

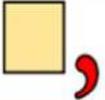
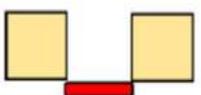
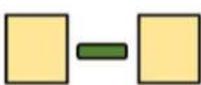
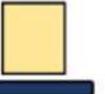
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Literacy Knowledge Organiser

Word classes	
Proper noun	Capital letter noun (person, place etc)
Abstract noun	Something abstract, cannot be touched (anticipation, love, etc)
Concrete noun	Something you can touch (like table, cloud, sheep, etc)
Collective noun	a count noun that denotes a group of individuals (e.g. assembly, family, crew)
verb	Doing word (beckoned, shouted, etc)
Adverb	a word or phrase that modifies the meaning of an adjective, verb, or other adverb, expressing manner, place, time, or degree (e.g. gently, here, now, very)
Pronoun	defined as a word or phrase that may be substituted for a noun or noun phrase. (I, he, they)
Preposition	Describes position of a noun (on, over, near, to, etc)
Adjective	Describing word (fluffy, cold, blue, etc)
Conjunction	a word used to connect clauses or sentences or to coordinate words in the same clause (e.g. and, but, if)

PUNCTUATION MARKS

	Full Stop or Period		Round Brackets
	Comma		Square Brackets
	Semi-colon		Quotation Marks
	Colon		Ellipsis Marks
	Question Mark		Slash
	Exclamation Mark		Underscore
	Apostrophe		Hyphen
	Underline		Dash

English Study Page

English Study Page

Sentences

Key terminology	Definition
Main clause	A group of words which contains a verb and makes sense on its own.
Subordinate/ dependent clause	A clause which does not make sense on its own (it is reliant on the main clause).
Co-ordinating conjunction	Link words or phrases that join two equal clauses.
Subordinating conjunction	Link words or phrases that join clauses where one is dependent on the other.

Sentence Types	Definition
Simple	A sentence containing one main clause.
Complex	A sentence containing a main clause and at least one subordinate/dependent clause.
Compound	A sentence containing two main clauses joined by a conjunction.
Complex compound	A sentence containing two main clauses and one or more subordinate or dependent clauses.
Minor	A word, phrase or a clause which is an incomplete sentence but functions as a sentence.

100 most commonly misspelled words

acceptable
 accidentally
 accommodate
 acquire
 acquit
 a lot
 amateur
 apparent
 argument
 because
 believe
 calendar
 category
 cemetery
 changeable
 collectible
 committed
 conscience
 conscientious
 conscious
 definite(ly)
 disappear
 disappoint
 drunkenness
 embarrass

equipment
 exhilarate
 exceed
 existence
 experience
 February
 foreign
 fourth
 gauge
 generally
 grammar
 grateful
 guarantee
 harass
 height
 hierarchy
 ignorance
 immediate
 independent
 indispensable
 intelligence
 its / it's
 judgement
 knowledge
 leisure

library
 lightning
 maintenance
 manoeuvre
 memento
 millennium
 miniature
 mischievous
 noticeable
 occasion
 occasionally
 occur / occurred
 occurrence
 official
 parallel
 parliament
 pastime
 pigeon
 possession
 preferable
 principal / principle
 privilege
 questionnaire
 receive
 recommend

referred
 reference
 relevant
 religious
 restaurant
 ridiculous
 rhythm
 sandal
 schedule
 scissors
 sensible
 separate
 special
 success
 to / too / two
 tomorrow
 their / they're / there
 twelfth
 tyranny
 until
 vacuum
 vicious
 weather
 weird
 you're / your

Building cohesion within and across a paragraph

Transitional phrases and fronted adverbials allows us to show relationships between ideas, logically connect sentences and paragraphs. It signals how the reader should process the information and makes writing more readable and engaging. Fronted adverbials can create cohesion when changing paragraph.

Transitional phrases		
1A. Time and sequence	1B. Time and sequence	2. Conclusion
After	Meanwhile	Consequently
Next	During	Therefore
Finally	Ultimately	In the end
3. Illustration	4. Change of direction	5. Emphasis
As an illustration	Although	Notably
Such as	But	Moreover
Including	Instead	Most important

Using hyphens

Hyphens are used to avoid confusion being caused by certain words or phrases::



Man eating shark



Man-eating shark

Vocabulary

Adjective	A word that adds more information about a noun.
Adverb	A word that adds more information about verbs, adjectives or other adverbs
Adverbial	A group of words that can function as an adverb
Antonym	A word that has the exact opposite meaning of another word
Bullet points	Organisation device used to list short phrases or items.
Ellipsis	Punctuation (...) that shows where words are left all or to create a cliff-hanger.
Noun	Names of things that we can touch (concrete) and abstract (ideas, emotions).
Synonym	a word that means the same thing as another word.
Verb	A verb is the part of speech that indicates what something does, or what it is

Using punctuation to separate clauses

Semi Colons (;), colons (:), and dashes (-) can be used to separate the boundary between two clauses.

Description: detail sentences.

Bats are excellent hunters: they track small insects using echo-location.

The first section describes the subject and the second adds extra detail.

A semi colon can be used in place of a conjunction where we want the writing to flow where the clauses are closely related.

We lost the ball too many times and we lost the game

Becomes:

We lost the ball too many times; we lost the game.

A dash is often best used to summarise:

The use of nuclear weapons during World War 2 is much debated and discussed—in short it was a divisive event.

Colons and semi-colons within lists.

If you want to list items in a list when the items are longer than one word.

CV Raman was an Indian scientist whose achievements included: becoming the first non-white winner of the Noble prize for physics; understanding the way acoustics work in instruments and the way light scatters (known as the Raman Effect).

Plot summary

Act I scene i – The three witches gather to in a thunder storm to meet Macbeth

Act I scene ii – Duncan hears reports of the battle in which Macbeth proves himself a hero and also of the treachery of the Thane of Cawdor.

Act I scene iii – Macbeth & Banquo meet the witches and hear the predictions that he will be Thane of Cawdor and the next king. Ross arrives to confirm that Macbeth is the new Thane of Cawdor.

Act I scene iv – Duncan decides to make his son Malcolm the heir to his throne and tells Macbeth that he will visit his castle.

Act I scene v – Lady Macbeth reads a letter from her husband about the events so far and makes up her mind to murder Duncan.

Act I scene vi – Duncan arrives at Macbeth's castle and is welcomed by Lady Macbeth.

Act I scene vii – Macbeth decides he cannot go through with the plot but Lady Macbeth persuades him to change his mind.

Act II scene i – Banquo feels uneasy about what might happen in the night. Macbeth makes his way to Duncan's room to kill him and sees a ghostly dagger floating in the air before him.

Act II scene ii – Macbeth forgets to leave the bloody daggers in Duncan's room after the murder and Lady Macbeth is forced to take charge and put them back.

Act II scene iii – The next morning Duncan's body is discovered by Macduff; Macbeth conveniently kills the servants in pretend rage; Duncan's sons, Malcolm & Donalbain, flee the castle.

Act II scene iv – Macduff reports that suspicion for the murder has fallen on the king's sons; Macbeth has travelled to Scone to be crowned.

Act III scene i – Macbeth is now king, but Banquo is suspicious about how the witch's predications have come true. Macbeth arranges to have him murdered.

Act III scene ii – Lady Macbeth tries to get her husband to talk to her about his plans but he refuses.

Act III scene iii – Banquo is murdered but his son, Fleance, escapes.

Act III scene iv – At a feast that night, Macbeth sees the ghost of Banquo. Lady Macbeth tries to calm him down but when this fails cancels the feasts and sends the courtiers away.

Act III scene v – The witches discuss events so far; Hecate, the ruler of the witches, predicts his downfall.

Act III scene vi – suspicion of Macbeth is growing; Macduff has left for England to rouse support against him.

Act IV scene i – The witches tell Macbeth he cannot be harmed by anyone 'born of a woman' and that he will be safe until Birnam Wood moves to the castle at Dunsinane. Macbeth decides to murder Macduff's family.

Act IV scene ii – Macbeth's murderers kill Lady Macduff and her children.

Act IV scene iii – Macduff discovers his family's murder and, with Malcolm, leads an army to attack Macbeth.

Act V scene i – Lady Macbeth is sleep walking and trying to wash an imaginary blood spot from her hands.

Act V scene ii – Malcolm's army is at Birnam Wood and hear reports that Macbeth's supporters are deserting him.

Act V scene iii – Macbeth is besieged but puts his trust in the witches' prophecy.

Act V scene iv – Malcolm orders his army to cut down branches from Birnam Wood to disguise the number of soldiers.

Act V scene v – Macbeth is told of his wife's death and about the news that Birnam Wood seems to be approaching. He resolves to die fighting.

Act V scene vi - ix – Macbeth is killed by Macduff (who reveals he was delivered by caesarean and so not properly 'born'). Malcolm becomes the new king of Scotland and order is restored.

