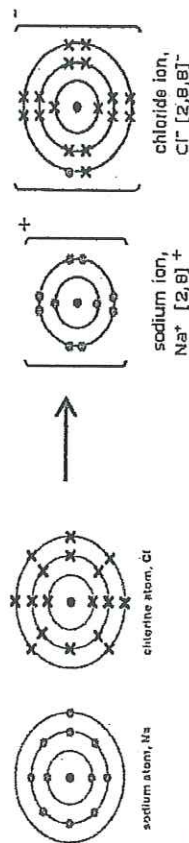
An ion is a charged particle and is formed when an atom gains or loses electrons to become stable during reactions by having a full outer shell of electrons. Metals lose electrons to form positive ions e.g., Na⁺, and non-metals gain electrons to form negative ions e.g., Cl⁻. An ionic compound is a **giant structure of ions** held together by strong electrostatic forces of attraction between oppositely charged ions. These forces act in all directions in the lattice and is called ionic bonding.

Box 2 - Properties of Ionic compounds

- high melting points & boiling points due to strong electrostatic attraction between the ions. A large amount of energy is needed to overcome the attraction and break the many strong bonds.
- dissolve easily in water (soluble) to form aqueous solutions
- do not conduct electricity when solid as the ions are held in fixed positions.
- Only conduct electricity when molten (liquid state) or dissolved in aqueous solutions as ions are free to move and so charge can flow.

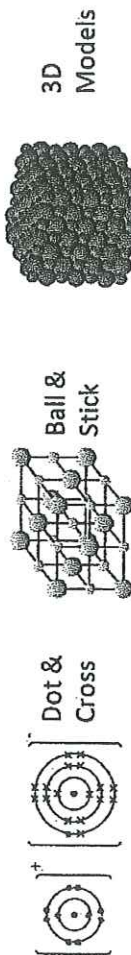
Box 3 - Ionic Bonding

Occurs between metal and non-metal atoms which transfer electrons. An electrostatic attraction exists between the two ions = an ionic bond. Both ions formed have a full outer shell, similar to the electronic structure of a noble gas, and are stable within the new compound. The ionic bond is very strong.



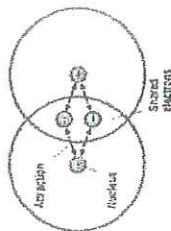
Box 4 - Ionic Compounds – Models

Each model has advantages (+) and limitations (-); based around the 2D/3D structure, whether the bonding electrons are visible, bonds are shown/hidden, relative sizes of ions are visible, whether the model truly represents the structure.



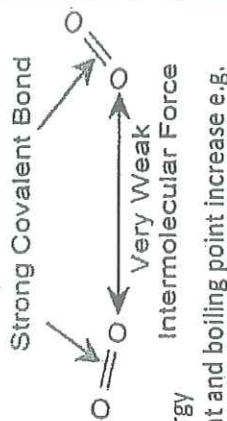
Box 5 – Covalent Bonds

Are strong due to the electrostatic attraction between the electrons in the covalent bond and the positively charged nucleus. A lot of energy is needed to break a covalent bond.



Box 6 - Properties of Simple Covalent Compounds e.g. O₂, CO₂, CH₄

- have low melting and boiling points & are often gases at room temperature
- Strong covalent bonds between the atoms in each molecule
- Weak intermolecular forces between whole molecules. Only a small amount of energy is required to overcome these forces – so low melting and boiling points.
- Do not conduct electricity as no ions or free electrons to carry the charge
- Are gases or liquids at room temperature but some can be solids.
- As molecules get bigger, the strength of the intermolecular forces increases, so more energy is needed to overcome them and melting point and boiling point increase e.g. Gp 7 diatomic molecules size increases as you go down the group, so there are more intermolecular forces, so melting and boiling points increase as you go down the group.



Box 7 - Giant Covalent Structures (Macromolecules) are molecules that contain a large number of atoms held together by strong covalent bonds.

- Have high melting and boiling points a lot of energy is needed to overcome the large number of covalent bonds

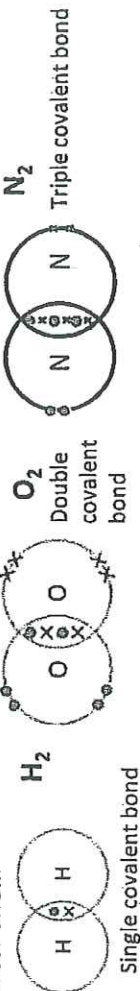
Allotropes (forms) of carbon include:

1. Diamond – each C atom is bonded to 4 others – strong, hard, rigid – does not conduct electricity as no free electrons. Used in lasers (high mpt) drill bits (hard)
 2. Graphite – each C atom is bonded to 3 others. Free delocalised electrons means graphite conducts electricity and heat. Layers of hexagons with weak intermolecular forces can slide over each other so graphite is soft and slippery. Uses – electrodes, lubricants
 3. Graphene – single layer of graphite, 1 atom thick. Conducts electricity, high strength: mass ratio. Used in electronics
 4. Fullerenes – hollow carbon molecules – nanotubes (cylinders) and buckminsterfullerene (C₆₀ sphere). Used in electronics, drug delivery, catalysts due to high surface area, lubricants, strengthening materials.
- Silica = Silicon dioxide (sand) Each silicon atom is covalently bonded to 2 oxygen atoms and vice versa. Strong, rigid structure.

Box 1 - Covalent Bonding

Occurs between atoms of non-metal elements. Atoms share electrons with each other in order to get full outer shells and become stable. Each covalent bond provides one extra electron for each atom. Bond is shown in an overlap.

E.g. H_2 Hydrogen atoms have one electron in their outer shell. Each H atom needs one extra electron to fill up its outer shell (H has only has one shell). So, one H atom will form one covalent bond with another H atom, to give both atoms a full outer shell.



Box 2 - Polymers – larger covalent substances e.g., polythene, PVC

- Can be many thousands of atoms in length joined by strong covalent bonds
- Made from small molecules known as **monomers** joined together.
- Represented by drawing the repeating unit
- Repeating unit is the monomer structure in square brackets with an n after the brackets to show that it is repeated many times
- Higher melting and boiling points than simple covalent molecules
- Larger molecules so more Intermolecular forces between polymer chains require more energy to change state
- Most polymers are solid at room temperature



Box 4 - Metals

Giant structures consisting positive metal atoms are arranged in a regular pattern of rows, closely packed and in a “sea of delocalised electrons”. Strong electrostatic forces of attraction hold the structure together.

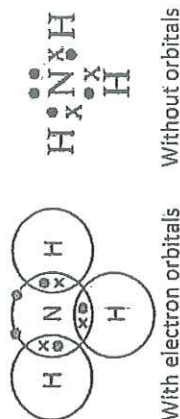
- High melting points and boiling points due to strong electrostatic forces so a large amount of energy is needed to overcome these forces.
- Good conductors of electricity and heat due to the delocalised electrons, which can move so charge can flow
- Malleable - can be bent and shaped as the regular layers of ions can easily slide over one another.

Box 3- Representing Simple Covalent Molecules

There are variety of ways that scientists use to represent covalent compounds.

1. Dot cross diagrams

- + Show which atom the electrons in a covalent bond come from
- Doesn't show how the atoms are arranged in space
- Doesn't show the relative sizes of the atoms



2. Displayed formula



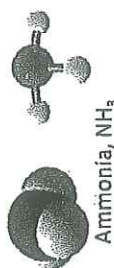
Double bond



Single bond

- + Covalent bonds as lines between atoms
- + Shows how atoms are connected
- Doesn't show 3D structure
- Doesn't show the origin on electrons in covalent bonds

3. 3D models & ball and stick models



- + Shows atoms and their arrangement
- + Ball & stick model shows bonds
- Doesn't show electrons in bonds
- Confusing in large molecules

Box 5 - Alloys

An alloy is a mixture of 2 or more metals, or a mixture involving metals and non-metals. The mixture has different sized atoms so the layers are distorted and cannot easily slide past each other when a force is applied, making them harder, and less malleable.

Brass = copper and zinc alloy used for musical instruments

Nitinol = nickel and titanium alloy used in orthodontic braces

Box 1 - Materials and States of Matter

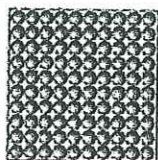
All materials can exist in 3 different forms called states of matter. These are **solid, liquid and gas**. The state of matter depends on how strong the forces of attraction are between the particles of the material. This depends on:

- The material – the structure of the substance and type of bonds between particles
- The temperature and the pressure

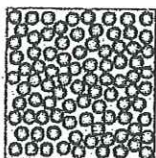
The particle theory model explains how particles behave in each of the three states of matter.

Higher Tier - Limitations of Particle Theory Model:

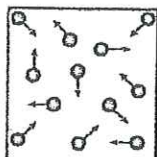
- particles are not solid inelastic spheres, they are atoms, ions or molecules
- the Particle Model doesn't show strength of forces between particles, size of particles or distance between them



Solid



Liquid



Gas

Box 3 - Changing state

- Physical change. Only arrangement or energy of the particles change – not the particles themselves. Mass stays constant.
- As a solid material is heated, the particles gain more energy and vibrate. Attractive forces are weakened and at the melting point the particles have enough energy to break free from their positions and change to a liquid. (Melting)
- If the liquid is heated, the particles move faster, the forces are weakened more and at the boiling point the particles overcome the forces holding them together and form a gas. (Evaporation)
- When substances are cooled from a gas to a liquid to a solid, the particles have decreasing amounts of energy in their kinetic stores and cannot overcome the forces of attraction. The attractive forces get progressively stronger and hold the particles in position. (Condensation then freezing)
- The stronger the forces of attraction between the particles in a substance, the higher the melting and boiling points.

Box 2 – Particle Theory for States of Matter

State of matter	Arrangement of particles	Movement of particles	Properties
Solid	Particles in rows closely packed and touching each other Strong forces of attraction between particles	Vibrate around a point. Vibrate more when heated.	Does not flow Fixed shape and volume Can't be compressed
Liquid	Irregular but particles are still touching Weak forces of attraction between particles	Can flow past each other Constantly moving with random motion	Can flow No fixed shape, but fixed volume Can't be compressed
Gas	Irregular, random arrangement. Particles are far apart (not touching) Very weak forces of attraction between particles	Constant rapid random motion in all directions. Travel in straight lines until they collide with container walls or each other Increase temperature results in faster movement	Not rigid No fixed shape or volume Can flow Can be compressed

Box 4 - State symbols – used in chemical reactions

- Show the physical state of the reactants and products
- (s) solid (l) liquid (g) gas (aq) aqueous

Box 5 - Atomic and bulk properties

- In bulk, there are many billions of atoms or molecules
- How these billions of atoms behave collectively are 'bulk properties'
- Bulk properties include density and melting point which stays the same even if the number of particles in bulk changes
- Bulk properties depend on how the particles interact
- Single atoms or molecules therefore behave differently

1 Key Features of Medieval Society

Medieval England was a Christian country with a strictly ordered society.

Almost everyone in Medieval England was a Christian. The Roman Catholic Church was very wealthy and every parish had its own church.

Society was ordered in a strict hierarchy: the King had most power and gave land to the barons who in return shared it with knights.

Peasants worked the land and 90% of people lived in the countryside.

Technology was limited but trade was widespread. Wool was traded with Europe.

People believed in ancient ideas about health like the Greek theory of the four humours, which stated that illness occurred when the body's humours - blood, phlegm, black bile, and yellow bile - were out of balance

2 Life in the Medieval countryside

90% lived in the countryside where life was difficult but quite healthy.

- Peasants lived in small homes made from wattle and daub. They had open fires with no chimneys.
- Animals sheltered inside homes at night
- A peasants' diet was quite healthy with lots of fruit and vegetables, pottage, milk and cheese, and fish.
- Peasants depended on a good harvest. In 1315 a bad harvest led to the Great Famine, killing 10%
- Peasants drank small beer which killed the bacteria and germs in the water.
- Waste collected in middens or cesspits contaminated drinking water from springs and streams

3 Life in Medieval towns

Medieval towns provided benefits and dangers to health.

- Houses were tightly packed together, allowing disease to spread quickly
- Each town held a weekly market, which provided a variety of fresh food
- Drovers brought livestock into town to be slaughtered, filling the streets with dung and blood
- Some towns had a conduit in the town square which provided clean water
- Gongfarmers were paid to remove human waste from latrines and cesspits and rakers were paid to clean the streets
- Only the very rich had latrines in their houses. Most people shared outdoor latrines with neighbours

4 Responses to the Black Death

The Black Death hit England in 1348, killing 50% of the population. It was deadly because no one knew what caused it and treatments and preventions were ineffective

Beliefs about the causes of the Black Death

The disease was caused by the Yersinia Pestis pathogen that was passed on by the bite of a flea that lived on black rats.

However, no one at the time knew this. Instead, they thought it was caused by:

God punishing them for their sins
Bad-smelling air (miasma)
The movement of the planets

Actions taken to prevent/treat the Black Death

Attempts to treat or prevent the disease were ineffective, for example:

Priests urged people to pray for forgiveness so that God would take the disease away
Flagellants whipped themselves in the streets to prove to God that they were sorry for their sins

Doctors believed that balancing the humours by bloodletting would cure people with the Black Death

People placed posies of sweet-smelling flowers in their houses to purify the air and get rid of miasma

Although King Edward III ordered the Mayor of London to clean the city streets, the government did very little to deal with the disease.

5 Public health in Medieval towns and monasteries

Despite their limited medical knowledge, people in towns and monasteries made great efforts to improve public health

The Church led the way in hygiene

Religious communities, such as monasteries or cathedrals, often had clean water for ceremonies such as baptisms

Monasteries also had the wealth required to dig trenches and lay pipes

By the 15th Century, however, the power of the Church began to decrease

Towns made efforts to improve public health

Towns passed by-laws to improve public health before the Black Death

In Bristol dung heaps and prostitutes were moved to the outskirts of town

After 1348, towns passed more laws to improve public health. In London, rich residents paid for latrines and conduits to be built

Key Vocabulary

By Laws	Laws that only apply in the local area
Cathedral	The largest church in an area
Cesspit	A pit for collecting human waste
Conduit	A stone channel for transporting water
Contaminated	Made dirty
Drovers	Someone who drives animals to market
Famine	A period of hunger caused by a lack of food
Hazardous	Dangerous
Hierarchy	A social system where people are ranked from top to bottom
Humours	The four substances that made up the body, according to Greeks
Latrine	A medieval toilet
Miasma	Foul-smelling air
Midden	A pit for collecting waste
Monastery	A religious building run by monks
Outskirts	Places around the outside of a city or town
Parish	A small area with its own church
Pottage	A vegetable stew
Pathogen	Bacteria/virus causing disease
Peasants	A farm labourer with low social status
Small Beer	A weak beer
Wattle and Daub	Sticks and mud
Widespread	Everywhere

6 Key Features of Early Modern Society

Early Modern England was largely similar to Medieval England although change was gradually beginning

The population grew at a rapid rate, rising to 6 million in 1750. Nevertheless, most people continued to live in the countryside.

Trade expanded to America and India, bringing new products like sugar and tobacco.

Although monarchs still had a lot of power, parliament became far more important. Only 3% could vote though.

Although religion remained dominant, people in the early modern period began to search for a scientific way of understanding the world, aided by new inventions such as the microscope.

The printing press was invented in the late fifteenth century. This allowed books to be made quickly and cheaply and ideas spread more quickly.

7 Changing living conditions in the Early Modern period

Living conditions improved for some but for most they stayed largely the same

The rich could afford new developments

- ✓ The rich could afford a variety of foods, including imports such as coffee, sugar, and tobacco
- ✓ Houses were made out of stone or brick and were heated by coal fires, creating pollution
- ✓ The rich paid for fresh water to be piped into their homes
- ✓ The first flushing toilet was invented in 1596 and the very rich had then in their homes

The lives of the poor remained largely the same

- * The diet of the poor was unchanged and famine was still a danger
- * Most people continued to get water from conduits and water sellers
- * The poor still used cesspits to store their waste. Every year or two, scavengers cleared the cesspits which over flowed as the population rose

8 Responses to the Plague

The Plague was feared throughout this period. Responses were largely ineffective but national government got more and more involved

The Plague - the same disease as the Black Death - returned to England roughly every 20 years

The last outbreak in 1665 (the Great Plague) killed 15% of London's population

There was still no understanding of the real causes, with God and miasma blamed instead

For the first time, the national government began to take action

1518

Henry VIII issued a proclamation that ordered houses infected with plague to be identified and isolated. Those leaving isolation had to carry a white stick.

1578

Elizabeth I issued Plague Orders. These 17 rules included killing cats and dogs, shutting up infected houses, and burning the clothes of victims

1604

The Plague Act introduced harsh punishments for breaking isolation. Plague victims found outside could be hanged.

Local governments continued to combat the spread of disease

In 1550 York posted watchmen to stop plague victims entering the city.

In the 1600s many towns built pest houses to house the plague victims away from the city

9 Local government

Local government continued to play a role improving public health

In York, for example, city aldermen introduced the following rules:

Pigs were not allowed to wander the streets

Fines for throwing human waste into the street

No one could build a privy over the main city stream

Key Vocabulary

Aldermen	Local government officials
Cesspit	A pit for collecting human waste
Famine	A period of hunger caused by a lack of food
Flushing toilet	A toilet that uses water to get rid of human waste
Gin	A strong alcoholic spirit
Gin Act	A law designed to reduce gin drinking
Isolated	Cut off from the rest of the population
Isolation	Being cut off from the rest of the population
Parliament	A part of the government that is elected
Pest houses	Houses for isolated plague victims
Privy	A toilet
Proclamation	A government order
Scavengers	People whose job it was to clear the cesspits
Transportation	Punishment by being sent to Australia
Watchmen	Local officials who patrolled the streets at night
Water collars	Donna who carried water around and sold it

10 National government and the Gin Craze

The problems caused by drunkenness forced the government's role to expand

By the 1720s, cheap gin was causing social and health problems



1729 1736 1743

The early Gin Acts tried to control gin drinking but were ineffective



1751

The 1751 act was successful because it introduced harsh punishments for illegal gin selling, including:

- Whipping
- Transportation to Australia

11 Key Features of Industrial Society

Industrial England was transformed by the Industrial Revolution and was unrecognisable to previous periods.