Key characters	Key themes	Historical context	Stylistic features and symbols
<p>Macbeth Thane of Glamis Lady Macbeth his wife Banquo Macbeth's best friend Fleance Banquo's son Duncan King of Scotland Malcolm Duncan's eldest son Macduff – Thane of Fife Lady Macduff his wife Donalbain Duncan's younger son Ross, Lennox, Angus Scottish nobles The witches – supernatural beings who predict events in the play. Hecate ruler of the witches</p>	<p>Ambition seen as a purely negative quality. Guilt - the play shows the terrible consequences of murdering a king. Kingship vs tyranny – Duncan and Macbeth embody the qualities of a good king and a tyrant respectively. Order vs chaos Natural order is disrupted then re-established. Fate Masculinity/femininity</p>	<ul style="list-style-type: none"> • <i>Macbeth</i> was most likely written in 1606, early in the reign of James I, who had been James VI of Scotland before he succeeded to the English throne in 1603. • Only a century earlier, England had suffered under the massive disorder of the Wars of the Roses. Civil disorder was now seen as the ultimate disaster, and also as an ungodly state. • The play pays homage to the king's Scottish lineage. Additionally, the witches' prophecy that Banquo will found a line of kings is a clear nod to James's family's claim to have descended from the historical Banquo. • The theme of bad versus good kingship, embodied by Macbeth and Duncan, respectively, would have resonated at the royal court, where James was busy developing his English version of the theory of the divine right of kings. • The play was first performed not long after the Gunpowder Plot. Shakespeare shows the murderers of a king tormented by their own guilt and driven to their doom. • It was believed that kings were appointed by 'divine right' and were anointed by God. To kill a king was considered the worst sin and a terrible crime. • <i>Macbeth</i> is a tragedy and the character of Macbeth is a tragic hero 	<p>Blood – a symbol of guilt and violence The supernatural – belief in witchcraft was widespread and Shakespeare uses prophesy, hallucinations, ghosts and magic to give the play a menacing, unnatural feel. Oxymoron – opposites & contradiction recur throughout the play Pathetic fallacy – unnatural events are usually echoed by unnatural weather Alliteration Blank verse – non rhyming lines written in iambic pentameter (iam= a beat <i>du duh</i>; pent = five) Soliloquy – where a characters speaks their thoughts aloud to the audience Monologue – a long speech by a single character Dramatic irony – when the audience knows more than a character or characters do</p>

Key Quotations

The witches: Fair is foul, and foul is fair, Hover through the fog an filthy air. (Act I, Scene i)

The witches: When shall we three meet again in thunder, lightning, or in rain? When the hurlyburly 's done, When the battle 's lost and won. (Act I, Scene i)

Captain: For brave Macbeth—well he deserves that name— Disdaining fortune, with his brandished steel, Which smoked with bloody execution, Like valour's minion carved out his passage (Act I, Scene ii)

Macbeth: So foul and fair a day I have not seen (Act I, Scene III)

Banquo: And oftentimes, to win us to our harm, the instruments of darkness tell us truths (Act I scene iii)

Macbeth: Stars hide your fires let not light see my black and deep desires. (Act I, Scene IV)

Lady Macbeth: Yet do I fear thy nature; It is too full o' the milk of human kindness. (Act I, Scene V)

Lady Macbeth: Look like the innocent flower, but be the serpent under't. (Act I, Scene V)

Lady Macbeth: Come, you spirits Tat tend on mortal thoughts, un-sex me here And fill me from the crown to the toe topfull Of direst cruelty (Act I, Scene v)

Macbeth: If it were done, when 'tis done, then 'twere well It were done quickly. (Act I, Scene vii)

Macbeth: I have no spur To prick the sides of my intent, but only Vaulting ambition which o'erleaps itself And falls on th'other. (Act I, Scene vii)

Macbeth: I dare do all that may become a man; Who dares do more is none. (Act I, Scene vii)

Lady Macbeth: Screw your courage to the sticking-place, and we'll not fail. (Act I, Scene vii)

Macbeth: False face must hide what the false heart doth know. (Act I, scene vii)

Macbeth: Is this a dagger which I see before me, The handle toward my hand? (Act II, Scene I)

Macbeth: Will all great Neptune's ocean wash this blood clean from my hand? No, this my hand will rather the multitudinous seas incarnadine, making the green one red. (Act II, Scene ii)

Donalbain: Where we are there's daggers in men's smiles. The near in blood, The nearer bloody. (Act II, Scene iii)

Banquo: Thou hast it now, King, Cawdor, Glamis, all., as the weird sisters promis'd, and I fear Thou hast play'd most foully for't (Act III scene i)

Lady Macbeth: What's done is done. Macbeth: We have scorch'd the snake, not kill'd it. (Act III, Scene ii)

Macbeth: O full of scorpions is my mind, dear wife! (Act III, Scene ii)

Macbeth: I am cabin'd, cribb'd, confin'd, bound in saucy doubts and fears. (Act III, scene Iv)

Macbeth: Thou canst not say I did it; never shake thy gory locks at me! (Act III, scene Iv)

The witches: By the pricking of my thumbs, Something wicked this way comes. (Act IV, Scene i)

Malcolm: Angels are bright still, though the brightest fell. Though all things foul would wear the brows of grace, Yet grace must still look so. (Act IV, Scene iii)

Lady Macbeth: Out, damned spot! out, I say! (Act V, Scene i).

Macbeth: To-morrow, and to-morrow, and to-morrow, Creeps in this petty pace from day to day, To the last syllable of recorded time; And all our yesterdays have lighted fools The way to dusty death. Out, out, brief candle! Life's but a walking shadow, a poor player, That struts and frets his hour upon the stage, And then is heard no more. It is a tale Told by an idiot, full of sound and fury, Signifying nothing. (Act V, Scene v)

Macbeth: I bear a charmed life which must not yield To one of woman born. Macduff: Macduff was from his mother's womb untimely ripp'd. (Act V, Scene viii)

Malcolm: Of this dead butcher and his fiend-like queen (Act V, Scene ix)

Key Vocabulary

Tyrant	a cruel and oppressive ruler.
Fiend	an evil spirit or demon
Thane	A Scottish nobleman
Heir	Someone who will inherit property or titles when someone else dies
Ambiguity	Phrases with more than one possible meaning
Regicide	The murder of a king
Infanticide	The murder of a child
Primogeniture	the right of succession belonging to the firstborn child
Diabolical	Characteristic of absolute evil
Hubris	Excessive pride and ego
Hamartia	A fatal flaw (in Macbeth's case, Ambition) that leads to the downfall of the tragic hero
Valiant	Brave and heroic
Machiavellian	Cunning, scheming and unscrupulous in politics
Despotic	Controlling and Tyrannical
Peripeteia	The turning point in a drama after which the plot moves steadily to its denouement.
Prophecy	A prediction of what will happen in the future.

English Language: Paper 1 Section A

<u>Question Breakdown</u>		<u>Language Devices</u>		<u>Key words</u>
Q1 - List four things from the text [4 marks]		Simile	Comparison using like or as, used to create imagery for the reader	
Q2 - "How has the writer used language?" [8 marks] 2-3 PEZZ paragraph response		Metaphor	Comparison which describes something as something that it isn't	<u>Extended Reading</u>
Q3 - "How has the writer structured the text?" [8 marks] 3 paragraph response - track the beginning/middle/end of text		Personification	Giving an inanimate object human characteristics	
Q4 - Essay response to statement about the text "How far do you agree?" 3-4 analytical paragraphs [20 marks]		Pathetic fallacy	Where the weather reflects the mood of the scene	<u>6-9 Grade answer</u>
		Lexical/semantic field	Group of words that all relate to one topic to create imagery	
		Zoomorphism	Describing a human being using animal features	
<u>Evaluative Language</u>		<u>Structural Devices</u>		<u>Video Link</u>
<u>Adverbs</u>	<u>Tentative/Evaluative phrases</u>	Analepsis	Flash back	
Skillfully Successfully Carefully Cleverly Powerfully Interestingly Expertly Precisely Confusingly	<ul style="list-style-type: none"> This makes us think of... As we read this part, we feel...because... The reader is shocked/surprised by... The writer successfully uses ... which creates ... The impact of this sentence/description is... It is almost as if... There is a real sense of... You could argue... There is an underlying feeling of... 	Prolepsis	Flash forward	
		Shift in focus/zoom in	Where the writer draws our attention to a specific moment, place, character or detail	
		Perspective	The viewpoint through which the story is told	
		Narrative hook	An engaging or intriguing line in the opening of an extract	
		Cliffhanger	Where the end of a story remains uncertain or unresolved	
		Resolution	When the story reaches a clear conclusion in the end	<u>Revision Techniques</u>

English Language: Paper 1 Section B

<u>Techniques to use:</u>	
1. Setting description	<ul style="list-style-type: none"> Describe in detail your setting: <i>weather, mood, colours, smells, sounds</i>. Paint a picture in your reader's imagination.
2. Figurative Language	<ul style="list-style-type: none"> Similes: Like a deep, inky splodge, the midnight sky covered the horizon in darkness. Metaphors: The trees, menacing monsters, flailed hopelessly in the wind. Personification: The hot beach welcomed the cool breeze, sighed with relief when it glided in from the east.
3. Use of colour	<p>Red: crimson, blood, ruby, merlot Black: ink, midnight, soot, charcoal Yellow: butter, lemon, mustard, fire Blue: indigo, sapphire, ocean, aegean</p>
4. Use of structural techniques	<ul style="list-style-type: none"> Use shifts in time as a powerful structural technique - e.g a flashforward of flashback Use a cyclical structure - link your opening and ending by referring to a specific object of word or open the story in media res (in the middle of the action) e.g "and then the bomb exploded"

How to structure your writing:

1. DROP the reader into the scene. Describe the setting in detail, using <i>colours, sensory language, adjectives</i> . Describe the weather to set the tone.
2. SHIFT onto describing your character in detail- what are they doing there? how are they feeling? What do they look like and how does this reflect their mood? SHOW don't TELL.
3. ZOOM in an important detail of your story and describe in vivid detail- how does your character interact with it? Or have a small moment of action in your story. A flashback might work here.
4. ENDING – end your piece in an exciting, mysterious or ambiguous way- does something happen to your character? Do you introduce a new detail or character at the end? Do you use a cyclical structure or end on a moment of tension/cliffhanger? You could describe the weather at the start or end, or reference an object. Page 9

<u>What should you ensure you do?</u>	
1. Paragraphed effectively and correctly	Separate paragraphs using Drop/Shift/Zoom/End or use TipTop (time, place, topic, person.) You could try using a one line paragraph for effect. If you forget to paragraph, look for where you feel a change of paragraph would go and write // next to this
2. Proofread to check your SPAG	Use the final 5 minutes to closely check for SPAG errors. Follow your words along with your pen as you read back over your work. Think CUPS to spot basic errors: <i>Capital letters, Understanding, Punctuation, Spelling</i> .
3. Varied your sentence structures/ vary your punctuation	Don't just start with "I" or "She" - vary your sentence openers. E.g use an adverb: "Noisily she sprinted down the corridor, hoping not to be late" or start with a verb: e.g "Screaming loudly, the man fell to his knees" Use a semicolon (making sure both sentences either side of the semicolon make sense on their own with a full stop) e.g "He danced with style and grace; he was destined to become a performer."
4. -Kept to one or two characters:	You should concentrate on saying a lot about very little. Fuller descriptions of one character is best. Minimal speech/dialogue is most effective. Description over speech.
5. Describe in detail – SHOW, don't TELL	Don't simply TELL the reader information - e.g. "he was nervous" SHOW them e.g "his eyes darted around and sweat formed on his brow" rather than saying "it was autumn" SHOW it e.g. "golden and crisp leaves decorated the pavement in the hazy October sun"

What vocabulary should I try to use?

Instead of ' dark ' try... <i>dim, unlit, black, inky, unilluminated, the abyss</i>
Instead of ' bright ' try... <i>dazzling, beaming, radiant, vivid, blazing</i>
Instead of ' happy ' try... <i>glad, joyous, contented, cheerful, blissful, euphoric</i>
Instead of ' sad ' try: <i>miserable, melancholic, despairing, dismal, forlorn, despondent</i>
Instead of ' eerie ' try... <i>unnerving, sinister, abnormal, strange, unsettling</i>
Instead of ' mysterious ' try... <i>secretive, enigmatic, peculiar, curious, inexplicable</i>

Vocabulary examples:



Exemplar Creative Writing:



Vary your Sentences



Drop/Shift/Zoom/End explained



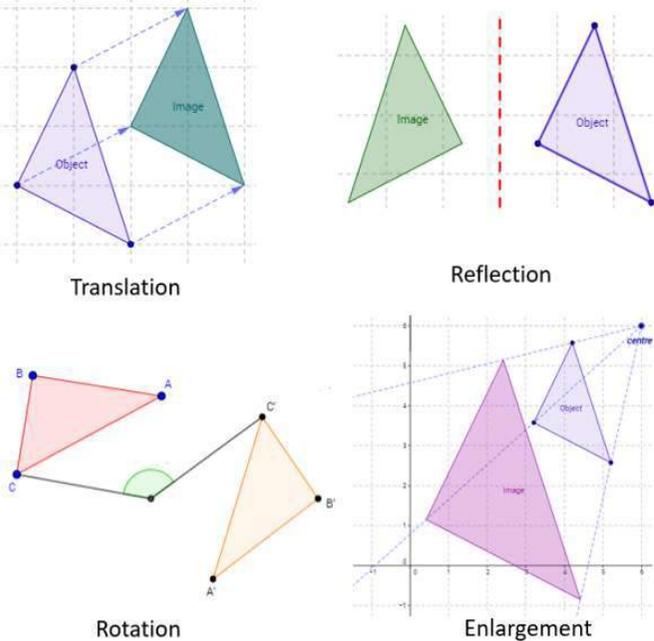
Anthology of creative writing examples:



Activate Windows
Go to Settings to activate Windows

All Tiers

Transformations



We **translate** a shape by moving it up or down or from side to side, but its appearance does not change in any other way. When we translate a shape, each of the vertices must be moved in exactly the same way. Every translation has a translation vector which gives the direction in which the shape is moved.

When we **reflect** a shape, we 'flip' it over a line of symmetry or 'mirror'.

When we **rotate** a shape, we turn it a certain number of degrees around a fixed point. When describing a rotation, we need to describe the center of rotation, the angle of rotation and the direction of rotation. For a 90-degree rotation around the origin, switch the x, y values of each ordered pair for the location of the new point. When describing **enlargement**, we must state the scale factor and the Center of enlargement.

Pythagoras

$$a^2 + b^2 = c^2$$

The square of the Hypotenuse of a right-angled triangle is equal to the sum of squares of the other two sides.

If we know the base and the perpendicular, the hypotenuse is equal to $c = \sqrt{a^2 + b^2}$

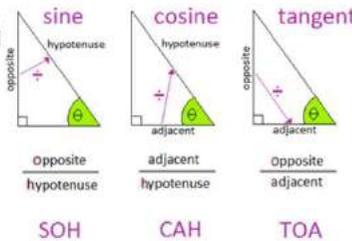
If the hypotenuse and the base are known, then the perpendicular is equal to $a = \sqrt{c^2 - b^2}$

Finally, if the hypotenuse and the perpendicular are known then the base is equal to: $b = \sqrt{c^2 - a^2}$

When you know one angle other than the right angle, θ , the side labeling follows these rules:

- Side opposite to the right angle is the hypotenuse
- Side opposite to the angle (θ) is the opposite. The side that makes the angle θ with the hypotenuse is the adjacent

The relation is as follows:



Simultaneous Equations

Equations $2x - y = 2$ and $2x + y = 6$

$$\begin{array}{r} 2x - y = 2 \\ -2x + y = -6 \\ \hline -2y = -4 \\ y = 2 \end{array}$$

$$\begin{array}{r} 2x + y = 6 \\ 2x + 2 = 6 \\ 2x = 4 \\ x = 2 \end{array}$$

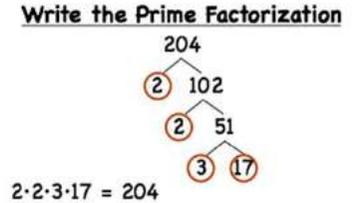
Solution: (2, 2)

Put the equations into slope-intercept form, $y = mx + b$, to make graphing them easier. Start by graphing $y = 2x - 2$, which has a y-intercept of -2 and a slope of 2. Then graph $y = -2x + 6$, which has a y-intercept of 6, and a slope of -2. The point (2, 2) where the lines intersect is the solution to the system of equations.

Number Sense

How Do You Find the Prime Factorization of a Number Using a Tree? **Example:** Write the prime factorization of 204

Prime and Composite Numbers
Prime → Factors are 1 and itself
Composite → Not prime
 1st 10 Primes: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29



EXPONENTS

$a^b = \underbrace{a \cdot a \cdot a \dots a}_b$ (b times)

special cases:
 $a^1 = a$ $a^0 = 1$
 $2^1 = 2$ $2^0 = 1$

$2^4 = 2 \cdot 2 \cdot 2 \cdot 2 = 16$
 $(-2)^3 = (-2) \cdot (-2) \cdot (-2) = -8$
 $(\frac{-x}{y})^4 = (\frac{-x}{y}) \cdot (\frac{-x}{y}) \cdot (\frac{-x}{y}) \cdot (\frac{-x}{y})$

$2^{-4} = \frac{1}{2^4}$
 $(-2)^{-3} = \frac{1}{(-2)^3}$

Product of Powers Rule

$4^2 \cdot 4^4 = 4^{2+4} = 4^6$
 $4^2 \cdot 4^4 = 4^{2+4} = 4^6$
 $a^m \cdot a^n = a^{m+n}$
 $x^3 \cdot x^5 = x^{3+5} = x^8$
 $x^3 \cdot x^5 = x^{3+5} = x^8$

Standard Form

$a \times 10^n$ where $1 \leq a < 10$ and $n \rightarrow$ integer

5.63×10^5
 2.005×10^{-7}

A number in scientific notation has the form a times 10^n

In addition, a must be greater than or equal to 1, but less than 10

And n must be an integer

Quotient of Powers

$\frac{6^5}{6^3} = 6^{5-3} = 6^2 = 6 \cdot 6$
 $\frac{6^5}{6^3} = 6^{5-3} = 6^2 = 6 \cdot 6$
 $\frac{a^m}{a^n} = a^{m-n}$
 $\frac{8^2}{8^6} = 8^{2-6} = 8^{-4}$

Solving Equations

Triangles

Example: Maria's uncle Jack is three times as old as she is. If Jack is 36, how old is Maria?