INDUSTRIALISATION

- Britain was transformed from an agricultural to an industrial country
- Steam engines were used to power vast factories.

URBANISATION

- Britain's population skyrocketed from 21 million in 1850 to 37 million in 1900.
- Huge numbers moved to booming and overcrowded cities such as Manchester and Leeds

POLITICAL CHANGE

- There was a class divide between the rich and the working class
- The government followed laissez-faire policies
- Working men won the right to vote in the 1880s

SCIENTIFIC ADVANCES

- New scientific thinking, like Darwin's theory of evolution, challenged religious ideas
- There were rapid advances in medical knowledge, such as Louis Pasteur's germ theory

12 Changing living conditions in the Industrial period

Rapid industrialisation and urbanisation led to horrific living conditions that were worse for the working class

HOUSING

- The poor lived in slum housing in overcrowded industrial cities
- Cramped lodging houses or back-to-back houses were common

FOOD

- The urban poor had a terrible diet, living on potatoes, bread and butter
- There was no tinned food or refrigeration and food was often adulterated

WATER

- Water companies controlled access to water and charged high prices
- In poor areas, whole streets shared one pump
- Water was pumped from rivers which were contaminated with human and industrial waste

WASTE

- The poor continued to share privies with their neighbours
- Sewage was collected into cesspits which contaminated nearby water supplies
- Most richer families now had flushing toilets that further contaminated rivers

13 Cholera

Unsanitary living conditions and limited medical knowledge caused deadly and repeated cholera epidemics in the 19th Century

Cholera arrived in England in 1831. There were epidemics in:

1831 1848 1854 1866

Cholera epidemics would repeat in later years, killing tens of thousands of people.

The cholera bacteria was carried in contaminated drinking water, although this was not widely understood. Instead, inaccurate ideas about the causes spread:

Most people believed in miasma theory: the idea that cholera was caused by bad-smelling air

Many still believed that disease was a punishment from God

Some doctors believed cholera was contagious and could be passed on by touch

Attempts to prevent cholera became more effective as understanding of the disease improved and the government took action

The 1846 Cholera Bill instructed residents to connect their homes to sewers in order to reduce miasma. However, this only increased the flow of waste into rivers, spreading cholera further.

During the 1854 epidemic, John Snow proved that cholera was carried by contaminated water and could be prevented by changing the water supply. However, his conclusions were largely ignored.

Following the Great Stink of 1858, Parliament granted £3 million to Joseph Bazalgette to build 1300 miles of sewers across London. The sewers allowed waste to be taken out on the tide.

1846

1854

1858

14 Public Health reforms in the 19th Century

Public health improved greatly throughout the 19th century as the government moved away from a laissez-faire attitude.

For the first time, the government introduced public health acts to improve sanitation

1848

The 1848 Public Health Act allowed local authorities to set up Boards of Health in order to build sewers and provide clean water. However, impact was limited because this was not compulsory.

1875

The 1875 Public Health Act forced local authorities to take responsibility for sewers and water supply.

The government abandoned laissez-faire in the 19th Century because:

Edwin Chadwick put pressure on the government to act by publishing shocking research into public health in *The Sanitary Condition of the Labouring Population* in 1842

In 1861, Louis Pasteur published his germ theory, confirming that bacteria - and not miasma - spread disease

By the 1880s, all working-men had won the right to vote. The government now had to listen to the concerns of the poor.

Key Vocabulary

Adulterated	Make food / drink cheaper and less healthy by adding another substance
Back-to-back houses	Slum housing where houses are built close together without gardens
Boards of Health	Local government organisations responsible
Compulsory	Something you have to do, not optional
Contagious	Describing a disease that can be passed from person to person
Contaminated	Dirty, containing pathogens
Epidemic	A widespread occurrence of a disease
Germ Theory	The idea that bacteria causes disease
Industrialisation	More people working in factories
Laissez-faire	Government not involved in people's lives
Lodging houses	Houses that are divided up and rooms rent to different families
Privies	Shared outside toilets
Sanitation	Cleanliness
Urbanisation	More people living in towns and cities

In the 20th Century, Britain underwent dramatic economic, political, social and cultural changes

Economic change In 1900...

Most people worked with their hands, such as coal miners

New technology, such as cars and radio, boosted the economy

In 2000...

Most people worked in 'service industries' such as tourism

Technology such as the Internet, and air travel transformed the economy

Political change

In 1900...

Working men over the age of 21 had the right to vote

All men and women over 18 had the right to vote

The government began to realise it had to do something to look after the poor

Governments expanded the welfare state, e.g. the NHS and National Insurance

Social change

In 1900...

About 37 million people lived in Britain

The population expanded to 58 million

Most people were working-class and worked long hours for low pay

Britain had a larger middle-class who had more comfortable lives

Cultural change

In 1900...

Most people believed in God and went to Church

Most people trusted science, not religion

People played football or worked their allotment in their spare time

People had more money to spend on leisure, including watching TV and gaming

Living conditions significantly improved in the twentieth century but new challenges to public health emerged.

HOUSING

- The 1919 Housing Act ordered local councils to build council houses with running water, indoor toilets, and gardens
- After 1945, New Towns were built to solve the problem of overcrowding
- The 'Right-to-buy' scheme in the 1980s led to a shortage of council housing

FOOD

- New technology such as refrigeration and canning made food cheaper
- New supermarkets increased the variety of food available to British families
- Fast food consumption increased

AIR QUALITY

- Coal smoke from homes and factories produced thick smog in large cities
- Increased car ownership added to air pollution

INACTIVITY

- Increased car ownership led to an increase in inactivity in the late 20th Century
- New forms of leisure such as TV led to an obesity crisis

17 Response to Spanish Flu

Government response to the Spanish Flu in 1918-1919 was slow and ineffective

- The Spanish Flu was spread by soldiers returning from the First World War and killed over 50 million people worldwide
- In Britain, the death rate was so high that wood for coffins ran out and mass graves had to be used
- Occupied by the war, the government response was slow:
- The government did not issue advice until late 1918 when it was too late
- Important decisions such as closing schools were left to local authorities
- A silent film, Dr Wise on Influenza, was released that explained precautions such as making face masks but not enough copies were made.

18 Response to AIDS

The government response to the AIDS epidemic improved as the 1980s progressed

AIDS is a condition caused by the HIV virus that attacks the body's immune system. It can be spread via:

- Unprotected sexual intercourse
- Sharing hypodermic needles
- Pregnancy (from mother to baby)
- In the early 1980s, the AIDS epidemic caused panic and prejudice
 - * Newspapers called AIDS the 'Gay Plague' and blamed it on gay men and drug users
 - * Government advice wrongly suggested that AIDS could be spread through touch, adding to panic
- By the later 1980s, the government response improved
 - ✓ An information leaflet called 'Don't die of ignorance' was sent to every household
 - ✓ Hospitals provided free testing for the HIV virus
 - ✓ In 1987 Princess Diana was photographed shaking hands with AIDS patients, calming public fears

19 Government involvement in Public Health

During the 20th Century, the government became increasingly involved in improving public health in Britain

The NHS

- Introduced in 1948, the NHS provided free medical care 'from cradle to grave' including:

- Hospital care
- Prescriptions
- Dental treatment (until 1952)
- GP visits

Pollution controls

- In 1956 Parliament introduced the Clean Air Act to control pollution
- Anti-smoking

- The government has taken steps to reduce smoking, such as

1964 TV Adverts for cigarettes banned

2007 Smoking banned in all public places

2016 Blank packaging introduced

Healthy lifestyles

- Government campaigns encouraged healthier lifestyles, such as:

- The Five-a-Day campaign
- The NHS Couch to 5k programme

Key Vocabulary

Council Housing	Housing built by local government and rented out
From cradle to grave	Throughout your entire life
Hypodermic needle	A syringe often used by drug users
National Insurance	A government scheme providing unemployment benefits
Middle Class	Wealthier people who worked in offices, e.g. lawyers
Prescriptions	Medicines
Princess Diana	Prince Charles' wife, 1981-1992
Right-to-buy	1980s government policy to sell council housing
Service industries	Jobs where people provided services, such as tourism or catering
Smog	Pollution caused by smoke in the air
Welfare state	Government programmes that look after the people
Working Class	Poorer people who worked with their hands, e.g. coal miners

Year 10 Term 1 Paper One- Section B –The Living World

Key words

Ecosystem – a community of plants and animals that interact with each other and their physical environment

Biodiversity – the variety of life in the world or an ecosystem

Adaptation – the changes to suit a location

Leaching – heavy rainfall dissolving and carrying nutrients away

Appropriate technology – technology suited to the needs, skills, wealth of local people and their environment

Sustainable – using something in a way it can be preserved and used in the future

KP6 to examine the causes of deforestation and evaluate the impacts of deforestation for a named case study
Deforestation is the removal of trees.
This can occur because of:

- Population pressure
- Mineral extraction
- Energy
- Development
- Commercial logging
- Commercial or subsistence farming

Since 1978 in the Amazon over 750,000 km (more than 3 times the size of the UK) has been destroyed.

KP1 to define what an ecosystem is and know their key components and that they exist at a range of scales

KP2 To be able to explain how changes to a small scale ecosystem can have a knock on effect on its features

An ecosystem is a unit that includes all the biotic (living) parts (e.g. plants and animals) and the abiotic (non-living) parts (e.g. soil and climate) in an area. If one of the elements is removed they breakdown they are interdependent (they rely on each other)

A hedgerow ecosystem

Ladybird → Sparrow → Sparrowhawk

A change in one part of an ecosystem has an impact on the other parts

Hedgerow is trimmed → Few habitats for ladybirds, so numbers fall
→ Sparrows and thrushes have less to eat, so numbers fall → Fewer birds for the sparrowhawk to hunt, so numbers fall

KP 7 To understand the importance of the tropical rainforest and ways in which it can be managed effectively and sustainably

Rainforests can be protected and managed. Sustainable management means they can be used without stopping people in the future from getting what they need.

Examples include:

- Selective logging
- Replanting
- Ecotourism
- Reduce Debt
- Conservation
- Education

KP8 Describe and explain the physical characteristics of Deserts
KP9 Describe how plants and animals have adapted to living in Deserts

- Climate – little rainfall less than 250mm. Temps are extreme; they range from very hot in the day to very cold at night
- Soil – shallow, coarse, gravelly. Hardly any leaf fall so infertile. Contains a lot of salt.

Adaptations

- Plants – long roots, store water, spines,
- Animals – nocturnal, store fat, large surface areas
- People – nomadic or live near natural springs and wells

KP3 to describe and explain the distribution of global ecosystems

Tropical Rainforest – around the equator between the tropics, where it is hot and wet all year round.

Desert – between 15° and 35° north and south of the equator where there is little rainfall.

Temperate Deciduous Forest – found mainly in the mid latitudes where there are 4 distinct seasons.

KP4 Describe and explain the physical characteristics of tropical rainforests
KP5 Describe how plants and animals have adapted to living in tropical rainforests

- Climate – same all year around hot temps 20-28 °C and rainfall is very high around 2000mm per year
- Soil – infertile as heavy rain washes away nutrients. Nutrients at surface in decaying leaf fall known as humus layer

Adaptations

- Plants – tall to get sunlight, lots of epiphytes, buttress roots, drip tips
- Animals – lots of species, often brightly coloured and noisy
- People – make a living by hunting, fishing, growing vegetables, use slash and burn farming

KP 10 To be able to assess the opportunities for developments in hot deserts using an example KP 11
Evaluate the challenges when developing in a hot desert using an example

Opportunities	Challenges
• Mineral Resources • Oil and gas • Solar Energy • Tourism • Farming	• Extreme Temperatures • Inaccessibility • Water supply

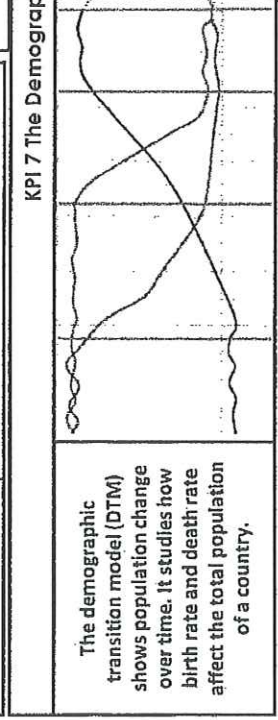
KP12 Describe and explain desertification and evaluate how countries try to reduce the risk of desertification

CAUSES	
HUMAN FACTORS	PHYSICAL FACTORS
Removal of fuel wood Overgrazing Population growth	Reduction of rainfall Increase in temperatures

Strategies to reduce risk include:

Tree planting, water management, soil management, appropriate technology

KPI1 What is development?	
Development is an improvement in living standards through better use of resources.	
Economic	This is progress in economic growth through levels of industrialisation and use of technology.
Social	This is an improvement in people's standard of living. For example, clean water and electricity.
Environmental	This involves advances in the management and protection of the environment.
These are used to compare and understand a country's level of development.	
Economic indicators examples	
Employment type.	The proportion of the population working in primary, secondary, tertiary and quaternary industries.
Gross Domestic Product per capita	This is the total value of goods and services produced in a country per person, per year.
Gross National Income per capita	An average of gross national income per person, per year in US dollars.
Social indicators examples	
Infant mortality	The number of children who die before reaching 1 per 1000 babies born.
Literacy rate	The percentage of population over the age of 15 who can read and write.
Life expectancy	The average lifespan of someone born in that country.
Mixed indicators	
Human Development Index (HDI)	A number that uses life expectancy, education level and income per person.



Year 10 Term 2 Geography

KPI3 Variations In the level of development		
LICs	Poorest countries in the world. GNI per capita is low and most citizens have a low standard of living.	
NEEs	These countries are getting richer as their economy is progressing from the primary industry to the secondary industry. Greater exports leads to better wages.	
HICs	These countries are wealthy with a high GNI per capita and standards of living. These countries can spend money on services.	
KPI4 & 5 Causes of uneven development		
Development is globally uneven with most HICs located in Europe, North America and Oceania. Most NEEs are in Asia and South America, whilst most LICs are in Africa. Remember, development can also vary within countries too.		

KPI4 Physical factors affecting uneven development			
Natural Resources	Natural Hazards		
- Fuel sources such as oil. - Minerals and metals for fuel. - Availability for timber. - Access to safe water.	- Risk of tectonic hazards. - Benefits from volcanic material and floodwater. - Frequent hazards undermines redevelopment.		
Climate	Location/Terrain		
- Reliability of rainfall to benefit farming. - Extreme climates limit industry and affects health. - Climate can attract tourists.	- Landlocked countries may find trade difficulties. - Mountainous terrain makes farming difficult. - Scenery attracts tourists.		

KPI5 Human factors affecting uneven development	
Aid	Trade
- Aid can help some countries develop key projects for infrastructure faster. - Aid can improve services such as schools, hospitals and roads. - Too much reliance on aid might stop other trade links becoming established.	- Countries that export more than they import have a trade surplus. This can improve the national economy. - Having good trade relationships. - Trading goods and services is more profitable than raw materials.
Education	Health
- Education creates a skilled workforce meaning more goods and services are produced. - Educated people earn more money, meaning they also pay more taxes. This money can help develop the country in the future.	- Lack of clean water and poor healthcare means a large number of people suffer from diseases. - People who are ill cannot work so there is little contribution to the economy. - More money on healthcare means less spent on development.
Politics	History
- Corruption in local and national governments. - The stability of the government can effect the country's ability to trade. - Ability of the country to invest into services and infrastructure.	- Colonialism has helped Europe develop, but slowed down development in many other countries. - Countries that went through industrialisation a while ago, have now develop further.

KPI 6 Consequences of Uneven Development

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

Wealth
People in more developed countries have higher incomes than less developed countries.

Health
Better healthcare means that people in more developed countries live longer than those in less developed countries.

Migration
If nearby countries have higher levels of development or are secure, people will move to seek better opportunities and standard of living.