What is Maria's Age?

1. Choose variable **m** to represent **Maria's age**
 2. Find equation from problem that contains **m**
 3. Solve for **m**
 4. Check our answer
- Jack is 3 times older
- $$\frac{3m}{3} = \frac{36}{3}$$
- Jack's age
- $$m = 12 \text{ yrs old}$$
- $$3(12) \stackrel{?}{=} 36$$
- $$36 = 36 \checkmark$$
- Maria is 12 yrs old!**

By Side	By Angle
<p>Equilateral Triangle has three equal sides</p>	<p>Acute triangle has three angles < 90°</p>
<p>Isosceles Triangle has two equal sides</p>	<p>Right triangle has one angle = 90°</p>
<p>Scalene Triangle has no equal sides</p>	<p>Obtuse triangle has one angle > 90°</p>

Sequences

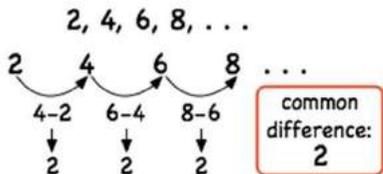
Term in a sequence

A **term** in a sequence is any number in that sequence



A sequence is a set of numbers in a particular order '2, 4, 6, 8, ...' is a sequence of positive even integers The '...' in this sequence means that the pattern continues on to 10, 12, 14 and so on 2, 4, 6, and 8 are terms in this sequence

Find the Common Difference



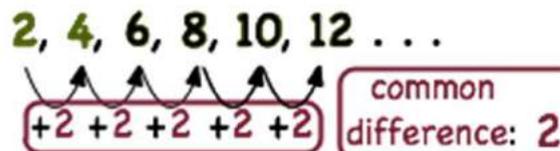
Example: Find the next four terms in the sequence '2, 4, 6, 8, ...' The common difference, 'd', for this sequence is '2' Adding '2' to the '8' will give us the next term in the sequence, 10. We repeat this process to get '12, 14, 16' So we added the terms '10, 12, 14, 16' to our initial sequence

Are These Sequences Arithmetic or Geometric?

- a) -6, 1, 8, 15, 22
- Common **Ratio**? No
Common **Diff**? Yes
Check: **Arithmetic**
- b) 324, 108, 36, 12, 4
- Common **Ratio**? Yes
Check: **Geometric**

Arithmetic Sequence

A pattern of numbers that increase or decrease at a **constant amount**

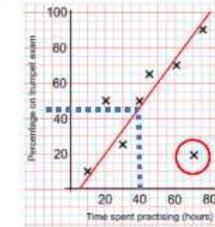


Scatter graphs and correlation

Using a line of best fit

Interpolation is using the line of best fit to estimate values inside our data point.

e.g. 40 hours revising predicts a percentage of 45



Extrapolation is where we use our line of best fit to predict information outside of our data
This is not always useful – in this example you cannot score more than 100% So revising for longer can not be estimated

This point is an 'outlier' It is an outlier because it doesn't fit this model and stands apart from the data

Linear Correlation

<p>Number of apples Positive Correlation</p>	<p>Number of cups of coffee Negative Correlation</p>	<p>Length of thumbs nail No Correlation</p>
As one variable increases so does the other variable.	As one variable increases the other variable decreases.	There is no relationship between the two variables.

Scatter graphs
Plot bi-variate data. ...is it correlation or causation?

Equations with two unknowns

a + 2b = 23

Solve for a

$$a + 2b = 23$$

$$- 2b \quad - 2b$$

$$a = 23 - 2b$$

Solve for b

$$a + 2b = 23$$

$$- a \quad - a$$

$$\frac{2b}{2} = \frac{23 - a}{2}$$

$$b = \frac{23 - a}{2}$$

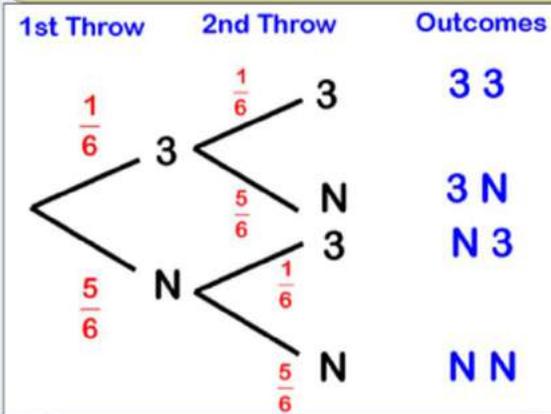
'a' and 'b' are variables. Subtract '2b' from both sides to solve for 'a'. The equation becomes 'a = 23-2b' We can't combine anything on the right-hand side because they are not like terms. We have 'a' in terms of 'b'. Subtract 'a' from both sides to solve for 'b'. Divide both sides by 2 to get 'b' alone. We have found 'b' in terms of 'a'.

All Tiers

Growth and Decay

Tree Diagrams

A fair dice is thrown twice. The tree diagram shows the probability of throwing 3, P(3), and the probability of not throwing 3, P(N).



The probability of throwing two 3s.

$$P(33) = \frac{1}{6} \times \frac{1}{6} = \frac{1}{36}$$

The probability of throwing one 3.

$$P(3N) = \frac{1}{6} \times \frac{5}{6} = \frac{5}{36} \quad P(3N) \text{ or } P(N3) = \frac{5}{36} + \frac{5}{36} = \frac{10}{36}$$

$$P(N3) = \frac{5}{6} \times \frac{1}{6} = \frac{5}{36}$$

Calculations with Standard Form

$$(4 \times 10^6) \times (2 \times 10^3) = 8 \times 10^9$$

$$(4 \times 10^6) \div (2 \times 10^3) = 2 \times 10^3$$

$$(3 \times 10^6) \times (2 \times 10^{-2}) = 6 \times 10^4$$

$$(4.8 \times 10^6) \div (1.2 \times 10^3) = 4 \times 10^3$$

$$(4 \times 10^6) \times (3 \times 10^3) = 12 \times 10^9 \checkmark = 1.2 \times 10^{10} \checkmark$$

$$(1 \times 10^6) \div (2 \times 10^3) = 0.5 \times 10^3 \div 2 = 5 \times 10^2 \div 10$$

$y = a \cdot b^x$

Example: $y = 100 \cdot (0.5)^x$

when $a > 0$ and the b is between 0 and 1, the graph will be decreasing (decaying).

For this example, each time x is increased by 1, y decreases to one half of its previous value.

Such a situation is called **Exponential Decay**.

$y = a \cdot b^x$

Example: $y = 1 \cdot (2)^x$

when $a > 0$ and the b is greater than 1, the graph will be increasing (growing).

For this example, each time x is increased by 1, y increases by a factor of 2.

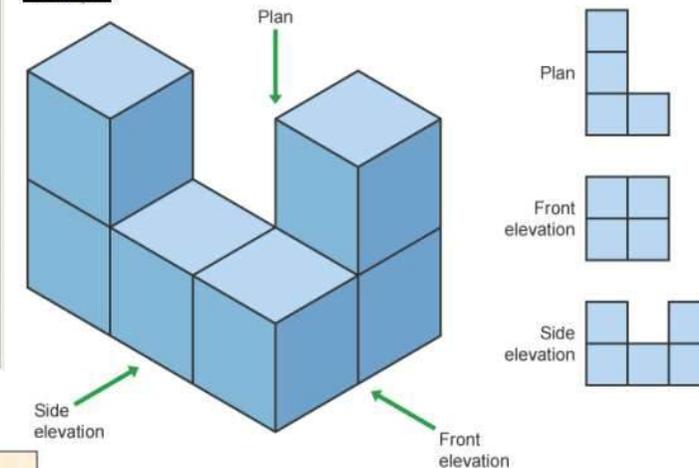
Such a situation is called **Exponential Growth**.

Plans and Elevations

Plans and elevations help us plan and design structures. Architects use these when designing buildings.

- The view from the top (looking down on the structure) is called the plan.
- The views from the front and sides of the structure are called elevations. (The front view is the front elevation and the side view is the side elevation).