KPI 8 Reducing the Global Development Gap	
<u>Microfinance Loans</u> This involves people in LICs receiving small loans from traditional banks. + Loans enable people to begin their own businesses - Its not clear they can reduce poverty at a large scale.	<u>Foreign-direct investment</u> This is when one country buys property or infrastructure in another country. + Leads to better access to finance, technology & expertise. - Investment can come with strings attached that country's will need to comply with.
<u>Aid</u> This is given by one country to another as money or resources. + Improve literacy rates, building dams, improving agriculture. - Can be wasted by corrupt governments or they can become too reliant on aid.	<u>Debt Relief</u> This is when a country's debt is cancelled or interest rates are lowered. + Means more money can be spent on development. - Locals might not always get a say. Some aid can be tied under condition from donor country.
<u>Fair trade</u> This is a movement where farmers get a fair price for the goods produced. + Paid fairly so they can develop schools & health centres. - Only a tiny proportion of the extra money reaches producers.	<u>Technology</u> Includes tools, machines and affordable equipment that improve quality of life. + Renewable energy is less expensive and polluting. - Requires initial investment and skills in operating technology
KPI 9 CS: Reducing the Development Gap in The Gambia	
Location and Background Gambia is an LIC located on west coast of Africa. Location makes it an attractive place for visitors to explore the tropical blue seas, skies and palm filled sandy beaches in the winter.	
<u>Tourist economy</u> - In 20% of GDP comes from tourism - Gambia has few natural resource deposits and relies heavily on remittances from workers overseas and tourist receipts - 150,000 people visit per year	<u>Multiplier effect</u> - Jobs from tourism have meant more money has been spent in shops and other businesses. - Government has invested in infrastructure to support tourism. - Poverty rates declines from 58% to 48% Health improvements.
<u>Development Problems</u> - Tourists do not always spend much money outside their resorts. - Ebola and terrorist threats have had a detrimental effect on tourist numbers - Tourism is seasonal many a winter sun destination	

Case Study: Economic Development in India	
KPI10 Location & Importance - India is located in Southern Asia. - Second largest population - Important for trade and politics of the region - Increasingly global = exports IT services, and manufactured goods - Member of the World Trade Organisation - Member of the G20	
KPI11 Influences upon India's development	
<u>Political</u> Was a British colony until 1947 now has a democratically elected government	<u>Social</u> Medium level of development HDI = 0.64. Large inequalities some people are very wealthy but the majority are poor over 20% of population live in poverty.
<u>Cultural</u> Rich and diverse culture. Over 22 official languages. Home to many religions such as Hinduism and Islam. Renowned Bollywood film are exported worldwide.	<u>Industrial</u> Primary employs 42% but only 15% GDP. Secondary manufacturing rapidly grown 24% of workforce. Tertiary service largest employer 34% of workforce makes up 62% of GDP.
KPI12 The role of TNCs Changing Relationships Coca-Cola employs more than 25,000 people in India. Indirectly, Coca-Cola has created an estimated 150,000 jobs in related industries. Employees work long hours for very little pay. Profits are returned to the shareholders (often in the USA) very little of the money remains in the host country (India).	
KPI13 Environmental Impacts Coca-cola draws around 510,000 litres of water each day from boreholes and open wells leading to water shortages in many areas Loss of habitats e.g. Maharashtra home of the Bengal tigers	KPI14 Aid & Debt relief UNICEF provided emergency supplies following 2010 floods e.g. mosquito nets Top Down – Sardar Dam Bottom Up – Self Employed Women's Association where local women are trained to maintain water supplies
KPI15 Effects of Economic Development Wages have increased. 88% population have access to clean water. HDI	

from 0.48 to 0.54

Case Study: Economic Change in the UK	
KPI16 UK in the Wider World The UK has one of the largest economies in the world. The UK has huge political, economic and cultural influences. The UK is highly regarded for its fairness and tolerance. The UK has global transport links i.e. Heathrow and the Eurostar.	
KPI17 Causes of Economic Change	
De-industrialisation and the decline of the UK's industrial base. Globalisation has meant many industries have moved overseas, where labour costs are lower. Government investing in supporting vital businesses.	KPI18 Towards Post-Industrial The quaternary industry has increased, whilst secondary has decreased. Numbers in primary and tertiary industry has stayed the steady. Big increase in professional and technical jobs.
KPI19 Cambridge Science Park A major quaternary industry on the outskirts. Good transport access to the A14 and M11. A good location for sourcing highly educated workers from Cambridge University. Staff benefit from attractive working conditions. Attracts clusters of related high-tech businesses.	
KPI20 Change to a Rural Landscape - South Cambridgeshire Cambridge is one of the fastest growing cities in the UK. Current population is 155,000 but will increase to 175,000 by 2026.	
Social Rising house prices have caused tensions in villages. Villages are unpopulated during the day causing loss of identity. Resentment towards poor migrant communities.	Economic Lack of affordable housing for local first time buyers. Sales of farmland has increased rural unemployment. Influx of poor migrants puts pressures on local services.
KPI21 Improvements to Transport A £15 billion 'Road Improvement Strategy'. This will involve 10 new roads and 1,600 extra lanes. £50 billion HS2 railway to improve connections between key UK cities. £18 billion on Heathrow's controversial third runway. UK has many large ports for importing and exporting goods.	KPI22 UK North/South Divide - Wages are lower in the North. - Health is better in the South. - Education is worse in the North. + The government is aiming to support a Northern Powerhouse project to resolve regional differences. + More devolving of powers to disadvantaged regions.

Year 10 French - DE LA VILLE À LA CAMPAGNE

1	Quand j'étais plus jeune, j'habitais au centre-ville de Bristol.	When I was younger, I used to live in the centre of Bristol.
2	Maintenant, j'habite à Coleford avec ma famille.	Now, I live in Coleford with my family.
3	C'est une assez petite ville dans le sud-ouest de l'Angleterre.	It's a quite small town in the southwest of England.
4	C'est est une région historique et culturelle, à la campagne.	It's an historic and cultural region in the countryside.
5	On peut faire des randonnées, faire du cheval, ou visiter les châteaux.	You can do hiking, do horseriding, or visit the castles.
6	Je trouve que c'est assez joli mais c'est un peu ennuyeux pour les jeunes.	I find that it's quite pretty but it's a bit boring for young people.
7	J'aime bien habiter ici car il y a beaucoup de choses à faire.	I really like living here because there are a lot of things to do.
8	Mais il n'y a pas beaucoup de magasins.	But there are not a lot of shops.
9	Ce weekend je vais aller au cinéma avec mon ami et on regardera un film.	This weekend I am going to go to the cinema with my

		friend and we will watch a film.
10	Je crois que ça sera vraiment rigolo et j'attends ça avec impatience!	I think that it will be really funny and I'm looking forward to it!
11	J'ai toujours rêvé d'habiter près de la plage	I have always dreamt of living near the beach.
12	Bien sûr il y a des avantages, par exemple il n'y a pas beaucoup de circulation	Of course there are advantages, for example there is not a lot of traffic.
13	et il y a une gare donc on peut voyager sans difficulté	And there is a station so you can travel without difficulty.
14	Récemment je suis allée à Londres avec ma mère	Recently I went to London with my mum.
15	J'ai visité le château et j'ai fait du shopping avec mes sœurs.	I visited the castle and I did (went) shopping with my sisters.
16	C'était vraiment génial.	It was really nice.
17	J'avais toujours rêvé de voir les attractions comme Big Ben.	I have always dreamt of seeing the sites like Big Ben.
18	C'était incroyable mais il y avait trop de gens partout dans les rues	It was incredible but there were too many people in the streets.

Opinions
malgré le fait que- In spite of the fact that je dois avouer que- I must admit that j'attends ça avec impatience- I'm excited for it/that (I await it with impatience) j'en ai marre- I'm tired of it soit...soit...- either...or... je suis mal à l'aise avec- I am uncomfortable with
Subjunctive
bien que je sois (paresseux/se)- even though I am (lazy) il faut que je fasse.. - I have to do.. c'est dommage qu'il soit- it's a shame that it's je doute qu'il soit important de + infinitive- I doubt that it's important to...
Si clauses + conditional
si j'avais l'occasion- if I had the opportunity (I would...) si j'étais riche- If I were rich (I would...) si j'avais le temps - If I had the time (I would...) si je pouvais - If I could (I would...)

Past Tense
j'aurais aimé + infinitive- I would have liked (to...) j'avais décidé que- I had decided that j'avais toujours rêvé de + infinitive- I had always dreamed of... je me suis rendu(e) compte que- I realised that j'étais ravi(e) que- I was delighted that... j'étais en train de + infinitive- I was in the middle of (doing...)
Connectives
néanmoins- nevertheless du coup- thus/therefore au lieu de- instead of après avoir fait cela- After having done that...

Year 10 Spanish - INTERESES E INFLUENCIAS

1	Suelo hacer deportes tres veces por semana después del colegio.	I usually/tend to do sports three times per week after school.
2	A veces hago natación los fines de semana.	Sometimes I do swimming at the weekend.
3	Para mí, el deporte es como una droga ¡estoy enganchada!	For me, sport is like a drug – I'm addicted!
4	Juego al tenis desde hace tres semanas y hago equitación también.	I've been playing tennis for three weeks and I do horse riding often.
5	Cuando era más joven jugaba al fútbol y hacía artes marciales.	When I was younger I used to play football and I used to do martial arts.
6	Ya no tengo tiempo para jugar al fútbol	I no longer have time to play football.
7	Diría que me gustan muchos tipos de entretenimiento	I would say that I like lots of types of entertainment.
8	Prefiero ver la tele y ayer vi una telenovela	I prefer to watch telly and yesterday I watched a soap.
9	Preferiría ir al cine in embargo ¡es demasiado caro!	I would prefer to go to the cinema however it's too expensive!
10	El año pasado fui a un concierto con mis amigos para ver mi	Last year I went to a concert with my friends to

	cantante preferida: Ariana Grande.	see my favourite singer: Ariana Grande.
11	Ariana Grande es mi modelo a seguir dado que es muy simpática, inteligente y bonita.	Ariana Grande is my role model because she is very kind, clever and pretty.
12	Tiene el pelo muy largo y los ojos marrones.	I have very long hair and brown eyes.
13	Además tiene un sentido de la moda muy guay.	Furthermore, she has very cool fashion sense.
14	El verano que viene voy a los Estados Unidos para verla en una fiesta muy grande.	Next summer I am going to the United States to see her in a very big festival.
15	Iré con mis amigos y bailaremos y cantaremos mucho	I will go with my friends and we will dance and we will sing a lot.
16	¡No puedo esperar!	I can't wait!
17	Me encantaría conocerla.	I would love to meet her!

Opinions
desde mi punto de vista- from my point of view debo admitir que- I must admit that aunque al mismo tiempo- although at the same time no aguanto hacerlo- I can't stand doing it quiero mucho hacerlo porque- I really want to do it because trato de (+ infinitive)- I try to tengo ganas de (+ infinitive)- I fancy (doing something) he tenido bastante de (+ infinitive)- I have had enough of lo peor de todo- the worst thing of all supongo que- I suppose that
Subjunctive
es necesario que lo haga porque- it's necessary that I do it because ojalá que + subjunctive- I hope that cuando termine mis exámenes- when I finish my exams cuando gane bastante dinero- when I earn enough money cuando sea mayor- when I'm older

Si clauses + conditional
si tuviera tiempo- if I had time (I would...) si fuera rica- If I were rich (I would...) si fuera posible- If it were possible (I would...)
Past Tense
lo que más me gustó fue- what I liked the most was me hubiera gustado (+ infinitive)- I would have liked to
Idiomatic Language
me di cuenta de que- I realised that me quita las ganas- puts me off me saca(n) de quicio – it gets on my nerves a mí me da igual- I don't mind valdrá la pena- it will be worth it al fin y al cabo – at the end of the day

GCSE Full and Short course Year 10 – Theme A Religion and Relationships

Adultery	Having sex with someone who is not your husband or wife, outside of marriage	Gender Prejudice	Holding biased opinions about people based on their gender
Artificial Contraception	Methods of preventing pregnancy e.g. condoms, the pill, the coil	Heterosexual	Sexual attraction to the opposite gender
Cohabitation	Living and starting a family with someone who you are not married to	Homosexual	Sexual attraction to the same gender
Divorce	The legal ending of a marriage	Marriage	A legal and religious ceremony joining two people together in love
Family Planning	Using a woman's natural cycle of fertility to try and avoid pregnancy	Procreation	Bringing babies into the world
Gender Discrimination	Acting against people based on their gender	Remarriage	Marrying someone else after divorce

Topic	Christianity	Buddhism
Human sexuality	- The Roman Catholic church teaches that sex between people of the same gender is 'disordered' - They argue that homosexual relationships are banned by the Bible - Gay marriage is banned in the Catholic Church and Church of England - "Do not have sexual relations with a man as one does with a woman" – Leviticus 18:22	- Liberal Christians teach that Jesus wanted people to love each other and show mercy and that we should be accepting of homosexuals - The Bible was speaking to a culture and society that doesn't exist today and are fine with same-sex marriage.
Sexual relationships	- Roman Catholics argue that all sex before marriage and after a divorce is unacceptable. Sex should only take place inside a marriage which is a lifelong, loving relationship. - Chastity - Adultery is prohibited by the Bible and Christians argue it is wrong as it undermines marriage involves lies and secrecy. - "You shall not commit adultery" - Exodus 20:14	- No teaching on sex before marriage - Most important teachings is to 'not harm others' - Adultery seen as an unskillful action
Artificial	- God tells Adam and Eve (the first couple) to "be	- The Church of England argues that - Acceptable to use

Contraception	<i>fruitful and multiply</i>" (Genesis 1:2) which encourages them to have children. - The Catholic Church argues that all sexual acts inside marriage must be open to procreation - Natural law - They may use family planning as it is a natural method.	contraception should be allowed so that couples can take time and consider if they want to have children.	contraception - Some may see contraception as breaking the first moral precept - In Buddhist cultures there is no obligation to have children
Marriage and Divorce	- During the ceremony you agree to be together for life saying <i>"till death do us part"</i> - Many Christians do not like divorce as it is seen to break the promises made in a marriage. - The Catholic Church do not support divorce. They believe that sex after divorce is a form of adultery and you cannot get remarried in a Catholic Church once you have been divorced. Jesus says <i>"if a man divorces his wife [...] he involves her in adultery"</i> (Matthew 5:32)	- The Church of England accepts divorce, especially if it is for reasons of abuse but you have to receive special permission to get remarried in a church. They might see it as a merciful option.	- No teaching on divorce - Clinging onto attachment results in suffering (Dukkha) - Accept if suffering is caused - Remarriage an opportunity to commit to a new and healthy relationship
Family	- Nuclear Family is a family with a mother, father and children - Extended Family is a family where grandparents and other relatives are involved - Single Parent Family this is a family where one parent brings up the child Purpose of the Family - Procreation – the family should be for the purpose of having and bringing up children - Stability – the family should be for providing a secure, stable environment for children - Faith – the family should be a way of bringing children up as good Christians		
Gender	- The Catholic Church argues that women have a special role as mothers and they do not allow women to be priests - Some Christians argue that men were in authority during Jesus' life. All the disciples were men. Women should be quiet in church - <i>"Women should remain silent in the churches. They are not allowed to speak"</i>	- The Church of England has allowed women priests since 1994 - Other Christians say all are equal, Jesus respected women, the Good Samaritan teaches against discrimination, all are created in God's image - <i>"There is neither male nor female for you are all one in Christ"</i>	- Buddha ordained women as nuns - <i>Aparimitayur Sutra</i> suggests women must be reborn as men before reaching enlightenment - <i>Lotus Sutra</i> teaches Buddhist that men and women are equal

GCSE RE Full Course Paper One – Christianity beliefs and teachings

Key Words				
Ascension	Jesus returning to be with God in heaven after the crucifixion	Omnipotent	God's nature as all-powerful	
Atonement	Making things better after sinning, asking for forgiveness from God	Original Sin	The built-in tendency to do wrong which comes from Eve's disobedience	
Benevolent	God's nature as all-loving	Resurrection	Jesus returning from the dead after he was crucified	
Crucifixion	Jesus' execution by the Romans on the cross	Salvation	Being saved from sin and given eternal life in heaven by God	
Incarnation	God becoming flesh in the form of Jesus Christ	Sin	Any thought or action which goes against God's will	
Just	God's nature as fair	Trinity	God's nature as three-parts-in-one, the Father, Son and Holy Spirit	
KPI1- To explain some of the qualities of God Christianity is a monotheistic religion. "We believe in one God." • All powerful (omnipotent) because he created the world (Genesis). There is nothing God cannot do or achieve. "Nothing is impossible with God." All loving – God sent Jesus to die on the cross so man's sins could be forgiven. This encourages Christians to love each other. "God so loved the world that he gave his one and only son." • Judge – God (Jesus) will judge everyone on Judgement Day • Eternal – God has no beginning and no end • All-knowing (omniscient) God knows everything, which has happened, is happening and will happen.		KPI2 To understand and analyse the concept of the oneness of God and the Trinity The doctrine of the Trinity is the Christian belief that: There is One God, who is Father, Son, and Holy Spirit. The Trinity describe that there is only one God, each person of the Trinity is fully God and the persons of the Trinity are not the same. God the Father: revealed by the Old Testament to be Creator, Lord, Father and Judge. God the Son: who had lived on earth amongst human beings. God the Holy Spirit: who filled them with new life and power		
KPI3- To investigate the problem of evil and suffering Many people question God's benevolence when faced with evil and suffering. Christians believe that a just God treats all people fairly, and they can trust God when things appear wrong. The story of the 'fall' shows Adam and Eve giving into temptation, free will to make a choice- 'the original sin.'		KPI4- To explain different Christian beliefs about creation -Christians believe that God created the earth. One story about the creation of the world is found in Genesis . -Many Christians believe that although it may not be scientifically accurate, this account contains religious truth. -Some Christians believe that the account should not be read as an accurate account, but as a myth. -Design argument- teleological William Paley used this argument to explain the existence of God. Anything that has been designed needs a designer. There is evidence that the world has been designed. If the world has been designed then there must be a designer, this must be God. -The First Cause Argument/ Cosmological (Thomas Aquinas) If we look at things in the world, we see that they have a cause. Anything caused to exist must be caused to exist by something else. Everything has to have a beginning. The only possible first cause of the universe is God, therefore God must exist.		
KPI4- To describe the Genesis account of creation. The book of Genesis begins "In the beginning God created the heavens and the earth." Day 1-2 Water covered earth Day 3 Dry land and plants Day 4 Sun, moon and stars Day 5 Sea and flying creatures Day 6 Land animals and Man Day 7 God rested				

GCSE Short and Full course Paper One –Buddhist belief and teaching

Key terms:

Theravada	Oldest form of Buddhism, found in southern Asia
Mahayana	Found in Tibet, China, Taiwan, Japan, Korea, and Mongolia. Mahayana Buddhism is not a single group but a collection of Buddhist traditions: Zen Buddhism, Pure Land Buddhism, and Tibetan Buddhism
Pure Land	Mostly found in Japan – a form of Mahayana Buddhism. Based on faith in Amitabha
Bodhisattva	An enlightened person who chooses to remain in samsara to teach others
Arhat	A 'perfected person' who has overcome the main sources of suffering
Five Aggregates (Skandha)	Theravada Buddhists are taught that the human personality is made up of five parts
Sunyata	Mahayana Buddhism This means 'emptiness'.
Six perfections	The practices/characteristics of a Bodhisattva

KPI 8- To analyse the different features and beliefs amongst schools in Buddhism

Theravada	Mahayana
Theravada Buddhists are taught that the human personality is made up of five parts- Five Aggregates/ Skandha's Form, Sensation, Perception, Mental formation and Consciousness	Sunyata - This means 'emptiness'. This idea can be understood as meaning that everything depends upon something else. All things lack an intrinsic nature. Basically, everything is empty. Sunyata can be understood as being very similar to anatta (one of the Three Marks of Existence). Everyone can achieve enlightenment. Mahayana Buddhists believe that all humans have the nature of the Buddha within them already. Buddha Nature Mahayana Buddhism teaches that the ideal Buddhist is a Bodhisattva . Bodhisattvas choose to remain in samsara to help others become enlightened. A person becomes a bodhisattva by developing the Six Perfections .
In Theravada Buddhism, a person who has achieved nibbana is known as an arhat. A Buddhist who has taken this path will follow the Noble Eightfold Path.	Pure Land Buddhists believe it is impossible to become enlightened in this realm and so aim to be reborn into the Pure Land to be taught by Amitabha Buddha. Their main practice is chanting

KPI6- Explain Buddhist teachings on how to end suffering
The path end suffering is the Middle Way and consists of eight practices (the Eightfold Path) that are sometimes grouped into three sections (the Threefold Way).
Ethics- right speech, action, livelihood
Meditation- right effort, mindfulness, concentration
Wisdom- right understanding, intention

KPI7- To describe the different schools in Buddhism

Theravada
Known as the 'lesser vehicle' as only male monks achieve enlightenment.
Oldest form of Buddhism, found in southern Asia
Mahayana
Known as the 'greater vehicle' as anyone can become enlightened.
Teaches sunyata or emptiness – nothing as a separate soul or self
Pure Land
Mostly found in Japan – a form of Mahayana Buddhism. Based on faith in Amitabha Buddha and his paradise

KPI9- To Explain the importance of the Six perfections

"However innumerable sentient beings are; I vow to save them." Bodhisattva vow
The six perfections give guidelines as a structure for how to live a good life and behave in a morally good way.