Example

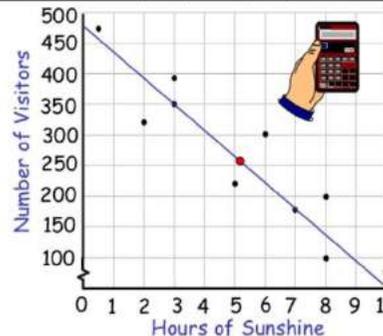


Scatter diagrams and lines of best fit

(2). The table below shows the number of people who visited a museum over a 10 day period last summer together with the daily sunshine totals.

(a) Plot a scatter graph for this data and draw a line of best fit.

Hours Sunshine	6	0.5	8	3	8	10	7	5	3	2
Visitors	300	475	100	390	200	50	175	220	350	320



(b) Draw a line of best fit and comment on the correlation.

If you have a calculator you can find the mean of each set of data and plot this point to help you draw the line of best fit. Ideally all lines of best fit should pass through co-ordinates: (mean data 1, mean data 2). In this case: (5.2, 258.)

Compound Interest

£2000 earning **Compound Interest** at **5%** per year for **3** years

Original Amount = 100%
Compound Interest = 5%

$$100\% + 5\% = 105\% = 1.05$$

$$£2000 \times 1.05^3 = £2315.25$$

This is the total amount including interest:

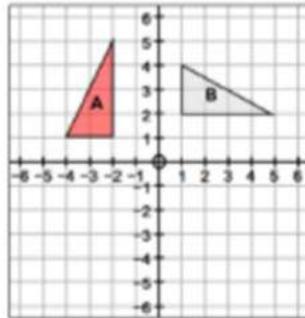
£2315.25

All Tiers

Describing Rotations

State...

1. The centre of rotation
2. The angle of rotation
3. The direction of rotation

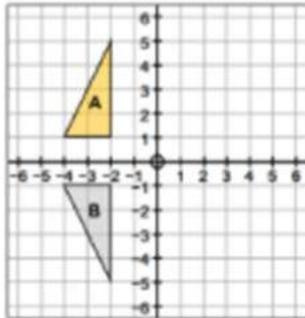


- Centre of rotation is (0,0)
- Angle of rotation is 90°
- Direction of rotation is clockwise

Describing Reflections

State...

1. The line of symmetry

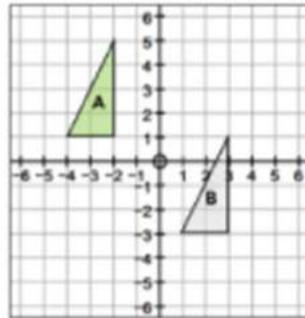


- The line of symmetry is the X axis

Describing Translations

State...

1. Movement left or right
 2. Movement up or down
- Or write the column vector



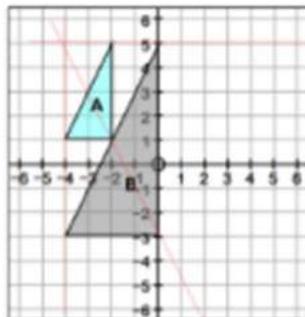
- Translation of 5 to the right and 4 down

$$\begin{pmatrix} 5 \\ -4 \end{pmatrix}$$

Describing Enlargements

State...

1. Centre of enlargement
2. Scale Factor



- The centre of enlargement is (-4, 5)
- The scale factor is 2

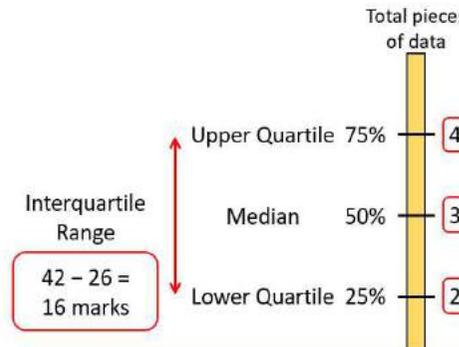
Cumulative Frequency

A cumulative frequency graph allows us to measure the spread of data.

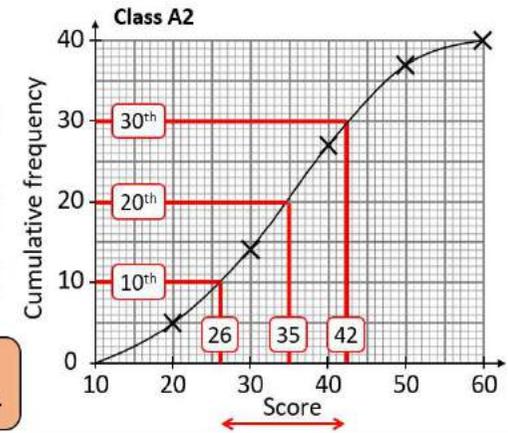
By finding the value at each **quartile** (quarter) of the data, we can find the **median** and the spread of the **middle 50%**.

This measure eliminates extreme values.

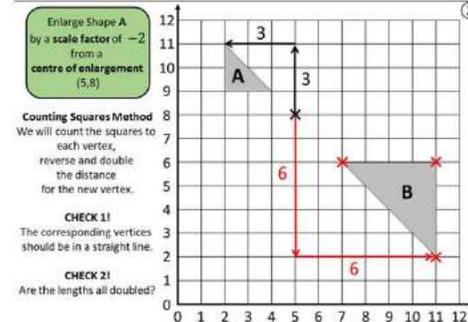
Score	Students (Frequency)	Cumulative Frequency
11-20	5	5
21-30	9	14
31-40	13	27
41-50	10	37
51-60	3	40



We take the 20th instead of $(40 + 1) \div 2$ th because grouped data is *already* an estimation.



Negative enlargement



Enlarge Shape A by a scale factor of -2 from a centre of enlargement (5,8)

Counting Squares Method We will count the squares to each vertex, reverse and double the distance for the new vertex.

CHECK 1! The corresponding vertices should be in a straight line.

CHECK 2! Are the lengths all doubled?

$$20^2 = HG^2 + 15^2$$

$$HG^2 = 20^2 - 15^2$$

$$HG = \sqrt{175}$$

$$HG = 13.2 \text{ (1dp)}$$

Therefore ...

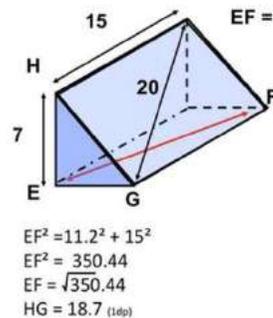
$$13.2^2 = EG^2 + 7^2$$

$$EG^2 = 13.2^2 - 7^2$$

$$EG = \sqrt{125.24}$$

$$EG = 11.2 \text{ (1dp)}$$

Therefore ...



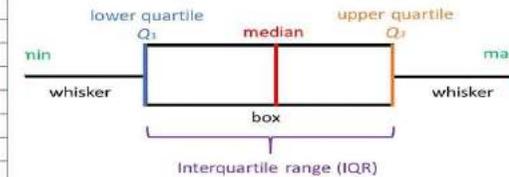
$$EF^2 = 11.2^2 + 15^2$$

$$EF^2 = 350.44$$

$$EF = \sqrt{350.44}$$

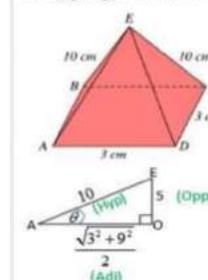
$$HG = 18.7 \text{ (1dp)}$$

Box Plot



3D Trigonometry

Calculate the angle between the length AE and the base ABCD in the pyramid pictured below, giving your answer to 1 decimal place.



SOH CAH TOA

Point 'O' is the centre of the base ABCD.

$$\cos \theta = \frac{a}{h}$$

$$\theta = \cos^{-1} \left(\frac{\sqrt{3^2 + 3^2}}{2 \times 10} \right)$$

$$\theta = \cos^{-1} \left(\frac{\sqrt{18}}{20} \right)$$

$$\theta = 77.75267576$$

$$\theta = 77.8^\circ$$

A **histogram** is a type of frequency diagram used for grouped continuous data. In a histogram for unequal class intervals the area of the bar represents the frequency. The height of each bar is the frequency density.

$$\text{Frequency density} = \frac{\text{frequency}}{\text{class width}}$$

Example 4

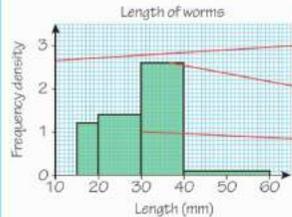
The lengths of 48 worms are recorded in this table.

Length, x (mm)	$15 < x \leq 20$	$20 < x \leq 30$	$30 < x \leq 40$	$40 < x \leq 60$
Frequency	6	14	26	2

Draw a histogram to display this data.

$$6 \div 5 = 1.2, 14 \div 10 = 1.4, 26 \div 10 = 2.6, 2 \div 20 = 0.1$$

Work out the frequency density for each class



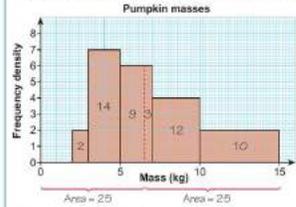
Label the y -axis 'Frequency density'.