Generosity
Morality
Patience
Energy
Meditation
Wisdom

Year 10 – DT Knowledge Organiser

Properties of materials

The properties of materials determine what it's useful for. Thinking about these properties is super important when it comes to designing a new product.

Working properties

Strength If a material is the ability to withstand forces without breaking. For example: • The rope in a tug-of-war resists pulling forces. • Bridge supports resist compression forces. • A surfboard resists forces trying to bend it. • Fabric that contain Kevlar fibres are really strong and resistant to abrasion so they're used in motorcycle clothing.	Hardness This is the ability to withstand scratching, abrasion or denting. It's very important for tools that cut, like files and drills. Ductility Ductile materials can be drawn into a wire e.g. copper. Elasticity Elastic materials can stretch and bend and return to their original shape. A spring has good elasticity.
Toughness If a material is tough, it is hard to break or snap. The material changes shape a bit instead. Armour and bullet-proof vests need to be tough.	Malleability Materials that are malleable can be bent and shaped. Most metals are malleable. They can be hammered into thin sheets without breaking.
Electrical conductivity Electrical conductors let electricity travel through them easily. Electrical insulators don't. Electrical wires need to be conductors, but the coating around the wires must be insulating. Metals are good electrical conductors. Plastics tend to be good insulators. Some fabrics are blended or coated with an electrically conductive material (e.g. a metal). Gloves can have electrically conductive fingertips so you can still operate touchscreens with them on.	Fusibility Materials with a high fusibility have low melting points, only a small amount of heating is required to convert these materials to liquids. For example, solder has a high fusibility. This allows it to melt before the materials being soldered together (which have a lower fusibility). Density The density of a material is a measure of its mass per unit volume. A table made of solid metal would likely be heavier to carry than an identical table made from plastic. This is because metals tend to be denser. Density often has units of kg/m³.
Thermal conductivity Thermal conductors let heat travel through them easily. Thermal insulators don't. Metals are good thermal conductors. Plastic, board and wood are good thermal insulators. Pans must be made from good thermal conductors, but their handles are often made from thermal insulators.	Absorbency Fibres and fabrics that are absorbent are good at soaking up moisture. Paper towels are a good example. Absorbent materials can be dyed easily, but they also dry slower and are more vulnerable to stains. Natural fibres (e.g. wool, cotton and cellulose fibres that make up paper) are absorbent. Synthetic fibres (e.g. polyester and LYCRA) are not absorbent.

Hardwoods, softwoods and manufactured boards

Hardwoods

Hardwoods usually grow in warm climates and are slow growing so they're generally more expensive than softwoods. The trees have broad, flat leaves and are deciduous (they lose their leaves in autumn). The wood tends to have a tighter grain and be denser and harder than softwoods, although there are exceptions to this, e.g. balsa.

- **Oak** is light brown. It's tough, durable and very strong. It also has attractive grain markings, especially when quartersawn, and finishes well, so it's used a lot in interior panelling. However, it does corrode steel screws and fittings.
- **Mahogany** is a red-brown colour. It's durable and easy to work with, but it's expensive, so it's used for good quality furniture.
- **Beech** is pinkish-brown. It's hard enough to resist being dented, and can be bent using steam. It's used for chairs and toys.
- **Balsa** is a white or tan colour. For a hardwood, it has a very low density and is very soft. It's softness makes it easy to cut and shape. This combined with a high strength-to-weight ratio, makes it great for modelling.
- **Ash** has a pale cream colour. It's tough and absorbs shock well, so it's used for tool handles and wooden sports equipment. It's all attractive and so is used for furniture.

Softwoods

Softwoods grow in colder climates and are fast-growing. This makes them fairly cheap and readily accessible. The trees have leaves like needles, have cones (e.g. pine) and are coniferous, meaning they keep their leaves all year round.

- **Pine** is yellow with brown streaks. It's quite strong and cheap but 'knotty' which can make it hard to work with. It's used for telegraph poles, fences and cheap furniture.
- **Larch** has an attractive yellow to reddish-brown colour. It's harder, tougher and more durable than most softwoods. It's also resistant to rot which makes it good for decking, cladding the outside of buildings and fence posts.
- **Spruce** is a reddish-brown colour. It's hard and has a good strength-to-weight ratio but it's also very 'knotty' and not very durable. It's used for structural purposes both inside and outside with aircrafts, crates and ship masts.

Manufactured boards

Processed pieces of wood can be combined with glue and pressed into panels. This forms new materials called manufactured boards or manufactured timbers.

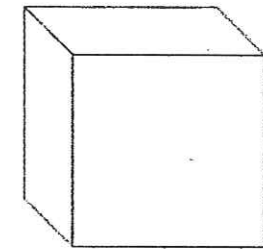
- **Medium density fibreboard (MDF)** is made from tiny fibres of softwood timber held together by glue. As it's just bits of timber stuck together, it has no natural grain. It's cheap, dense and has a smooth uniform surface that takes paint and other finishes well. However, it's porous so can be damaged by moisture. It's often used for shelves and flatpack furniture.
- **Plywood** is made up of several layers of softwood or hardwood, glued together with their grain at right angles to one another. This structure makes it very strong for its weight and thickness, compared with solid wood. It's a popular manufactured board, used for building and furniture.
- **Chipboard** is made by compressing wood chips, shaving and sawdust together with glue. It's usually used with a veneered surface. It's cheap and not very strong. It's also absorbent so can be easily damaged by moisture. Chipboard is often used in cheap self-assembly furniture.

Year 10 – Engineering Knowledge Organiser

Key pieces of drawing equipment:

A sharp pencil, a steel rule or plastic ruler, a protractor, a rubber, a fine-liner pen and a drawing board.

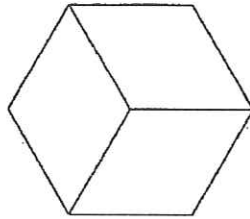
Drawing Techniques:



Oblique

Rule 1: draw the front face first.

Rule 2: all angled lines are drawn at 45 degrees.

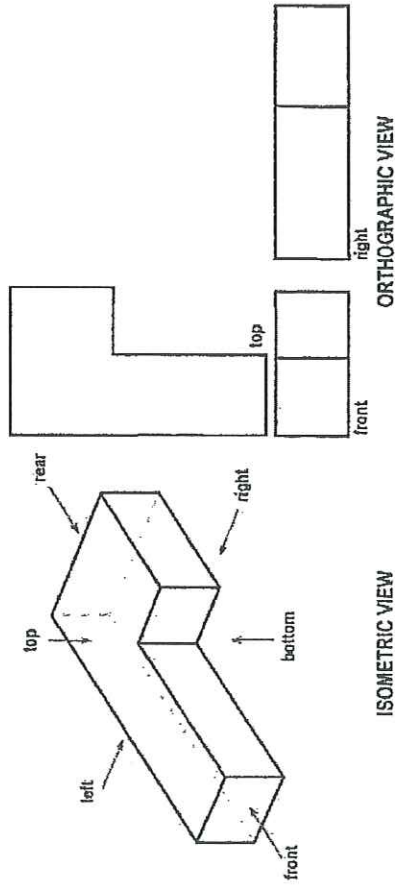


Isometric

Rule 1: draw a vertical line first.

Rule 2: all angled lines are drawn at 30 degrees.

Orthographic Projection



ISOMETRIC VIEW

ORTHOGRAPHIC VIEW

We use **ACCESS FM** to help us write a **specification** - a list of requirements for a design - and to help us **analyse** and describe an already existing product.

ACCESS FM - Helpsheet



A is for Aesthetics

Aesthetics means what does the product look like?
What is the Colour? Shape? Texture? Pattern? Appearance? Feel?
Weight? Style?



C is for Cost

Cost means how much does the product cost to buy?
How much does it cost to buy? Cost to make?
How much do the different materials cost? Is it good value?



C is for Customer

Customer means who will buy or use your product?
Who will buy your product? Who will use your product?
What is their Age? Gender?
What are their Likes? Dislikes? Needs? Preferences?



E is for Environment

Environment means will the product affect the environment?
Is the product Recyclable? Reusable? Repairable? Sustainable?
Environmentally friendly? Good for the environment?
6R's of Design: Reduce / Reuse / Repair / Rethink / Redesign / Refuse



S is for Size

Size means how big or small is the product?
What is the size of the product in millimeters (mm)? Is it the same size as similar products? Is it comfortable to use? Does it fit? Would it be improved if it was bigger or smaller?



S is for Safety

Safety means how safe is the product when it is used?
Will it be safe for the customer to use? Could they hurt themselves? What is the correct and safest way to use the product? What are the risks?



F is for Function

Function means how does the product work?
What is the product's job and role? What is it needed for? How well does it work? How could it be improved? Why is it used this way?



M is for Material

Material means what is the product made out of?
What materials is the product made from? Why were these materials used? Would a different material be better? How was the product made? What manufacturing techniques were used?

Product Analysis:

Designers and makers will often complete a product analysis on existing products that are already on the market before designing their own. The reason for this is for them to identify how existing products can be improved.

To support them in this task, they will often use ACCESSFM (above), which is an acronym where each of the letters stand for a point that could be thought about. By considering each of the points above, designers will really think about the successes of a product as well as how to improve it and make their own product better.

Year 10 – Engineering Knowledge Organiser

Wood Groups

Origin of wood – Trees

Deforestation – The cutting down of vast areas of trees without the intention of planting more.

Hardwoods

- Take up to 100 years to grow
- Tend to grow in hot climates such as South America and Asia
- The trees are **DECIDUOUS** – they lose their leaves in cooler weather
- The grain is tightly compressed together
- The wood is expensive due to the time it takes to grow and the import costs.

Examples of Hardwoods are – Oak, Mahogany, Teak, Balsa, Ash, Beech

Softwoods

- Take 10-30 years to grow
- Tend to grow in cooler climates such as Scandinavia (Denmark, Norway etc.)
- The trees are **CONIFEROUS** – they keep their leaves all year round
- The grain is usually clear and spread out
- The wood is affordable.

Examples of Softwoods are – Pine (Parana/Scots), Redwood, Cedar, Yew

Manufactured Boards

- These wood are man-made.
- Created using waste woodchips/sawdust and glue compressed together
- Manufactured boards are created to get bigger sheets of wood than you can get from a tree
- No grain visible (except for Plywood)
- The wood is inexpensive.

Examples of Manufactured Boards are – **MDF** (**medium density fibreboard**), **Plywood**, **Chipboard**

Metal groups

Origin of metals – Ores found underground (a finite resource which means it will eventually run out!)

Ferrous Metals

- Contain iron
- Are magnetic
- Rust

Examples include – Mild Steel, Carbon Steel, Iron, Wrought Iron

Non-Ferrous Metals

- Don't contain iron
- Aren't magnetic
- Don't rust. Instead they oxidise. (Looks like a mint green layer of the product, the Statue of Liberty is a perfect example of this, it's actually made out of copper!)

Examples include – Aluminium, Brass, Copper, Lead

Alloys

- Alloys are created for a specific reason – to give a metal a lower melting point, to make a metal stronger, to make a metal more affordable. For example, Gold is a metal that is worth the same amount from being pulled straight from the ground to being worked into a piece of jewellery (hence the saying 'worth its weight in gold'). Pure gold is 24 carat gold but adding different metals to it and lowering the carat to something like 12 carat gold makes it more affordable for people meaning more people would buy it.

Examples include – Solder, Pewter, Bronze, Nickel

Metals can fit in to more than one group. For example, stainless steel is a ferrous metal because it contains iron. However, we turn it in to an alloy to make it more resistant to corrosion (rusting). This is important because we use stainless steel for cutlery and food preparation and let's face it, no one wants to be eating using a rusty fork!

Plastic groups

Origin of plastic – Crude Oil (finite resource)

Thermoplastics (also known as thermoforming plastics)

- These plastics are widely recycled.
- They can be melted down and used again and again (recycled)
- Uses include: plastic bottles and food containers

Examples include – Polyethylene, Acrylic, PVC (polyvinyl chloride)

Thermosetting Plastics

- These plastics aren't widely recycled
- Once formed, they have set in to shape, meaning at the end of their life, they sit on a landfill or float around in the sea
- Uses include: saucepan handles and cheap plug sockets

Examples include – Epoxy, Silicone, Polyurethane

Photography

AO1 Develop ideas through investigations, demonstrating critical understanding of sources.

Grading criteria for a level 9 - An exceptional ability to effectively develop ideas through creative and purposeful investigations. An exceptional ability to engage with and demonstrate critical understanding of sources.

"It is an intense, brightly coloured portrait painting. The distorted face suggests to me that the sitter is upset. I can also see this in the depiction of fragmented tears. I believe the artist intended to explore the idea of loss and destruction as the woman in the painting appears distraught – you can see this in her tears as well as the triangular shaped handkerchief in her hand, wiping away her tears as if she had been crying. It was created in 1937 in Spain by Pablo Picasso. Picasso was reacting to the atrocities of the Spanish Civil War. The composition is compact – a shape or line fills every inch of the canvas. The focal point is the woman's bleak, white face and hand which is surrounded by saturated colour. My eye is drawn to the woman's pierced lips. The artist has used intense bright colour across the canvas. Picasso has used linear marks to create pattern and depict the hair. The mood of the image is complex – the subject of the painting is sadness, the sitter is mourning over the death of her family and friends but the choice to paint the woman in bright, energetic colours is an odd one. Perhaps Picasso was trying to draw the viewer in with intense colour, but on closer inspection – the painting makes you question the very reasons for war. The work makes me feel sad – it makes me think about all of the lives lost because of war. After researching the artist further, I found out that Picasso obsessively painted the Weeping Woman, multiple times. This painting is loosely based on his muse and lover – Dora Marr."



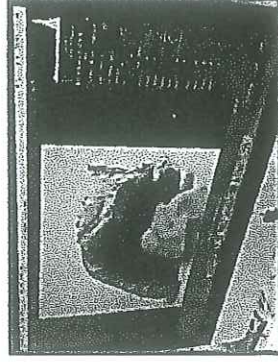
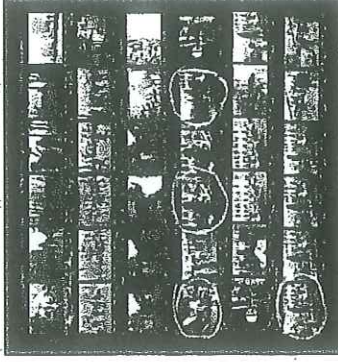
1. Describe to a recently blind person. (Use adjectives)
2. What techniques did the photographer use?
3. Why did they use those techniques?
4. How does that make the viewer feel/What had they intended to do with his work?
5. What has influenced them to do this?

AO2 Refine work by exploring ideas, selecting and experimenting with appropriate media, materials, techniques and processes.

Grading criteria for a level 9 - An exceptional ability to thoughtfully refine ideas with discrimination.

An exceptional ability to effectively select and purposefully experiment with appropriate media, materials, techniques and processes.

Evidence can include - photoshoots investigating different techniques, annotating of your contact sheets, post production editing.

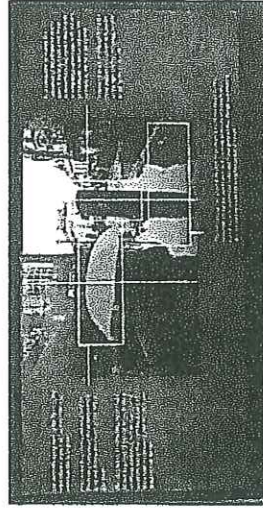
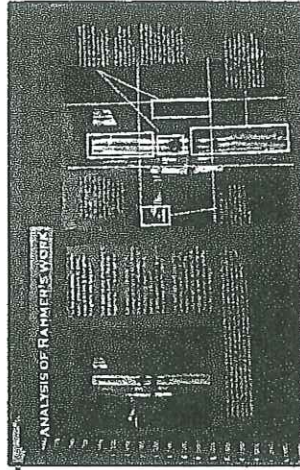
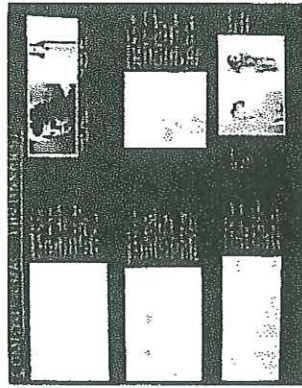


During your photoshoot.

1. What technique, inspired by the photographer, you are looking at? How have you investigated this technique? Are you able to investigate these techniques and identify successful/unsuccessful outcomes?
2. Can you show that you are refining the technique you are investigating?
3. How did you set up your photoshoot? What did you investigate during your photoshoot? What camera settings did you work with?

Annotating your contact sheet.

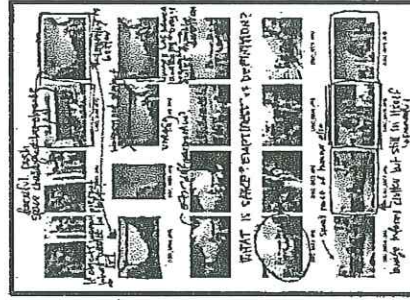
AO3 Record ideas, observations and insights relevant to intentions as work progresses.



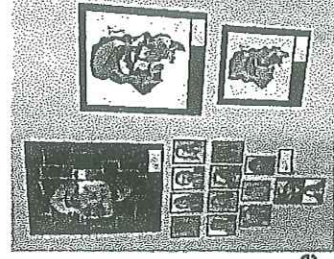
Evidence can include -
 photoshoot plans,
 thumbnail sketches,
 storyboards, visual
 analysis of photography.

When annotating your contact sheets -

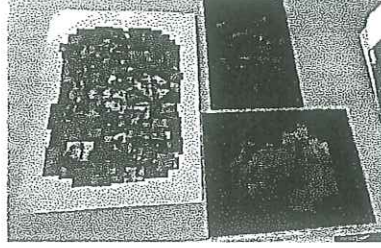
1. Identify the strong photographs.
2. Identify the weak photographs.
3. Annotate with the camera settings you used.
4. Add potential crop marks on your photographs.



AO4 Present a personal and meaningful response that realises intentions and demonstrates understanding of visual language.



Evidence can include - a personal and purposeful response to an artist/context. Response should be informed by the study of artist/techniques



When analysing your response -

1. Describe your work to a recently blind person. (Use adjectives)
2. What techniques did you use?
3. Why did you use those techniques?
4. How does that make the viewer feel/What had your intended to do with your work?
5. What has influenced you to do this?

Grading criteria for a level 9 - An exceptional ability to competently present a personal and meaningful response and realise intentions with confidence and conviction. An exceptional ability to demonstrate understanding of visual language.

Level 1/2 Hospitality and Catering: Unit 1: Food related causes of ill health (AC4.1)

Food related causes of ill health

Ill health could be caused by any of the following:

- bacteria
- allergies
- **intolerances**
- chemicals such as:
 - detergent and bleach
 - pesticides and fertilisers.

Intolerances

Some people feel unwell when they eat certain foods. Common foods that cause intolerance include:

- milk (lactose)
- cereals (gluten)
- artificial sweeteners (Aspartame)
- flavour enhancers (MSG).

Food poisoning bacteria

The main causes of food poisoning bacteria are:

- *Escherichia coli* found in reheated rice and other starchy foods.
- *Campylobacter* found in raw and undercooked poultry and meat and unpasteurised milk.
- *Clostridium perfringens* found in human and animal intestines and raw poultry and meat.
- *E. coli* found in raw meat, especially mince.
- *Listeria* found in polluted water and unwashed fruit and vegetables.
- *Salmonella* found in raw meat, poultry and eggs.
- *Staphylococcus aureus* found in human nose and mouth.

Food and the law

Food can cause ill-health if it is stored, prepared and/or cooked incorrectly or if a person unknowingly eats a food that they are allergic or intolerant to. All hospitality and catering provision need to follow laws that ensure food is safe to eat. They are:

- *Food Labelling Regulations (2006)*. A label must show all ingredients including allergens, how to store and prepare the food, where it came from, the weight of the food and a use-by or best-before date.
- *Food Safety (General Food Hygiene Regulations) 1953*. This law makes sure that anyone who handles food - from field to plate - does so in a safe and hygienic way. The HACCP system is used throughout the hospitality and catering sector.
- *Food Safety Act 1990*. This law makes sure that the food people eat is safe to eat, contains ingredients fit for human consumption and is labelled truthfully.

Food allergies

An allergy is a reaction to something found in food. In the case of a severe allergy, the reaction can lead to death.

Common allergens include:

Cereals	Eggs	Seeds
Soya	Fish and shellfish	Strawberries
Peanuts	Wheat	Milk and dairy
Celery	Tree nuts	Mustard

Level 1/2 Hospitality and Catering:

Unit 1: Symptoms and signs of food-induced of ill-health (AC.4.2)



wjec eduqas
cbac

Symptoms and signs of food-induced ill-health

An "upset tummy" is a familiar symptom for someone who thinks they might have food poisoning; this is known as a non-visible symptom. There are many other signs and symptoms that could show that a person might be suffering from ill-health due to the food they have eaten. Some of the symptoms can be seen (visible symptoms) such as a rash. It is important to be able to recognise visible and non-visible symptoms to help someone suffering from food-induced ill-health.

Visible symptoms of food poisoning, chemical poisoning, allergic reaction and food intolerance include:

- **Diarrhoea:** a common symptom of most types of food poisoning bacteria and can also be a symptom of lactose intolerance.
- **Vomiting:** a common symptom of most types of food poisoning bacteria, but may also be caused by taking in chemicals accidentally added to food.
- **Pale or sweating/chills:** a high temperature is a common symptom of E-coli and Salmonella.
- **Bloating:** a symptom of lactose intolerance.
- **Weight loss:** a symptom of gluten intolerance (coeliac disease).

Allergic/anaphylactic reaction

- **Visible symptoms:** red skin, a raised rash, vomiting, swelling of lips and eyes and difficulty breathing.
- **Non-visible symptoms:** swelling of tongue and throat, nausea (feeling sick) and abdominal pain.
- **Anaphylaxis:** a severe reaction to eating an allergen that can lead to death. An injection of adrenaline (for example, an EpiPen) is the treatment for an anaphylactic reaction.

Non-visible symptoms

Non-visible symptoms of food poisoning, chemical poisoning, allergic reaction and food intolerance include:

- **Nausea (feeling sick):** the most common symptom for all types of food-induced ill-health.
- **Stomach-ache/cramps:** abdominal pain is common symptom of lactose intolerance as well as a sign of an allergic reaction. Cramps may happen at the same time as diarrhoea.
- **Wind/flatulence:** a common symptom of lactose intolerance.
- **Constipation:** a symptom of Listeria food poisoning.
- **Painful joints:** a symptom of E-coli food poisoning.
- **Headache:** a symptom linked to Campylobacter, E-coli and Listeria.
- **Weakness:** non-stop vomiting, and diarrhoea can leave a person feeling weak. Gluten intolerance (coeliac disease) can leave a person feeling tired because their bodies can't absorb the correct amount of nutrients.

Level 1/2 Hospitality and Catering:

Unit 1-1.4.3: Preventative control measures of food-induced of ill-health



Preventing cross-contamination

Food poisoning bacteria can easily be transferred to high-risk foods. This is called cross-contamination. It can be controlled by:

- washing hands before and after handling raw meat and other high-risk foods.
- using colour-coded chopping boards and knives when preparing high-risk foods.
- washing hands after going to the toilet, sneezing, or blowing your nose and handling rubbish.

Preventing physical contamination

Physical contamination is when something which is not designed for eating ends up in your food. Physical contaminants include hair, seeds, pips, bone, plastic packaging, plasters, broken glass, flies and other insects, tin foil and baking paper, soil, and fingernails.

Physical contamination can be controlled by:

- food workers following personal hygiene rules
- keeping food preparation and serving areas clean
- checking deliveries for broken packaging
- thoroughly washing fruits and vegetables before preparation
- using long gloves for handling food.

Temperature control

Delivery	Storage	Preparation	Service
The temperature of high-risk foods must be checked before a delivery is accepted. The food should be refused if the temperatures are above the safe range. Refrigerated foods = 0-5°C Frozen foods = -22°C to -18°C	High-risk foods must be covered and stored at the correct temperature. Temperatures must be checked daily. Refrigerator = 0-5°C Freezer = -22°C to -18°C Unwashed fruit and vegetables must be stored away from other foods.	High-risk foods need to be carefully prepared to avoid cross-contamination. A food probe can be used to make sure that high-risk foods have reached a safe core (inside) temperature, which needs to be held for a minimum of two minutes. Core temperature = 70°C	Food needs to be kept at the correct temperature during serving to make sure it is safe to eat. Hot food needs to stay hot and cold food needs to stay chilled. Hot holding = 63°C minimum Cold holding = 0-5°C

Level 1/2 Hospitality and Catering:

Unit 1-1.4.4: The Environmental Health Officer



Role of the Environmental Health Officer (EHO)

The role of the Environmental Health Officer (EHO) is to protect the health and safety of the public. They are appointed by local authorities throughout the UK. In the hospitality and catering industry, they are responsible for enforcing the laws linked to food safety. They inspect all businesses where food is prepared and served to members of the public, advise on safer ways of working and can act as enforcers if food safety laws are broken.

EHO and the law

The EHO can carry out an inspection of any hospitality and catering premise at any time during business hours – they do not need to make an appointment. During an inspection, the EHO will check to make sure that:

- the premises are clean
- equipment is safe to use
- pest control measures are in place
- waste is disposed properly
- all food handlers have had food hygiene and safety training
- all food is stored and cooked correctly
- all food has best-before and use-by dates
- there is a HACCP plan to control food hazards and risks.

The EHO is allowed to:

- take photographs of the premises
- take food samples for analysis
- check all record books, including fridge and freezer temperatures, cleaning schedules and staff training
- offer advice on improving food hygiene and safety in the business.

EHO and the law

If the EHO discovers problems with the food safety and hygiene in the premise, they are allowed by law to:

- remove any food that may be hazardous so it can't be sold
- tell the owners to improve hygiene and safety within a set time and then come back and re-inspect
- close the premises if there is a risk to health of the public
- give evidence in a court of law if the owners are prosecuted for breaking food hygiene and safety laws.

Sanctions by the public

The EHO will immediately investigate any complaints of suspected food poisoning linked to a particular premise.

Hygiene ratings

When an inspection has been carried out, the EHO will give the business a food hygiene rating. The ratings are published on the Food Standards Agency website as well as on stickers displayed at the business. A rating of 5, or very good, represents the highest standard of food hygiene.

Art Year 10 KO

<u>Formal Elements</u>	<u>Colour Theory</u>	<u>Tips, Tools & Techniques</u>	<u>Keywords, Concepts & Artists</u>
Line A mark that connects two or more points. These can be straight, curved, short or long. Tone The lightness or darkness or something. For darker tones use a higher grade B pencil. Colour Colour is what you see when light reflects of something. Texture How something looks or feel e.g. fluffy, rough, smooth etc. Visual Texture - implied sense of texture that the artist creates through the use of various artistic elements such as line, shading, and color. Physical Texture - texture you can actually feel with your hand Pattern A symbol, shape or colour that repeats. Man-made patterns are designed by humans, natural patterns are formed by nature. Shape/Form Shape is 2D e.g. rectangles. Form is 3D e.g. cubes, spheres etc.	Primary Colours Colours that can't be mixed/ made from other colours e.g. red, yellow and blue. Secondary Colours Colours that can be made by mixing two primary colours. Red + Blue = Purple Yellow + Blue = Green Yellow + Red = Orange Tertiary Colours Colours that can be made by mixing a primary and secondary colour together e.g. Blue + Green = Turquoise. Complementary Colours Colours that are opposite each other on the colour wheel. Blue & Orange Red & Green Purple & Yellow Analogue/ Harmonious Colours Colours that are next to each other on the colour wheel e.g. Red, red-orange and orange. Tints/ Shades Tint - Adding white to a colour to make it lighter. Shades - Adding black to a colour to make it darker.	Grid-Method A method of drawing to recreate, enlarge or reduce an image ensuring accurate proportions. Mono-Printing A form of printmaking that has lines or images that can only be made once. Shading Techniques Hatching, Cross-Hatching, Stippling and Scumbling. Blender Stick A paper stump that allows you to blend tones. Acrylic Paint A water-soluble paint which can be layered due to quicker drying time without muddying previously applied layers. Thumbnail Designs Small sketches outlining ideas in a simplistic way.	Proportion The size and relation of objects to one another. Using the grid-method is one way of helping you draw using accurate proportions. Composition This is where you place objects on a page. You can explore different layouts such as close up, far away, busy, quiet, off centred, clustered. Mixed Media Artwork in which more than one material has been used. Copy of Work Copying the style and technique of an artist's work to enable you to understand the process of how it has been made. Own Interpretation Developing your own work by applying artist style or technique to your own ideas. Refining Ideas Annotating and evaluating experiments and as a result making decisions to improve work.

Painting Techniques	More Painting Techniques	More Keywords
Impasto Paint is laid on an area of the surface in very thick layers, usually thick enough that the brush or painting-knife strokes are visible. Sgraffito Scratching away paint while it's wet to expose the underpainting. It's especially useful when depicting scratches, hair, grasses and the like. You can use almost any pointed object for this – try rubber shaping tools or the end of a brush Dry Brushing	Adding texture with Salt When salt is sprinkled on a wet wash, it starts to gather the watercolor pigments and makes the coolest texture. The effect will vary depending on the size of the grains of salt and the wetness of the paper Underpainting An underpainting is essentially a monochrome wash that's used for the first layer of the painting. You'll add layers of transparent washes over the underpainting, which gives realistic and luminous effects	Observational Drawing Drawing something from real life in front of you. Primary & Secondary Sources Primary = real objects or your own photos that you have taken yourself Secondary = an image from the internet or books Landscape A piece that depicts a view of some sort e.g. mountains, the sea, fields, woodlands, buildings etc. Portraiture Drawing/ painting or photograph of someone Still Life A piece that depicts an object or group of objects.
This is a method of applying colour that only partially covers a previously dried layer of paint. Add very little paint to your brush and apply it with very quick, directional strokes. This method tends to work best when applying light paint over dark areas/dried paint and is useful for depicting rock and grass textures. Wet-in-Wet Start by brushing water (and only water) onto your paper. Then dip your brush in paint and spread it over the water wash. The paint will feather and diffuse like magic.		

Drama Y10 Blood Brothers and Woman in Black

Blood Brothers plot

Russell's 88 revolves around twin boys (Mickey and Edward) who are separated at birth and brought up in completely different environments in the city.

The play, set in the 1960s, is divided into two acts, with songs throughout.

Mickey is brought up with his seven older siblings by his struggling single mother, Mrs Johnstone. His twin brother, Edward, however is brought up as the only child of the wealthy Lyons family, who live nearby, after Mrs Lyons persuaded Mrs Johnstone to hand over one of her twins at birth.

Mickey and Edward don't meet each other until they're seven years old, but immediately become best friends and blood brothers. The bond continues when the boys are teenagers and both live in the countryside, despite them both being in love with Mickey's neighbour Linda.

However, as they get older, the huge difference in their backgrounds pulls them apart and eventually leads to their tragic deaths.

Written during a period of huge changes in society and politics, Blood Brothers draws the audience's attention to the detrimental effect that social inequality can have on people's lives.

Useful vocabulary: Contrast Multi-role
Dramatic Irony Tragedy Dole Prejudice
Manipulates Consequences Vulnerable
Foreboding Foreshadow Judgemental
Sympathy Stigmatised Monologue Prologue
Dialogue Transitions Cyclical Cautionary

Background of the play

Born into a working class family, Russell grew up on a council estate in Liverpool. His father worked very hard in a variety of jobs including mining and other laborious occupations. His mother worked as a nurse. This echoes the situations of Mickey and Linda, struggling to get by during a difficult period. His plays largely focus on the problems faced by working class people. He writes a lot about social divides and how someone's class can affect who they are and the opportunities they are given.

Liverpool depended heavily on traditional industries, so it was badly hit by the industrial decline in the late twentieth century. The city's working-class areas were very poor and things went from bad to worse. Margaret Thatcher was Prime Minister at the time and was arguably to blame for some job losses.

There was a large gap between working and middle class in Britain, even before the industrial decline. The Johnstones and Lyons' are class stereotypes. A lot of working class people struggles financially, even if they were in work or on the dole. The Middle class were largely unaffected by the industrial decline, as they had jobs like teaching or accountancy. There was also a class divide in education, whether you went to a public and private schools often decided your job in the future

Families were expected to have a 'nuclear' structure- a mother, a father and their children. Single-parent families like Mrs Johnstone were less common and were frowned upon by many.

Key Terms

Foreshadowing - Warning or indication of a future event

Pathos - Appeal to emotion

Multi-role- One actor playing a two or more roles

Motif- A repeated idea throughout the story

Dialogue - Conversation between two or more characters

Tension - Dramatically used to build suspense

Humour - Language used for amusing/comic effect

Dramatic Irony - When the audience know something that the characters do not

Songs - Contain lyrics that are set to music to give audience more information

Stage Directions - Instructions indicating how the actor should move/speak

Cyclical Structure - Finishes a similar way to how the text began

Prologue - A separate introduction that reveals some of the plot

Atmospheric - A distinctive mood/feel to the scene

Parallels - Similarities in the text—almost a replication of events

Tragedy - A play dealing with tragic events and having an unhappy ending for main characters.

Acting Style

Epic Theatre is a technique used in theatre created by Bertolt Brecht to remind the audience the were not watching real life.