The height of each bar is the frequency density for each class.

Draw the bars with no gaps between them.

Example 5

The histogram shows the masses of pumpkins in a farm shop.



Work out an estimate for the median mass.

$$\text{Total frequency} = 1 \times 2 + 2 \times 7 + 2 \times 6 + 3 \times 4 + 5 \times 2 = 50$$

The median is the 25.5th value and lies in the class $5 < m \leq 9$.

$$\text{Frequency} = \text{area} = 9, \text{ frequency density} = 6, \text{ Class width} = 9 - 6 = 1.5$$

An estimate for the median is $5 + 1.5 = 6.5$ kg.

Work out the areas of all the bars to find the total frequency.

Work out which class contains the median.

Use frequency density to find class width of class from 5 to median.

Add the class width to the lower class boundary.

Changing the subject – complex

Key point 1

When the letter to be made the subject appears twice in the formula you will need to factorise.

Example 2

Make w the subject of the formula $A = wh + lh + lw$

$$A - lh = wh + lw$$

w appears twice in this formula. Subtract lh from both sides to get the terms in w together on one side of the equals sign.

$$A - lh = w(h + l)$$

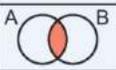
Factorise the right-hand side, so w appears only once.

$$w = \frac{A - lh}{h + l}$$

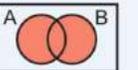
Divide both sides by $(h + l)$.

Venn Diagrams

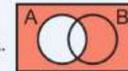
$A \cap B$ means 'A intersection B'. This is all the elements that are in A and in B.



$A \cup B$ means 'A union B'. This is all the elements that are in A or B or both.



A' means the elements not in A.



ξ means the universal set – all elements being considered.

If one event depends upon the outcome of another event, the two events are **dependent events**. For example, removing a red card from a pack of playing cards reduces the chance of choosing another red card.

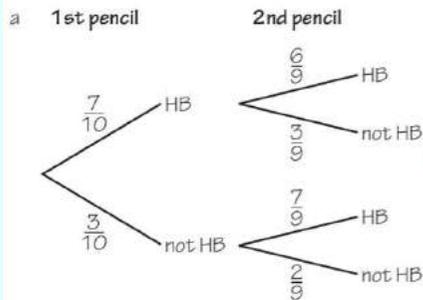
A tree diagram can be used to solve problems involving dependent events.

A **conditional probability** is the probability of a dependent event. The probability of the second outcome depends on what has already happened in the first outcome.

There are 10 pencils in Toby's pencil case. Seven of the pencils are HB pencils.

Toby takes two pencils out of his pencil case.

- a Draw a tree diagram to show all the possible outcomes.
- b Work out the probability that he picks out at least one HB pencil.



Taking two pencils from the pencil case at the same time is the same as taking one pencil, then another (without replacement).

$A \cap B \cap C$ means the **intersection** of A, B and C.
 $A \cup B \cup C$ means the **union** of A, B and C.
 $P(A \cap B | B)$ means the probability of A and B given B.

Curly brackets $\{ \}$ show a set of values.
 \in means 'is an element of'.

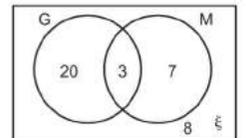
b $P(\text{at least 1 HB}) = 1 - P(\text{no HB})$
 $P(\text{not HB, not HB}) = \frac{3}{10} \times \frac{2}{9} = \frac{6}{90} = \frac{1}{15}$
 $P(\text{at least 1 HB}) = 1 - \frac{1}{15} = \frac{14}{15}$

You don't need to simplify probability fractions, but sometimes it makes calculations easier.

You can calculate probabilities from Venn diagrams.

Example 6

The Venn diagram shows the number of students studying German (G) and Mandarin (M).



A student is picked at random. Work out

- a $P(G \cap M)$
- b $P(G')$
- c $P(G \cup M)$

a $20 + 3 + 7 + 8 = 38$

Work out the total number of students.

$P(G \cap M) = \frac{3}{38}$

Number of students in $G \cap M$ total number of students

b $P(G') = \frac{7 + 8}{38} = \frac{15}{38}$

Number of students in G' total number of students

c $P(G \cup M) = \frac{20 + 3 + 7}{38} = \frac{30}{38}$

Higher Tier

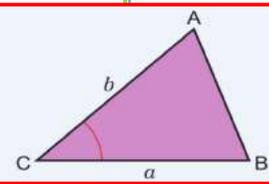
**Quadratic
nth term**

Find the quadratic sequence's next 3 terms and the rule for the nth term, $T_n = an^2 + bn + c$.

$+4 \quad +4 \quad +4 \rightarrow 2a = 4 \rightarrow a = 2$
 $+6 \quad +10 \quad +14 \quad +18 \quad +22 \quad +26 \quad +30$
 $-3 \quad 3 \quad 13 \quad 27 \quad 45 \quad 67 \quad 93 \quad 123$
 0th term, $T_0 = c$ $2 + b - 3 = 3$
 $b = 3 - 2 + 3$
 $b = 4$
 1st term, $T_1 = a + b + c = 3$
 nth term, $T_n = 2n^2 + 4n - 3$

$T_n = an^2 + bn + c$
n 0 1 2 3
T_n c a+b+c 4a+2b+c 9a+3b+c
Δ a+b 3a+b 5a+b
Δ 2a 2a

The area of this triangle = $\frac{1}{2}ab \sin C$.
a is the side opposite angle A.
b is the side opposite angle B.



The n th term of an arithmetic sequence = common difference $\times n$ + zero term

Example 3

a Work out the n th term of the sequence 3, 7, 11, 15, ... b Is 45 a term of the sequence?

a $4n$ 4, 8, 12, 16, ... -1

 3, 7, 11, 15, ...

$+4 \quad +4$

The n th term is $4n - 1$.

b $45 = 4n - 1$
 $46 = 4n$
 $11.5 = n$
 45 cannot be in the sequence because 11.5 is not an integer.

The common difference is 4. Write out the first five terms of the sequence for $4n$, the multiples of 4. Work out how to get from each term in $4n$ to the term in the sequence.

Write an equation using the n th term and solve it.

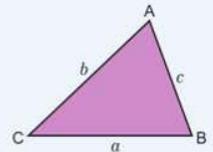
Key point 3
You can use the **quadratic formula**
 $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
 to find the solutions to a quadratic equation $ax^2 + bx + c = 0$

Solving quadratics

The **sine rule** can be used in any triangle.

- $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$ Use this to calculate an unknown side.
- $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$ Use this to calculate an unknown angle.

- To use the sine rule you need to know one angle and the opposite side. Then:
- if you know another *angle*, you can work out the length of its opposite *side*
 - if you know another *side*, you can work out the size of its opposite *angle*.



Example 3

a Find the value of x .
Give your answer to 3 significant figures.

b Find the value of θ .
Give your answer to 1 decimal place.

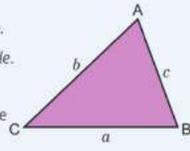
a $\frac{x}{\sin 48^\circ} = \frac{16}{\sin 70^\circ}$ Use the sine rule $\frac{b}{\sin B} = \frac{c}{\sin C}$
 $x = \frac{16 \sin 48^\circ}{\sin 70^\circ} = 12.653...$ Multiply both sides by $\sin 48^\circ$.
 $= 12.7 \text{ cm (3 s.f.)}$

b $\frac{\sin \theta}{15} = \frac{\sin 110^\circ}{18}$ Use the sine rule $\frac{\sin T}{t} = \frac{\sin S}{s}$
 $\sin \theta = \frac{15 \sin 110^\circ}{18}$ Multiply both sides by 15.
 $\theta = \sin^{-1}\left(\frac{15 \sin 110^\circ}{18}\right)$ Use \sin^{-1} on your calculator.
 $= 51.5^\circ \text{ (1 d.p.)}$

The **cosine rule** can be used in any triangle.

- $a^2 = b^2 + c^2 - 2bc \cos A$ Use this to calculate an unknown side.
- $\cos A = \frac{b^2 + c^2 - a^2}{2bc}$ Use this to calculate an unknown angle.