Narration is a technique used by break to remind the audience what they are watching is just a play and not real life. This is shown throughout Blood Brothers as their is a character called, 'Narrator.'

The Narrator constantly, 'Breaks the Fourth Wall,' another Epic theatre technique. They do this by talking directly to the audience and asking them questions about what is happening in the performance.

A third technique we see used in Blood Brothers is Multi-Rolling. This is a technique where one actor will play more than one character or more than one actor will play the same character. This reminds the audience that these characters are not real and that they are watching something that is not real life.

The final Epic Theatre technique that is used is Songs. Although Blood Brothers is not a musical it does have songs which again remind the audience that what they are watching is not real life.

<u>Key elements</u> <u>Symbolism</u> Innocent death : lots of death within the play but specifically to innocent people - Nathaniel, Stella, Joseph, Mr Jerome's son. The Pony and Trap : Recurring sound effect throughout the play. It represents flashbacks of grief and torment for Mr Kipps as well as PTSD. He always relates the sound of the pony and trap to death. Nature : The idea of linking the surroundings to the story - the graveyard, the town and indeed, Eel Marsh House and the marshes all represent the dark and grim supernatural occurrences. Narration—Speaking directly to the audience, explaining what is happening on stage. Gobo—Silhouette lighting to represent something else. Gauze—A thin material than becomes transparent in light. Minimalistic—Simplistic and kept to a minimum. Pause—A moment of silence, often deliberate and prolonged Stylised—Requires an audience to use their imagination rather than appearing realistic. Meta-theatre—Play within a play, the audience is aware of the creation of drama within a piece. Fourth Wall—The imaginary wall separating the stage and auditorium which is often broke as the actors enter through the audience.	<u>Background of the play</u> Adapted from the novel of the same name, 'The Woman in Black' has been terrifying audiences at the Fortune Theatre, London for over 30 years. The gothic horror is set during the Victorian era, a time when belief in the supernatural was prevalent. Susan Hill set out to write the most horrifying story of all time and through playwright Stephen Mallatratt and Director Robin Herford's masterful storytelling, audiences have been shocked, scared and moved ever since. Second longest running West End production of all time after Agatha Christie's The Mousetrap. Place - Set in a remote corner of England where there is nothing but rural marshes and small villages. The extreme weather and eeriness of the place adds more tension to the already powerful plotline. Society - The Victorians were obsessed with ghost stories and the supernatural. There was also huge interest in the idea of insanity during this period—brain science was prominent in the developments of the day and mental asylums were first built. Kipps represents a cosmopolitan man escaping the bedlam of London , sceptical of all supernatural beliefs and returns with an eerie story that he is too frightened to relive. Adaption - Originally created by Susan Hill, Mallatratt and Herford adapted the story for the stage and used minimal set to create tension and suspense.	<u>Characters</u> Arthur Kipps - Pragmatic, rational and a little boring. His first response to the Woman in Black is that she is a poor woman with a disease. He relishes the mundane parts of life and considers himself a cosmopolitan. He is a modern young man— often referring to the villagers as silly village folk with their tales. The Woman in Black will never really leave his mind, he's scarred. Jennet Humfrye - Angry and filled with vengeance, a ghost like no other. She is a woman who has been wronged, or worse—a mother wronged. She didn't want to give up her baby and blames her sister for the death. Haunts the town after death for revenge, killing the children of others. Samuel Daily - Friendly landowner who keeps an eye out for Kipps. He lends Kipps his dog and appears as his saviour in his hour of need. Tells Kipps the real story. Alice Drablow - Jennet's recently deceased sister and owner of Eel Marsh House. Takes Jennet's child as she cannot have any of her own. Mr Jerome - Squirrel-like man who is petrified of the WiB after she killed his son. Says that he cannot (or will not) help Kipps. Keckwick - Driver of pony and trap. He is the link between town and Eel Marsh House. Saves Kipps after tide comes in.	<u>How to create tension in performance.</u> Eye contact – Maintaining eye contact with the person you are in direct conflict with will increase the tension dramatically. It connects you to each other in a non physical way but still very personal. Pauses – Arguably the most important of the three. Moments of silence are essential when building tension as not only do they show that each character is carefully weighing up their next move but it allows the audience to take some time to absorb the situation and keep them guessing what is going to happen next. Volume and pace – speaking at a natural volume and pace lulls the audience into a false sense of security. By slowing decreasing both, the audience naturally begin to feel tension building. This can then be increased to a quicker pace and louder volume until the scene reaches a climax. Acting Style The semi naturalistic acting within the play contributes to the audience's belief in the characters and allows them engage more in the story. Multi-rolling is used exceptionally well to portray a variety of characters within the small town of Crythin Gifford. The minimalist set , minor props and miming are all used effectively to draw in the audience. Lighting and sound effects are used brilliantly to set the scenes, the use of long pauses/silence is a huge trait of horror theatre and the auditorium is dark and in need of refurbishment—all elements that are essential to ensuring that audiences receive the most horrifying performance possible.
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BTEC Music – Unit 1 The Music Industry

Job Roles in the Music Industry

Musician

A musician is someone who performs music through the playing of an instrument or singing. Musicians play many different styles of genres, from Jazz to Pop, from Classical to Folk.

Musicians main responsibilities are:

- *Train and practise regularly to keep skills to a high standard*
- *Turn up to rehearsals on time and ready to play*
- *Look after their instrument or their voice*
- *Learn new music for a show.*

Composer/Songwriter

A Composer is someone who writes music. This can be in the form of music written for an orchestra or brass band, music written for film or television, electronic music written on computers or through song writing.

Composers main responsibilities are:

- *Compose music for a TV programme (quiz show, soap, commercial)*
- *Compose songs for singers*
- *Compose music for a special event (coronation, Olympics)*
- *Keep to a deadline*
- *Work with the performer so that the song/composition is at their ability level of singing/performance (correct range)*

Record Producer

A Record Producer (or Music Producer) has a very broad role in overseeing and managing the recording (i.e. "production") of a band or performer's music. They have a lot of responsibility over the final recording made and are often likened to the director of a film in terms of their importance and overall creative input.

Record Producers main responsibilities are:

- *Oversee and manage the recording of an artist's music*
- *Gather ideas for the project and select songs*
- *Hire session musicians for the project*
- *Coach the artist in the studio*
- *Control the recording session*
- *Supervise the entire process through mixing to mastering*

Musical Director/Conductor

A Conductor directs a musical performance, such as an orchestral or choral concert, by way of visible gestures with the hands, arms, face and head. They are also responsible for rehearsing the band and understanding what all the performers are supposed to be playing.

Conductors main responsibilities are:

- *Bring all performers together, so they play as one group*
- *Set the tempo and give clear indications by conducting*

- *Shape the sound of the ensemble by directing them to play in a certain way.*
- *Guide the orchestra/choir so they stay together as they perform*
- *Choose the music and study the scores*

- *Communicate ideas of how the music is to played to the performers*
- *Schedule rehearsals*

Live Sound Technician

A Live Sound Technician controls the sound at live events such as theatre performances and music concerts. They operate microphones, amplifiers and control desks to balance the sound levels, as well as providing background music and sound effects.

Live Sound Technicians main responsibilities are:

- *Choose suitable microphones and equipment and make sure these are looked after.*
- *Position and rig-up microphones*
- *Do sound-checks*
- *Operate the sound desk during shows/recording*

Roadies (Road Crew)

The road crew (or roadies) are the technicians or support personnel who travel with a band on tour and handle every part of the concert productions except actually performing the music with the musicians

Roadies main responsibilities are:

- *Set up equipment before event*
- *Look after the equipment*
- *Pack away the equipment at the end of the event*
- *Carry equipment*

Instrument Technicians

Instrument Technicians are those that have specialist knowledge of specific instruments and can therefore support with the use of them. They also have knowledge of how they should be used or the best configuration to get the best sound. Instrument Technicians main responsibilities are:

- *Look after the instrument*
- *Fix the instrument when broken (e.g. broken strings)*
- *Give advice regarding best use of equipment*

Artist Manager

An artistic manager, also known as a talent manager, band manager or music manager, is an individual who guides the professional career of artists in the music industry.

Artistic Managers main responsibilities are:

- *Organise and confirm show dates and tours*
- *Liaise with record companies*
- *Assist with studio planning*
- *Support artist on a personal level, with advice on lifestyle choices*
- *To maintain the high standard needed of the artist*
- *Exploit marketing opportunities.*

BTEC Music – Unit 1 The Music Industry

Job Roles in the Music Industry (Continued)

Venue Manager

The venue manager must ensure the smooth running of their venue and make sure that the venue is a profitable business. This involves working closely with artists, ensuring the quality of the music performed and negotiating fees for the use of the venue.

Venue Managers main responsibilities are:

- *Ensure that all services are opened and fully functional during scheduled times*
- *Check Health and Safety is in place to safeguard clients and employees*
- *Give consistent and excellent level of service to clients*
- *Book artists for the venue.*
- *Assist with preparations of shows and supervise the whole process*

Studio Manager

A Studio Manager makes sure that the studio is organised, in terms of bookings, equipment and administration. They are involved in the business side of the operations and making sure that they keep existing clients satisfied and attract new business to the recording studio.

Studio Managers main responsibilities are:

- *Ensure that the studio is run effectively and that it is financially profitable*
- *Schedule times and liaise with clients*
- *Employ session musicians and engineers*
- *Promotion and marketing of studio*
- *Check Health and Safety is in place to safeguard clients and employees*

Promoter

A Promoter is typically hired as an independent contractor by music venues, earning an agreed-to fee or royalties. They work with agents, or in some cases, directly with the bands, and with clubs and concert venues to arrange for a show to take place. Promoters then are in charge of making sure the word gets out about that show.

Promoters main responsibilities are:

- *Work with venues to arrange for a show*
- *In charge of 'putting on' the show*
- *Work with artists' management*
- *Promote the show through advertisement and publicity*

Marketer

A Music marketer is someone who is in charge of raising awareness of an artist and creating a brand that can be easily recognisable to the public. In order for the artist to be popular, a marketer must help create a fan base through various types of media and publicity campaigns.

Marketers main responsibilities are:

- *Design and implement marketing (i.e selling) plans: album sales, streams*
- *Gather prices for advertisements and promotions*
- *Devise promotional events, giveaways, sponsorships*
- *Have a radio/ online campaign for an artist*
- *Create the artist's image/brand*

Artists & Repertoire

Artists and repertoire (A&R) is the division of a record label or music publishing company that is responsible for talent scouting and overseeing the artistic development of recording artists and songwriters.

A&R main responsibilities are:

- *Scouting for new talent and sign to a record label*
- *Oversee all the aspect of the process from delivery to finished recordings*
- *Development of artist as they grow and mature*
- *Manage the recording process*
- *Help find songs appropriate for the artist*

Sound Engineer

A Sound Engineer is required to assemble, operate and maintain the technical equipment used to record, amplify, enhance, mix or reproduce sound.

Sound Engineers main responsibilities are:

- *Planning recording sessions with producers and artists*
- *Setting up microphones and equipment in the studio*
- *Making sure the volume and recording levels are set correctly*
- *Operating recording equipment and adding effects*
- *Recording each instrument or item onto a separate track*
- *Mixing tracks to produce a final 'master' track*

AC1.1 Retail channels

Stores/shops – Described as physical (traditionally bricks and mortar) and can either be permanent or temporary.



Advantages - Face to face service. Customers can physically see the products they are buying.

Disadvantages - Access is restricted. Expensive to set up and run.

Online retailing – Form of electronic commerce which allows consumer to directly buy goods or services from a seller over the Internet. These can include a retailer's own website, or a third party marketplace (Amazon, eBay, Etsy), or on social media.



Advantages - Global audience, so increased customer base. Low set up and operational costs. Purchases can happen 24/7.

Disadvantages - Design and maintenance of website isn't easy. Risk of security and fraud. Reduced customer trust.

Multi-channel – Where business will use more than one retail channel to sell through. For most retailers this means selling in a physical store and online but can also include catalogues.



Advantages - Customers can choose their preferred shopping channel, ease of purchase, increase in customer base.

Disadvantages - More complex, money invested in different systems.

Hybrid – A mix of two things to form one. Hybrid retail stores like the importance of a physical store with E-commerce or hospitality and leisure. Examples of this are Costa coffee within a Waterstones.

Advantages - Capitalise on the reputation of the hospitality/leisure business. Increase in footfall.



Disadvantages - Reduced shop-floor space for selling products.

Temporary shops - Temporary or 'pop-up' shops often use vacant premises for a short period of time.

Advantages - Test product & locations without big financial implications. Offload old stock.

Disadvantages - Limited time, limited product choice.



Concession - The owner of the concession pays another business/retailer in order to sell their products in their premises. Benefit from footfall of larger retail store. Cost effective. Customers can test products. Increase brand awareness.

Disadvantages - If reputation of large store is affected this will impact the concession store. Small space restricting the number of products sold. Adhere to concessions rules.

Markets - Can be indoor/outdoor, permanent/temporary.

Advantages - Cheap rent, easy to move. Selling of seasonal stock.

Disadvantages - if outdoors weather dependent. No or little infrastructure/parking.



Franchises - Franchising is an agreement in which one business (called the franchisee) buys the right to sell the goods or services of another business (called the franchisor), and is allowed to use the franchisor's name.

Advantages - Company already has a good reputation. Systems and suppliers are already set up.

Disadvantages - Franchisor can't ensure product quality. Franchisee doesn't have creative control over product range.



AC1.2 Forms of Ownership

Sole trader - A business that is owned and run by one person. Although a sole trader is owned by only one person, the owner can employ people to work for them. **Advantages** - They are their own boss. Decision making is straight forward. Receive 100% of the profit. Operate business to suit their lifestyle.

Disadvantages - Difficult to raise capital/acquire bank loans. Long hours. Unlimited liability.

Partnerships - An agreement between two or more people to take responsibility for the running of a business, to share profits and to share the risks. By law a business can have between 2 and 20 partners.

Advantages - Cheaper/easy to set up. Extra capital available. Share workload. More expertise.

Disadvantages - Shared profits. Potential disagreements. Shared control.

Private limited companies (Ltd) - Owned by shareholders who have invested money in order to buy a share of the business. The more shares a shareholder owns, the more control he or she will have within the business. They are controlled by a board of directors.

Advantages - Limited liability. Easily raise additional capital. Ran by major stakeholders so fewer arguments.

Disadvantages - Accounts are published publicly. Difficult to find new suitable shareholders.

Public limited companies (Plc) - Shares are bought by the public through the stock exchange. To become a Plc the business must issue at least £50,000 of shares to the public.

Advantages - Limited liability. Additional capital is easily raised - well known organisations.

Disadvantages - Must issue £50,000 to the public. Accounts published publicly. Unwanted takeovers.

Co-operative - Owners of a co-operative are known as members, no overall boss. All members invest and run the business in a democratic way. Often focus less on profit and more on ethical business practices.

Advantages - Members have great job satisfaction. Committed to training & education.

Disadvantages - Large decisions are difficult to make due to democratic process. Ethical business may limit profit opportunities.

Not for profit - An organisation that does not earn profits for its owners. All profits or donations are used in pursuing the organisations objectives.

Advantages - Raising money in order to support a cause. **Disadvantages** - Rely on volunteers/donations.

AC1.3 Objectives of retail business

Financial - Based on the financial performances of the business.

- Increase profit. The difference between the amount earned and the amount spent of buying, operating or producing something.

This can be done by

- Increasing sales.
- Reducing costs. Switching suppliers to reduce manufacturing costs.
- Making decisions for survival. Redundancies, renting instead of buying property.

Social - Focus on ethical, environmental or social issues.

- Reducing the carbon footprint.
- Using local suppliers.
- Develop/use Fairtrade foundation objectives.

Growth - Based on business strategy and growth of the company.

- Expansion - Additional stores/retail channels.
- Acquisition - Buying another company.
- Diversification - Sell a wider range of products.

Retail specific - Objectives are specific to retail industry.

- Additional services. (Click & Collect/HD streaming)
- Introduce multi-channel approach.
- Training staff to improve product knowledge. Improve quality by changing suppliers.
- Renting store space to concessions.
- Replace manual stock control with IT systems.

AC2.1 Factors that affect retail business.

Some external factors may have a positive impact on retail business, while the effects of others can be negative.

Economic factors

Inflation - A general increase in prices across the economy and is usually shown as a percentage. If inflation is above 0% it means costs are increase so -

- Manufacturing cost are higher.
- Wages are higher.
- Profits will decrease.
- Price of products will increase to try and raise profits.
- Affects all businesses so product prices will increase.

Unemployment - Unemployment levels are the number or people in work in an economy - this will rise and fall as economy grows and declines.

Economic growth;

- Demands on businesses will increase.
- Businesses will need employees to meet these demands.
- Most people who want a job are already employed.
- Wages will increase in order to attract new employees.

Recession/economic slump;

- Less disposable income, demands of business are low.
- Large number of people are unemployed/looking for work.
- Businesses will have a wide pool of applicants, Wages will stay low as less competition between business to recruit employees.

Interest rates - Charges made to a business/individual for borrowing money.

Interest rates increase;

- More money is needed to pay back loans.
- Borrowers will spend less money shopping.

Interest rates decrease;

- Less money is needed to pay back loans.
- Borrowers will spend more money shopping.

Interest can also be a reward to those will having money saved.

Interest rates increase;

- More money is received as a reward for saving.
- Savers will spend more money shopping

Interest rates decrease;

- Less money is received as a reward for saving.
- Savers will spend less money shopping.

Taxation

Taxes are charges made to the government, who can raise/reduce taxes which will affect both consumers and businesses.

Income tax - Statutory tax that is paid on a person's income which increases as wages increase.

Value Added Tax - VAT is paid on purchase of goods and services and is 20%. VAT not paid on children's clothes & certain food/drink.

Corporation tax - Paid on company profits and is set at different prices in different countries. Companies will register themselves in countries with a lower corporation tax percentage to increase profits. Can be seen as immoral because the Government are receiving less money to spend on education/NHS.

Business rates

Business rates are the tax paid on business properties including offices, manufacturing warehouses and storage facilities.

Exchange rates

Exchange rates are the cost of switching from one currency to another. The price of currencies will change daily meaning companies could end up paying more/less for goods depending on the exchange rate.

Environmental factors

Finite resources (resources that will run out) will only be available for a limited time. Business must act in a sustainable way to ensure these finite resources are still available for future generations. Businesses can;

- Reduce the amount of packaging.
- Increase recyclability.
- Promote recycling schemes.
- Using sustainable sources of energy.
- Reduce water use.

Ethical factors

Businesses are also under pressure to act ethically which means knowing what is morally right from wrong. Business can;

- Only purchase from Fairtrade producers.
- Raise wages to improve living standards.
- Improve working conditions in poorer countries.

This can result in an increase in sales as consumers will view company in a better light which could result in consumer loyalty.

Social factors

Businesses have to be aware of the ever changing social factors which involves understanding demographics. A demographic is the structure of the population and will identify groups of people with similar characteristics such as age, gender, interests, race and religious belief.

Understanding your demographic will help business determine buying behaviours. It also ensure that companies aren't producing products that will offend a particular type of demographic.

AC2.1, AC2.2 Location and effect on retail businesses.

Different locations will have different characteristics that will affect how well the business performs. The factors that should be considering when choosing a location are;

- Rents/rates. Are these affordable?
- Parking. This can attract more customers if available.
- Access. How easy is the store to get to?
- Infrastructure. Is there technical structures already in place. (roads/water/power)
- Competition. Is there existing competition in the area.
- Local demographics - Are the right customers in the area?

Urban - Retailers are located in city and town areas.

- More populated so increase in footfall.
- Wider range of stores, more competition.
- Good transport links
- Higher rent

Local - Located in towns/villages usually sole traders or smaller businesses.

- Offer services for the local community.
- Cheaper rent.
- Less competition between stores but bigger competition with Urban shopping locations.
- Less transport links.

Rural - Located outside cities and towns.

- Focus products on local population.
- Much lower footfall.
- Cheaper rents.

Transport hubs - Place where passengers change between transport modes. (Bus stations, train stations, airports)

- Rely on high public footfall.
- Predominantly small/hospitality stores.

Shopping centres - usually in urban areas where a range of different retailers are housed under one roof.

- Wide range of stores and leisure/hospitality facilities.
- Good parking availability.

- Wide range of stores situated in a condensed area.

Retail parks - Located away from city centres with easy access and good parking facilities.

- More space so shop sizes are usually bigger.
- Predominantly furniture/large items so good transport facilities to cope with delivery of items.
- Excellent parking facilities.

AC2.3 Ways for businesses to achieve objectives.

Marketing - involves any promotional activity that informs the public of a product. It involves;

- Making the potential customer aware the product is for sale.
- Explaining what the product is.
- Making the potential customer aware of how the product will satisfy their needs.
- Persuading them to buy the product.

Advertising - Includes any paid messages sent to customers. Examples are television, radio, newspaper, poster/billboards, cinemas, direct/junk mail & online advertising.

Sales promotion - An attempt to give a short term boost to sales and include BOGOF offers, discounts, competitions, free gifts, customer loyalty cards and advertising the quality of your products.

Direct Marketing - A retail business can profile their customers a build up a database of information. This means they can directly target specific group who may be attracted to their products or services.

Diversification - When a business enters a new market or industry to attract new customers.

Staff training - It is important that staff are trained to deal with customers. Training usually involves;

- Customer services
- Healthy & Safety
- Product knowledge
- Systems knowledge - ICT/equipment.

Stakeholder support - Stakeholders are people with an interest or concern in a business. These include local residents, other local businesses, councillors, government & porters pilots.

It is in the interest of these stakeholders that retailers thrive in the community to employ local people and provide products.

New retail channels - Businesses will look into other retail channels to adopt a multi channel approach. This will help to increase their customer base.

Improvement to stores/shops. Retail environment is very competitive and improvements must be made to stores to ensure customers are attracted to visit. This could include signage and repainting, new fixtures/fittings, lighting, wider range of services and in-store cafes. This all help to create a brand experience that will ensure customer loyalty.

AC3. 1 Interpreting data - Definitions

Market share - This is the portion of a market controlled by a particular company or product, usually shown as a percentage.



Ownership - Ownership is the act, stat or right of possessing something. This is often determined by the amount a partner has invested into a company.

Footfall - Is the number of people entering a shop or shopping area in a given time.

Sales - Sale is the action of selling a product.

Demographic - Structure of the population (age ranges, religion, wealth).

Sustainability - Acting in a way that ensures finite resources will be available for future generations.

Economics – Paper 2 – How the Economy Works

Key words

Budget Deficit	When government spending is greater than tax revenue	Supply Side Policy	Policies used to enable an increase in the supply of goods within an economy
Deregulation	The removal of regulations or restrictions on a particular industry	The Bank of England	The institution that implements monetary policy on behalf of the government
Negative Externality	A cost to a third party not involved in the original transaction	Export	Goods that are produced within a country and then sold abroad
Base Rate	The interest rate set by the BoE that influences market interest rates	Import	Goods that are produced abroad and then purchased in this country

KPI 1 – Fiscal Policy:

Fiscal policy is the use of government expenditure, taxation and government borrowing to affect levels of income and expenditure within the economy. Budget deficits each year are shifted onto the national debt. The UK's national debt is favourable compared to many other economies.

The government will try to affect levels of income and expenditure by: Creating Public Sector Jobs (5 million employed), Provide fixed term contracts to the Private Sector (this gives stability), Subsidise or give grants (this allows firms to expand capital items), Provide Welfare benefits, Change Tax allowances and Change spending priorities.

Governments will chose expansionary or contractionary policies to increase or decrease levels of demand so that the 4 main government objectives can be met.

KPI 2 – Monetary Policy

Monetary policy concentrates on influencing prices. The primary tool for this in the UK is Base Interest Rates. This is effective because most people have debt (Mortgages) and therefore prioritise debt payment. An increase in the rate will mean people have less to spend on other things.

The Bank of England (BoE) has responsibility for setting the Base Rate – it is set by the Monetary Policy Committee (MPC).

Other forms of monetary policy include Quantitative Easing and Forward Guidance. Monetary Policy may not always be effective because other factors affect the price of goods such as raw material costs, transportation costs, exchange rates, etc...)

KPI 3 – Supply Side Policies

Supply Side Policies are government policies aimed at increasing productivity capacity. This means that the economy can supply more goods and services. Supply side policies improve the efficiency, competitiveness and productivity of the economy.

Supply side policies include: Reducing Trade Union Power (this weakens pay rises), Reducing Income Tax (people who keep more of their money will work harder and spend more), Reducing Benefits (this encourages people to want to work), Privatisation (this makes firms more efficient as their aim is to make profit), Regulation and Deregulation (this ensures fairness of price and introduces more competition).

Other supply side policies used around the world include Education and Training, Investment in Infrastructure and Healthcare.

Supply side policies are not always advantageous. They can cause inflation, restrict funding to other areas of need and can often take years to see any benefit from.

KPI 4 – Policies to Correct Externalities

Externalities refer to the impact of economic activity on a third party.

Production can cause externalities such as waste and pollution. The costs of these are not met by the producers but since they can cause health care issues, the healthcare system will pick up the cost.

Consumption can cause externalities such as obesity or heart disease. Again, the healthcare system will pick up the costs of these.

The government can correct externalities through: Indirect Taxation, Subsidise products with positive externalities, Introduce Laws and Regulations, State Provision, Nudges and Government Campaigns.

KPI 5 – International Trade and the Global Economy

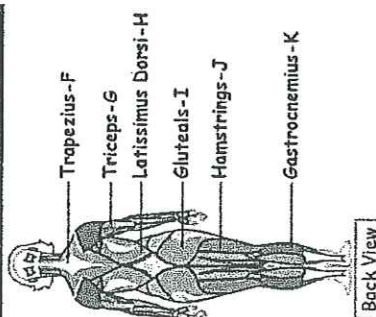
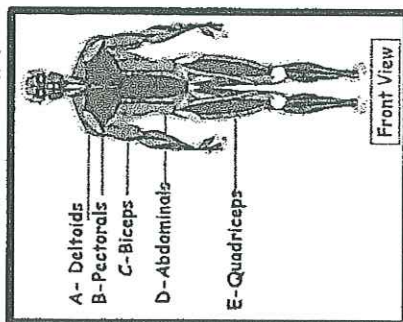
International trade is the exchange of goods and services between countries. Through specialising in goods and services, and producing them at a lower cost, countries gain an 'absolute advantage'. Selling and buying goods and services between countries is known as exporting or importing. Trading with other countries can mean that: prices are lowered through competition or specialisation; more choice of products, lower production costs (employing labour from cheaper areas of the world), average costs are lowered.

Free Trade: This is where there is free movement of goods and services between countries without any restrictions. The World Trading Organisation (WTO) puts rules in place to stop countries imposing unfair taxes on imports or subsidising local industries as they can distort 'absolute advantage'.

The structure and function of the muscular system

Location of major muscle groups

Know the name and location of the following muscle groups in the human body and be able to apply their use to examples from physical activity/sport:



	Function
Deltoid	Lifting the arm at the shoulder (the deltoid muscle has different parts which flex, extend and abduct the shoulder joint)
Trapezius	Shoulder horizontal extension (moving the arms backwards at shoulder level)
Pectorals	Adduction of the shoulder (moving the arm towards the body); Shoulder horizontal flexion (moving the arms forwards in front of the body)
Triceps	Extension of the elbow (straightening the arm)
Biceps	Flexion of the elbow (bending the arm)

Abdominals

Flexion of the spine (sitting upwards)

Latissimus dorsi

Adduction of the shoulder (moving the arm down towards the mid-line of the body)

Gluteals

Hip extension (moving the femur backwards)

Quadriceps

Extension of the knee (straightening the leg)

Hamstrings

Flexion of the knee (bending the leg)

Gastrocnemius

Plantar flexion of the ankle (pointing the toes downwards)

Example in sport

Deltoid

Lifting the arms to block in volleyball; upward arm swing when trampolining

Trapezius

Preparation phase of an overarm throw or badminton smash

Pectorals

Upwards phase of a press up; rugby player making a tackle

Triceps

Shooting and chest passing in netball (execution phase)

Biceps

Drawing a bow in archery; 'backscratch' position during tennis serve

Abdominals

Performing a sit up or a forward roll

Latissimus dorsi

Hitting in hockey – left shoulder during preparation, right shoulder during execution and recovery

Gluteals

Pulling leg back at the hip before kicking a ball

Quadriceps

Kicking a ball (execution and recovery phase)

Hamstrings

Performing a hamstring curl on a weights machine; preparation phase of a rebound jump in basketball

Gastrocnemius

Standing on tiptoe to mark a shot in netball or pointing the toes during a gymnastic or dance move

The roles of muscle in movement

know the definitions and roles of the following and be able to apply them to examples from physical activity/sport.

- agonist- this is the working muscle that produces or controls the desired joint movement. Also known as the prime mover
- antagonist- for movement to be coordinated muscles work in pairs so that control is maintained. The movement caused by the agonist is countered by the action of the opposing muscle, called the agonist.
- fixator- this is a muscle that works with others to stabilise the origin of the prime mover e.g the trapezius contracts to stabilise the origin of the biceps.

Pairs of muscles-

There is a vast range of movements that can be made by the human body. To produce these movements, muscles either shorten, lengthen or remain the same length when they contract. Muscles work in pairs: as one muscle contracts, the other relaxes. Muscles that work together like this are called antagonistic pairs. This type of action enables the body to move with stability and control.

Antagonistic Muscle Pairs

The following groups of muscles are antagonistic pairs:

Joint	Antagonistic pair	Movements produced	Sport example
Elbow	Biceps; triceps	Flexion; extension	Chest pass in netball; badminton smash
Knee	Hamstrings; quadriceps	Flexion; extension	Jumping to block in volleyball; tuck jump in trampolining
Shoulder	Latissimus dorsi; deltoid	Adduction; abduction	Golf swing; breaststroke arms

Lever Systems

Know the three classes of lever and their use in physical activity and sport:

Bones and muscles act together to form levers. A lever is a rigid structure, a length of bone that turns about a pivot-the joint. Levers are used to make a small amount of force into a bigger force- this is gaining a mechanical advantage.

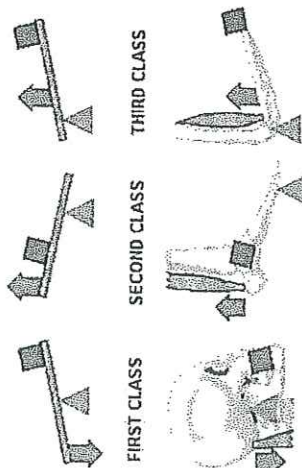
Four parts to a lever:

Lever arm- bones acts as lever arms

Pivot- Joints act as a pivot

Effort- muscles provide the effort to move loads

Load- load forces are often the weight of the body parts that are moved or forces needed to lift, push or pull things.



First class lever- the fulcrum (sometimes called pivot) is located between the effort force and the load force on the lever arm. *Example- at the neck- heading the ball.*

Second class lever- this is when the load or resistance is between the fulcrums and the effort. *Example- raising your toes or plantar flex at the ankle.*

Third class lever- this is when the effort is between the fulcrum and the load or resistance. *Example- at the knee the action of the hamstrings and the quadriceps at the knee joint causing flexion and extension, such as leaping up to catch a basketball.*

Know the definition of mechanical advantage- The relative efficiency of each of the lever systems is called the 'mechanical advantage'.

Some levers (first and second class) provide mechanical advantage. This means that they allow you to move a large output load with a smaller effort.

$$\text{MECHANICAL ADVANTAGE} = \frac{\text{LOAD}}{\text{EFFORT}}$$

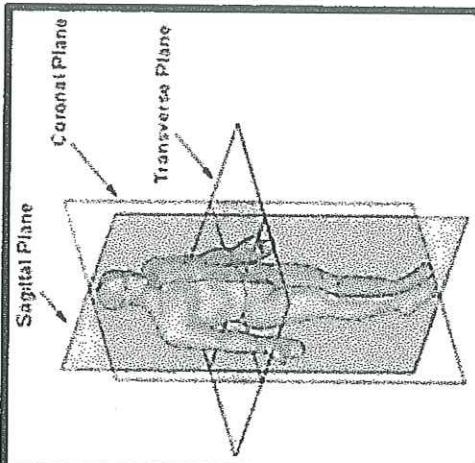
Where the load = 500N and the effort=100N

The mechanical advantage would be

500N divided by 100N = 5

Planes of movement and axes of rotation

Know the location of the planes of movement in the body and their application to physical activity and

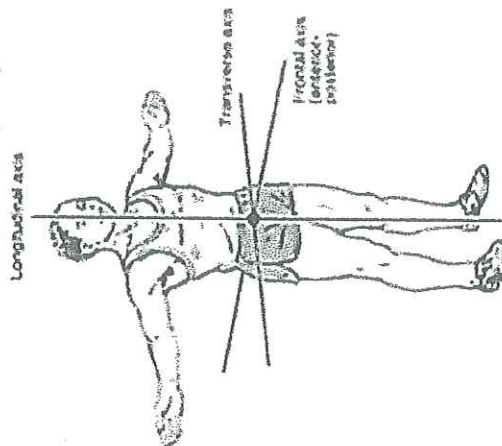


Frontal Plane- Runs vertically and divides the body in sections between front (anterior) and back (posterior). Movements in this plane are sideways movements of abduction and adduction. *Example- abduction and adduction of the legs at the hip joint- jumping jack.*

Transverse Plane- Runs horizontally and divides the body into upper (superior) and lower (inferior) sections. Movements in this plane are rotational. *Example- arm action (circumduction) when bowling in cricket with rotation at the shoulder joint.*

Sagittal Plane- Splits the body vertically into left and right sides. Movements in this plane are the up and down movements of flexion and extension. *Example- leg action in running takes place in the sagittal plane.*

Know the location of the axes of rotation in the body and their application to physical activity and sport:

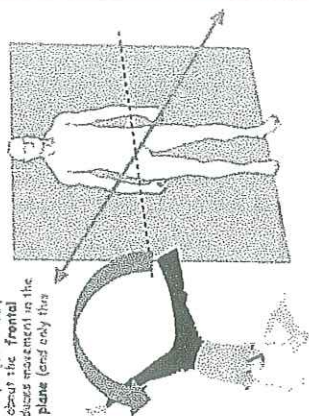


There are 3 axes of rotation:

-Frontal axis

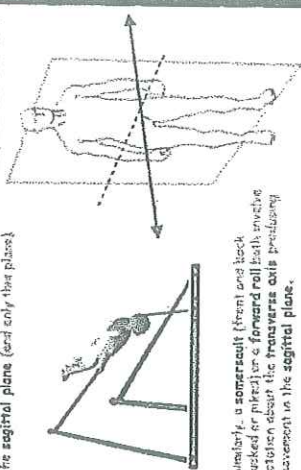
Rotation About The Frontal Axis

In this example (topwheel) rotation about the frontal axis produces movement in the frontal plane (and only this plane)



Rotation About The Transverse Axis (1)

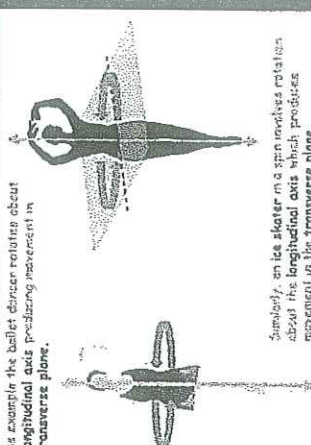
In this example rotation about the transverse axis produces movement in the sagittal plane (and only this plane)



Similarly, a somersault (front and back tuck or pike) or a forward roll both involve rotation about the transverse axis producing movement in the sagittal plane.