- You can use the cosine rule to find:
- the length of a *side* if you know two sides and the included angle
 - an unknown *angle* if you know all three sides.



a Work out the length of the side labelled x .
Give your answer correct to 3 significant figures.

b Work out the size of angle y .
Give your answer correct to 1 decimal place.

a $x^2 = 6^2 + 7^2 - 2 \times 6 \times 7 \times \cos 58^\circ$
 $x^2 = 36 + 49 - 84 \times 0.5299$
 $x^2 = 85 - 44.5116$
 $x^2 = 40.4884$
 $x = \sqrt{40.4884} = 6.3629...$
 $= 6.36 \text{ cm (3 s.f.)}$

b $\cos y = \frac{7^2 + 6^2 - 10^2}{2 \times 7 \times 6}$
 $\cos y = \frac{49 + 36 - 100}{84} = \frac{-15}{84} = -0.1786$
 $y = \cos^{-1}(-0.1786) = 100.3^\circ \text{ (1 d.p.)}$

To **rationalise the denominator** of $\frac{a}{\sqrt{b}}$, multiply by $\frac{\sqrt{b}}{\sqrt{b}}$. Then the fraction will have an integer as the denominator.

Example 4

Rationalise the denominator.

a $\frac{1}{\sqrt{2}}$
 b $\frac{5}{\sqrt{75}}$

a $\frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$
 $= \frac{\sqrt{2}}{2}$

Multiplying by $\frac{\sqrt{2}}{\sqrt{2}}$ is the same as multiplying by 1, so this does not change the value.

b $\sqrt{75} = \sqrt{25 \times 3} = 5\sqrt{3}$ First simplify $\sqrt{75}$
 $\frac{5}{\sqrt{75}} = \frac{5}{5\sqrt{3}} = \frac{1}{\sqrt{3}} = \frac{1}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{3}}{3}$ Simplify the fraction before rationalising.

Example 3

Write $x^2 + 2x + 7$ in the form $(x + p)^2 + q$

$[x^2 + 2x] + 7$ Separate the x terms from the constant.

$x^2 + 2x = (x + 1)^2 - 1$ Find the perfect square which will give the correct x^2 and x terms, then subtract the constant to make the identity true.

So $[x^2 + 2x] + 7 = [(x + 1)^2 - 1] + 7$
 $= (x + 1)^2 + 6$ Substitute the identity into the original expression.

So $p = 1$ and $q = 6$ Simplify the expression.

Compare $(x + 1)^2 + 6$ with $(x + p)^2 + q$ and write down the values.

Key point 5

$x^2 + bx + c$ can be written in the form $\left(x + \frac{b}{2}\right)^2 - \left(\frac{b}{2}\right)^2 + c$.
This is called **completing the square**.



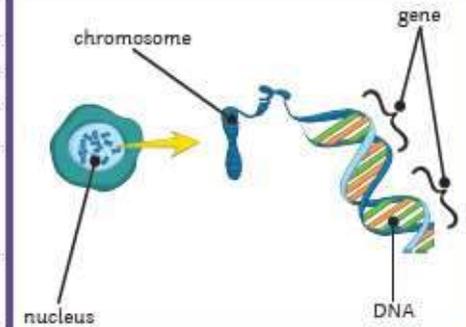
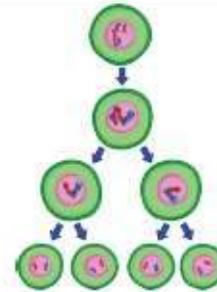
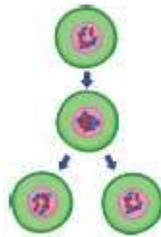
Year 11 Biology: Inheritance 1

AQA Inheritance, Variation and Evolution Knowledge Organiser

Keywords

- allele** – An alternative form of a gene.
- asexual reproduction** – The production of offspring from a single parent by mitosis. The offspring are clones of the parent.
- chromosome** – Structures that contain the DNA of an organism and are found in the nucleus.
- cystic fibrosis** – A disorder of cell membranes caused by a recessive allele.
- DNA** – A polymer that is made up of two strands that form a double helix.
- dominant** – An allele that is always expressed, even if only one copy is present.
- fertilisation** – The fusion of male and female gametes.
- gamete** – Sperm cell and egg cell in animals; pollen and egg cell in plants.
- gene** – A small section of DNA that codes for a specific protein.
- genome** – The entire genetic material of an organism.
- genotype** – The combination of alleles.
- heterozygous** – A genotype that has two different alleles – one dominant and one recessive.
- homozygous** – A genotype that has two of the same alleles. Either two dominant alleles or two recessive alleles.
- meiosis** – The two-stage process of cell division that reduces the chromosome number of the daughter cells. It makes gametes for sexual reproduction.
- mutation** – A change in DNA.
- phenotype** – The characteristic expressed because of the combination of alleles.
- polydactyly** – Having extra fingers or toes. Is caused by a dominant allele.
- recessive** – An allele that is only expressed if two copies of it are present.
- sexual reproduction** – The production of offspring by combining genetic information from the gametes of two parents. Leads to variation in the offspring.

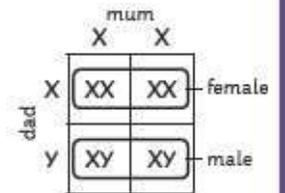
Mitosis	Meiosis
Produces two daughter cells.	Produces four daughter cells.
Daughter cells are genetically identical.	Daughter cells are not genetically identical.
The cell divides once.	The cell divides twice.
The chromosome number of the daughter cells is the same as the parent cells. In humans, this is 46 chromosomes.	The chromosome number is reduced by half. In humans, this is 23 chromosomes.
Used for growth and repair, and asexual reproduction.	Produces gametes for sexual reproduction.



Sex Determination

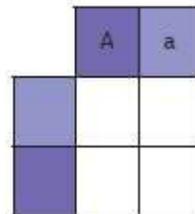
Females carry two X chromosomes.

Males carry one X and one Y chromosome.

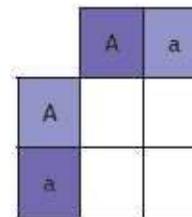


How to Complete a Punnet Square

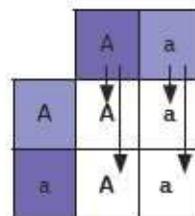
Step 1: Put the two alleles from one parent into the boxes at the top. This parent is a heterozygote. This means they have one dominant and one recessive allele.



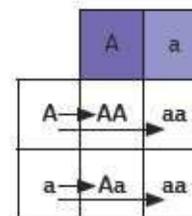
Step 2: Put the two alleles from the second parent into the boxes on the left. This parent is also a heterozygote.



Step 3: Put the alleles from the first parent into the two boxes beneath them.

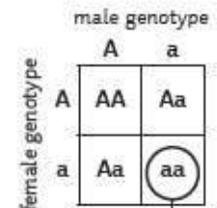


Step 4: Put the alleles from the second parent into the two boxes to the right of them.



Probability

There are four possible combinations of gametes that offspring can inherit.



One of these four has the genotype aa, that's $\frac{1}{4}$, 25% or 0.25.

The recessive phenotype has a ratio of 1:3 because only one combination will show the phenotype, while the other three will not.



Year 11 Biology: Hormones 2

AQA Inheritance, Variation and Evolution Knowledge Organiser

Keywords

embryo screening – Genetic tests carried out on an embryo to see whether it carries a faulty allele.

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

evolutionary tree – A method used to show how scientists believe organisms are related.

extinction – The permanent loss of all members of a species.

fossils – The remains of organisms from millions of years ago which are found in rocks.

genetic engineering – The process by which scientists manipulate and change the genotype of an organism.

natural selection – The process by which organisms that are better suited to an environment are more likely to survive and reproduce.

selective breeding – Humans selecting animals or plants, that have a required characteristic, for breeding.

speciation – The process by which two species evolve from a single original species by natural selection. The two populations have become so different that they can no longer interbreed to produce fertile offspring.

variation – Differences in characteristics of individuals in a population.

Variation

Variation may be due to differences in:

- the genes that have been inherited (genetic causes);
- the conditions in which they have developed (environmental causes);
- a combination of genes and the environment.

Evolution

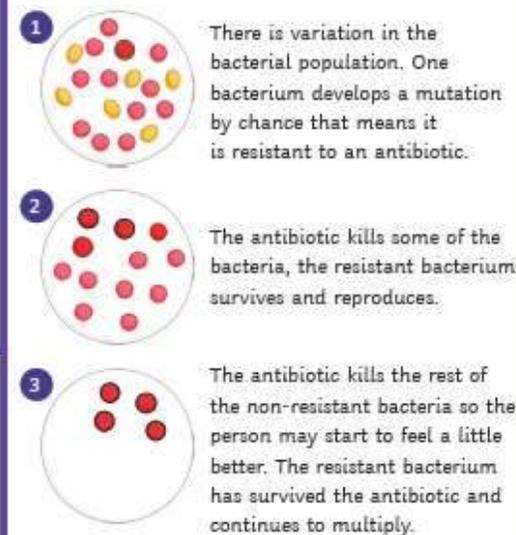
All species of living things have evolved from simple life forms by natural selection.

- If a variant/characteristic is advantageous in an environment then the individual will be better able to compete.
- This means they are more likely to survive and reproduce.
- Their offspring will inherit the advantageous allele.

Resistant Bacteria

To reduce the rate at which antibiotic resistant strains appear:

- Antibiotics should only be used when they are really needed, not for treating non-serious or viral infections.
- Patients should complete their courses of antibiotics, even if they start to feel better.
- The agricultural use of antibiotics should be restricted.