Rotation About The Longitudinal Axis (1)

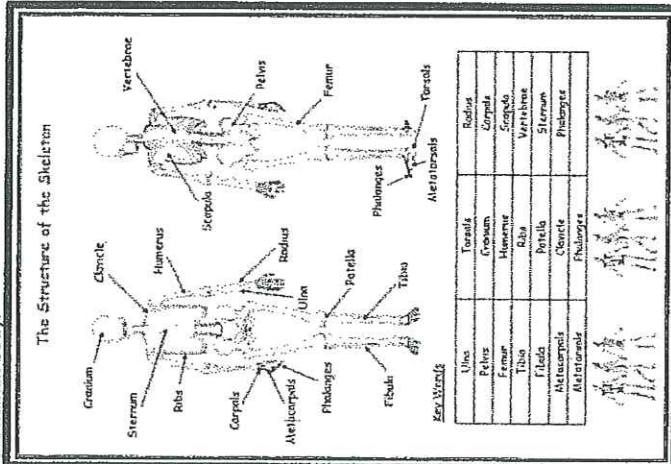
In this example the ballet dancer rotates about the longitudinal axis producing movement in the transverse plane.



Similarly, an ice skater in a spin involves rotation about the longitudinal axis which produces movement in the transverse plane.

The structure and function of the skeletal system.

know the name and location of the following bones in the human body:



Understand and be able to apply examples of how the skeleton provides or allows:

- support - gives shape and support
- posture - shape and support allows for posture
- protection - protects internal organs such as heart, lungs spinal cord and brain. Cranium protects brain.
- movement - provides areas for muscle attachment
- blood cell production - produces red and white blood cells
- storage of minerals - such as phosphorus, calcium, potassium and iron etc.

Know the definition of a synovial joint- A Synovial Joint is a freely movable joint in which the bones surfaces are covered by cartilage, called Articular Cartilage, and connected by a fibrous connective

Know the following hinge joints:

- knee - articulating bones - femur, tibia
- elbow - articulating bones - humerus, radius, ulna

Articulating bones are the bones that move within a joint.

Hinge joints allows movement in one plane only, just like a door hinge moves (uniaxial). An example of an activity that uses the knee joint is sprinting- example for elbow joint- bicep curl.

Know the following ball and socket joints:

- shoulder - articulating bones - humerus, scapula
- hip - articulating bones - pelvis, femur

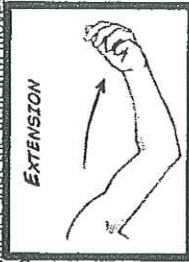
Ball and socket joints allow a wide range of movement and occurs when a round head of a bone fits into a cup shaped depression. An example of a physical activity that uses the shoulder joint- Javelin. Example for hip joint- sit-up training exercise.

know the types of movement at hinge joints and be able to apply them to examples from physical activity/sport:

- flexion - is a decrease in the angle around a joint. When a badminton player prepares to hit a overhead clear, the arm shows flexion at the elbow

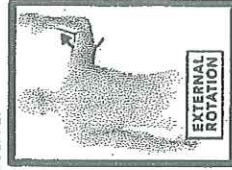
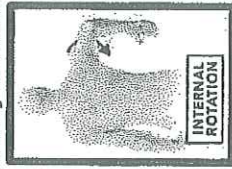


- extension- is when the angle of the bones that are moving (articulating bones) is increased. When making a basketball set shot the bent arm moves to a straight arm as you shoot.

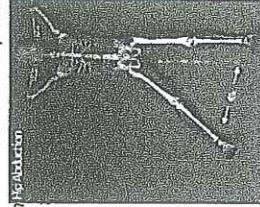


know the types of movement at ball and socket joints and be able to apply them to examples from physical activity/sport:

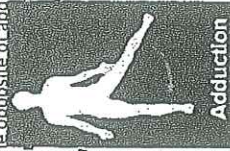
- flexion - is a decrease in the angle around a joint
- extension - is when the angle of the bones that are moving (articulating bones) is increased.
- rotation - is when the bone turns about its longitudinal axis within the joint. Example in sport- tennis player uses external rotation at the shoulder joint during the backswing of a serve.



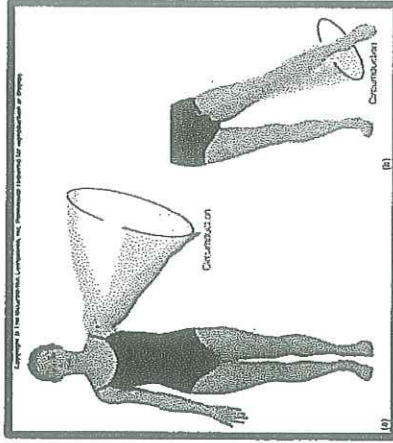
• abduction- is the movement of the body away from the middle or midline of the body. Example in sport- gymnast with rotation shows abduction at



• adduction- is the opposite of abduction and is the movement towards the middle of the body. Example in sport- a rugby player will hold onto the player's shoulder joint as



• circumduction- is a combination of abduction, adduction, extension or flexion and rotation. Example in sport- a gymnast on the beam takes her back leg back off the beam and moves it out and round to place her foot ahead of her front foot.



know the roles of:

- ligament - found between bones and attach bone to bone. Function- the role of the ligaments is to help join bones together and keep the joints stable during movement.
- cartilage- soft connective tissue. Function- the role of cartilage is to reduce friction and act as a shock absorber at the joint

Basic types of cartilage

- Yellow elastic cartilage
- Hyaline or blue articular cartilage
- White fibro-cartilage.

• tendons- muscles are attached to bones via tendons. These are strong and can be a little flexible. Function- as well as their attachment role, they help to transmit the power needed to move bones. When a muscle shortens, it pulls on the tendons: this pulls on the tendons are attached and causes movement.

KPI 1: Tax

Income Tax:

- As an employee:
- You pay 0% on earnings up to £12,750 for 2020-21
- Then you pay 20% on anything you earn between £12,751 and £50,000
- You'll pay 40% income tax on earnings between £50,001 to £150,000
- If you earn £150,001 and over you pay 45% tax.
- For example, if you earn £52,000 a year, you pay:
- Nothing on the first £12,750
- 20% on the next £37,500
- 40% on the next £2,000.
- Therefore, you would expect to pay:
- £8,300 per year / £691.66 per month

What happens if I don't pay income tax?

Most people pay Income Tax through PAYE. This is the system your employer or pension provider uses to take Income Tax before they pay your wages or pension. If your employer makes a mistake and under pays your tax, you could be made to repay that amount through the next years PAYE if the amount is under £3,000 and you earn under £30,000 per year. In some very limited circumstances, it may be possible for HMRC to write off the debt, or, if your employer or pension payer is at fault, to collect the tax from them instead. If you are a self-employed person, you are responsible for filing your tax returns each year with the HMRC. Failure to do so or filing late or inaccurate returns can result in a HMRC Enquiry. If the enquiry find you are guilty of deliberately misleading or falsify your tax record you can be prosecuted for fraud. In most cases you will be given a bill for the unpaid tax and a set time frame to pay it back.

For further support...

Home/School Support:

- Family e.g. parents, siblings etc.
- Friends
- Teachers
- Tutors
- Mr Ogden
- Mrs Jones
- Mrs Loveridge
- Mrs Hayward
- Speak to a GP (doctor)

Trusted Organisations:

- Childline — 0800 1111 or www.childline.org.uk trained counsellors, including via email and an online chat service.
- GambleAware — www.begambleaware.co.uk provides resources, information and support to keep people safe from gambling harms.
- GamCare — www.gamcare.org.uk advice about gambling problems including a helpline and online chat service.
- The National Gambling Helpline number is 0800 8020 133.
- <https://www.gamblersanonymous.org.uk>

Topic 1 – Financial Decision Making

KPI 3 - Budgeting

BUDGETS are a valuable tool for managing your money. They are used to manage INCOME (money coming in) and EXPENDITURE (spending on a weekly, monthly and yearly basis). Most Budgets contain a list of all spending that is ESSENTIAL, and spending that is optional (DISPOSABLE).

Why is budgeting important?

Since budgeting allows you to create a spending plan for your money, it ensures that you will always have enough money for the things you need and the things that are important to you. Following a budget or spending plan will also keep you out of debt or help you work your way out of debt if you are currently in debt.

Advantages of budgeting:

- Makes it easier to track and control spending
- Shows where you are spending too much
- Can relieve and reduce money related stress
- Can help with managing debt
- Can help free up and save money
- Can help with investing money (a way to make more profit from your money)
- Can help prepare for emergencies
- Can help when applying for a loan or a mortgage

How to stick to a budget:

- Consider quality versus price – cheaper things cost less but might need frequent replacement, so in the long term you end up spending more
- Keep your budget up to date – regular checks of your money allows you to see if you need to make changes
- Treat yourself – always factor in money for entertainment, holidays and rewards
- Self-discipline – changing spending habits takes a lot of willpower
- Be realistic – what can you really afford to spend, and pay off?
- Motivation – remember your reasons for spending and saving

Consequences of poor budgeting:

- A person may fall into debt
- A person might not be able to reach their goals
- A person might not be able to pay for essential items
- Difficulty in saving for the future
- Stress because of less money and debt

KPI 2: Gambling

What is gambling?

Gambling is the act of wagering something of value (usually money), on an event/game with an uncertain outcome. The aim of which is to win something else of value (usually higher value).

How common is gambling?

More than two million people in the UK either have a gambling disorder or are at risk of addiction. Technology enables greater accessibility to gambling from an early age. E-sports gambling (i.e. betting on online match-play rather than in-person sporting events) is a particular vulnerability for young people.

Why do people gamble?

- For social reasons – This may be because it's what a group of friends do when they get together, or because it makes a social gathering more enjoyable.
- For financial reasons – to win money, because someone enjoys thinking about what they would do if they won a jackpot, or because winning would change someone's lifestyle.
- To clear debt – The temptation to get rid of financial worries in one day is a reason people gamble. People can win a lifetime salary in the space of a day, or lose everything.
- For entertainment reasons – because they like the feeling, to get that rush or "high", or because it makes them feel good.
- For coping reasons – for someone to forget their worries, because they feel more self-confident, or because it helps when they are feeling nervous or depressed.

Someone may be a compulsive gambler if they...

- spend more money on gambling than you can afford
- gamble when you should be doing something else, like working or spending time with family
- feel anxious or stressed about your gambling
- use gambling to deal with problems or difficult feelings
- lie to family and friends about your gambling
- borrow or steal to fund your gambling.

Problems gambling can cause:

- Relationship problems
- Financial problems, including bankruptcy
- Legal problems or imprisonment
- Poor work performance or job loss
- Poor general health
- Suicide, suicide attempts or suicidal thoughts

KPI1: Key Definitions Mental Health: The capacity to live a full, productive life as well as the flexibility to deal with its ups and downs. In children and young people, it is especially about the capacity to learn, enjoy friendships, to meet challenges, to develop talents and capabilities. Mental Wellbeing: your mental state – how you are feeling and how well you can cope with day-to-day life. Stigma: Stigma is when someone sees you in a negative way because of your mental illness. Discrimination: Discrimination is when someone treats you in a negative way because of your mental illness. Body Image: Mindfulness: Bereavement: Emotional Resilience: If you need any support... Home/school support: Friends, teachers, tutor, parents/carer, Mr Ogden, Mrs Jones, Mrs Loveridge, Mrs Jones, Mr Hayward. Reputable Organisation: - Young Minds – www.youngminds.org.uk - Young Minds CRISIS MESSANGER: Text YM to 85258 - Childline – www.childline.org.uk Phone: 0800 1111 - Samaritans – www.samaritans.org Phone: 11612 - Young Mind Matters – Text 07480635723 - Kooth – Kooth.com - TIC+ - online text chat – 07977334433 - Self-Harm Helpline Rethink Gloucestershire – webchat: www.gloucestershire-rethink.org Text: 07537410022 Phone: 0808 8010606 Self-help apps: - Calm Harm – Managing Self-Harm - MindShift – to help manage anxiety and urges to self-harm - Cove – express your mood with music - Stress and Anxiety Companion – helps to manage stress and anxiety - Chill Panda – relaxation and breathing exercises.		Topic 2 – Emotional Wellbeing and Mental Health KPI2: Everyone is different and what affects someone's mental wellbeing won't necessarily affect others in the same way. Everyone will have times when they have low mental wellbeing, where they feel stressed, upset or find it difficult to cope. Common life events that can affect your mental wellbeing include: • loss or bereavement • loneliness • relationship problems • issues at work • worry about money Other influences upon someone's mental health can include factors such as social media, body image, and substances. However, there are times when there is no discernible reason for the way a person feels which can be extremely frustrating.	KPI3: Strategies to promote emotional wellbeing and positive mental health - Relaxation techniques like mindfulness and deep breathing - Following interest in hobbies that provide enjoyable distractions - Keeping active by walking, cycling, swimming or by doing another favourite sport - Getting outside into nature - Spending time with friends and family - Getting plenty of good quality sleep - Doing dedicated exercises intended to promote relaxation e.g. yoga - Online mindfulness, stress and anxiety apps - Asking for help from teachers, family, friends or online support when things get a bit much													
<table><tr><th>Types of Mental Health Problems</th><th>What is it?</th><th>Potential Signs</th><th>Strategies and Treatments</th></tr><tr><td>Depression</td><td>It's a feeling of low mood that lasts for a long time and affects her everyday life. It can make you feel hopeless, despairing, guilty, worthless, unmotivated and exhausted. It can affect herself esteem, sleep, appetite, sex drive and your physical health.</td><td> - Feels like something is 'missing'. - Feel like you cannot cope - Withdrawn, pulling out of activities </td><td> Medication – can provide relief while building other support strategies Cognitive behavioral therapy – practical techniques Activities – Photography and going for a walk Sport/physical exercise </td></tr><tr><td>Anxiety</td><td> What we feel when we are worried, tense or afraid – particularly about things that are about to happen, or which we think could happen in the future. Occasional anxiety is a normal human experience. But if your feelings are anxiety are very strong, or last for a long time, they can be overwhelming. You might also experience physical symptoms such as sleep problems and panic attacks. </td><td> - Physical symptoms e.g. shaking, heart palpitations, pins and needles, stomach pains - Withdrawn - Seeking reassurance - Perfectionism - Can be linked with depression </td><td> - Cognitive behavioral therapy - Yoga and Pilates - Meditation - Diary to reassure that things will pass - Small steps to build confidence - Talking to friends and family - Avoiding researching physical symptoms as this can make things worse. </td></tr><tr><td>Stress</td><td>Stress is the body's reaction to feeling threatened or under pressure. It's very common, can be motivating to help us achieve things in our daily life, and can help us meet the demands of home, work and family life. But too much stress can affect our mood, our body and our relationships – especially when it feels out of our control. It can make us feel anxious and irritable and affect our self-esteem. Experiencing a lot of stress over a long period of time can also lead to a feeling of physical, mental and emotional exhaustion, often called burnout.</td><td> - Disrupted sleep cycle - False FFF (fight, flight, freeze) responses i.e. So wired that small stressors provide big reactions. - Can cause depression and anxiety. </td><td> - Mind tools - Exercise - Quality sleep - Relaxation - Sharing feelings with friends. </td></tr></table>	Types of Mental Health Problems	What is it?	Potential Signs	Strategies and Treatments	Depression	It's a feeling of low mood that lasts for a long time and affects her everyday life. It can make you feel hopeless, despairing, guilty, worthless, unmotivated and exhausted. It can affect herself esteem, sleep, appetite, sex drive and your physical health.	- Feels like something is 'missing'. - Feel like you cannot cope - Withdrawn, pulling out of activities	Medication – can provide relief while building other support strategies Cognitive behavioral therapy – practical techniques Activities – Photography and going for a walk Sport/physical exercise	Anxiety	What we feel when we are worried, tense or afraid – particularly about things that are about to happen, or which we think could happen in the future. Occasional anxiety is a normal human experience. But if your feelings are anxiety are very strong, or last for a long time, they can be overwhelming. You might also experience physical symptoms such as sleep problems and panic attacks.	- Physical symptoms e.g. shaking, heart palpitations, pins and needles, stomach pains - Withdrawn - Seeking reassurance - Perfectionism - Can be linked with depression	- Cognitive behavioral therapy - Yoga and Pilates - Meditation - Diary to reassure that things will pass - Small steps to build confidence - Talking to friends and family - Avoiding researching physical symptoms as this can make things worse.	Stress	Stress is the body's reaction to feeling threatened or under pressure. It's very common, can be motivating to help us achieve things in our daily life, and can help us meet the demands of home, work and family life. But too much stress can affect our mood, our body and our relationships – especially when it feels out of our control. It can make us feel anxious and irritable and affect our self-esteem. Experiencing a lot of stress over a long period of time can also lead to a feeling of physical, mental and emotional exhaustion, often called burnout.	- Disrupted sleep cycle - False FFF (fight, flight, freeze) responses i.e. So wired that small stressors provide big reactions. - Can cause depression and anxiety.	- Mind tools - Exercise - Quality sleep - Relaxation - Sharing feelings with friends.
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- loss or bereavement
- loneliness
- relationship problems
- issues at work
- worry about money

Other influences upon someone's mental health can include factors such as social media, body image, and substances. However, there are times when there is no discernible reason for the way a person feels which can be extremely frustrating.

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Mental Wellbeing: your mental state – how you are feeling and how well you can cope with day-to-day life.

Stigma: Stigma is when someone sees you in a negative way because of your mental illness.

Discrimination: Discrimination is when someone treats you in a negative way because of your mental illness.

Body Image:

Mindfulness:

Bereavement:

Emotional Resilience:

If you need any support...

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Reputable Organisation:

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