Fossils

Fossils could be:

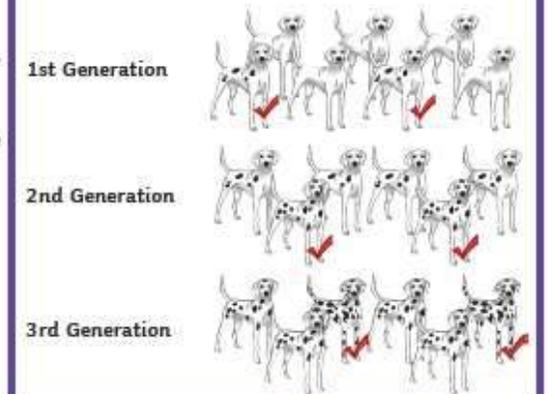
- the actual remains of an organism that has not decayed;
- mineralised forms of the harder parts of an organism, such as bones;
- traces of organisms such as footprints or burrows.

Many early life forms were soft-bodied so have left few traces behind.

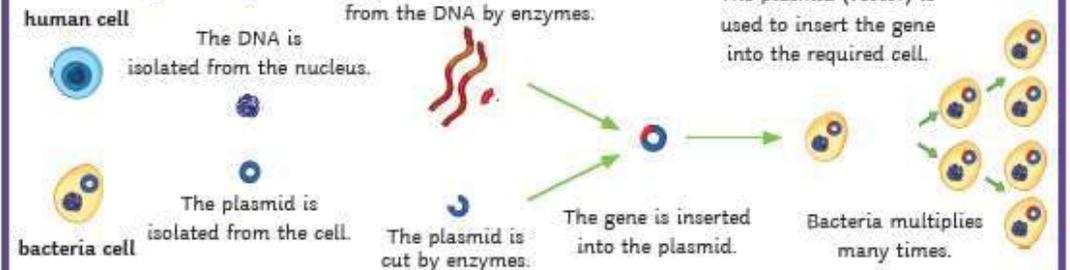
Fossils help us understand how much or how little organisms have changed as life developed on earth.

Selective Breeding

- Choose parents who have the desired characteristic.
- Select the best offspring and breed these to make the next generation.
- These offspring are then bred again and again, over many generations, until a desired result is achieved.



Genetic Engineering



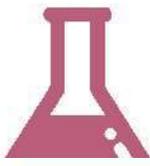
Classification

Linnaeus classified living things into kingdom, phylum, class, order, family, genus and species.

Organisms are named by the binomial system of genus and species.

Due to evidence from chemical analysis, there is now a 'three-domain system' developed by Carl Woese.

Domain	bacteria	archaea	eukaryota			
Kingdom	eubacteria	archaeobacteria	protists	fungi	plantae	animalia



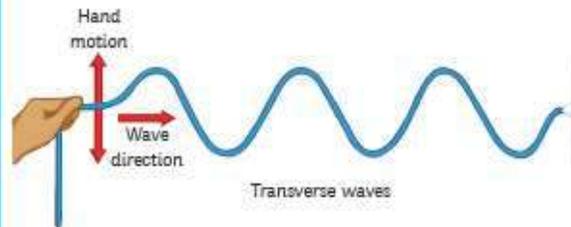
Year 11 Physics: Waves 1

AQA GCSE Physics (Separate Science) Unit 6: Waves

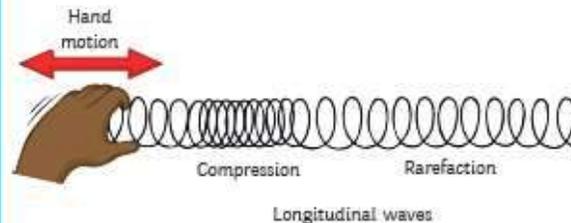
Transverse and Longitudinal Waves

Waves can be either **transverse** or **longitudinal**.

In a transverse wave, the vibrations are at a right angle (**perpendicular**) to the direction of the energy transfer. The wave has **peaks** (or **crests**) and **troughs**. Examples include **water waves** and **light waves**.



In a longitudinal wave, the vibrations are in the same direction (**parallel**) as the energy transfer. The wave has areas of **compression** and **rarefaction**. Examples of this type of wave are **sound waves**.

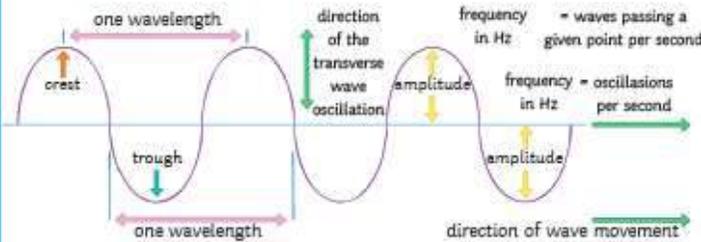


When a wave travels, energy is transferred but the matter itself does not move. Particles of water or air vibrate and transfer energy but do not move with the wave.

This can be shown by placing a cork in a tank of water and generating ripples across the surface. The cork will bob up and down on the **oscillations** of the wave but will not travel across the tank.



Properties of Waves



The **frequency** of a wave is the number of waves which pass a given point every second.

$$\text{time period (s)} = 1 \div \text{frequency (Hz)}$$

$$t = 1 \div f$$

The **wave speed** is how quickly the energy is transferred through a medium. (how quickly the wave travels).

$$\text{wave speed (m/s)} = \text{frequency (Hz)} \times \text{wavelength (m)}$$

$$v = f \times \lambda$$

The speed of **sound waves** travelling through air can be measured by a simple method. One person stands a measured distance from a large flat wall, e.g. 100m. The person then claps and another person measures the time taken to hear the echo. The speed of the sound can then be calculated using the equation.

$$\text{speed} = \text{distance} \times \text{time}$$

Remember the distance will be double because the wave has travelled to the wall and back again. It is important to take several measurements and calculate the average to reduce the likelihood of human error.

Sound Waves in Different Medium

How quickly sound waves can travel through a medium is determined by the **density** of the medium (material).

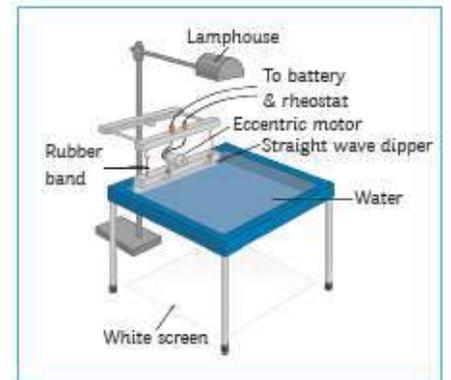
Sound waves will travel faster through a solid than a liquid as the spaces between the particles are smaller. This means that the **vibrations** and **energy** can be passed along the particles more quickly. In a gas, the transmission of sound is even slower as the space between the particles is **greater**.

The speed of sound in air is 330m/s.

Required Practical Investigation 8

Aim: make observations and identify the suitability of apparatus to measure the frequency, wavelength and speed of waves in a ripple tank and waves in a solid, and take appropriate measurements.

The **ripple tank apparatus** shown is the most commonly used for this investigation. It is likely you will work in groups or observe the investigation as a demonstration by your teacher.

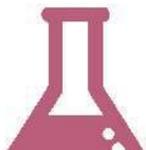


Method (assuming the apparatus is already set-up):

Turn on the power and observe the waves. Make any necessary adjustments to the equipment so that the waves are clear to observe (alter the voltage supplying the motor). **N.B.** The lowest frequency setting on the motor will ensure that the waves measurements can be made more easily.

To measure the **wavelength**, use the metre ruler and make an estimate quickly. You may want to use a **stroboscope** and freeze the wave patterns to make measurements.

Record 10 wavelengths and calculate the average value.



Year 11 Physics: Waves 2

AQA GCSE Physics (Separate Science) Unit 6: Waves

Required Practical Investigation 8 (continued)

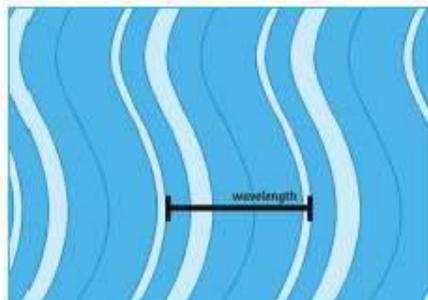
To measure the wave frequency, mark a given point onto the white paper and count the number of waves which pass the point within 10 seconds. Divide your answer by 10 to find the number of waves per second.

Record 10 frequencies and calculate the average value.

To calculate the wave speed, use this formula:

$$\text{speed} = \text{frequency} \times \text{wavelength}$$

Remember: the wavelength is the distance between one peak (or crest) of a wave and the next peak.



Required Practical Investigation 9

Aim: investigate the reflection of light by different types of surface and the refraction of light by different substances.

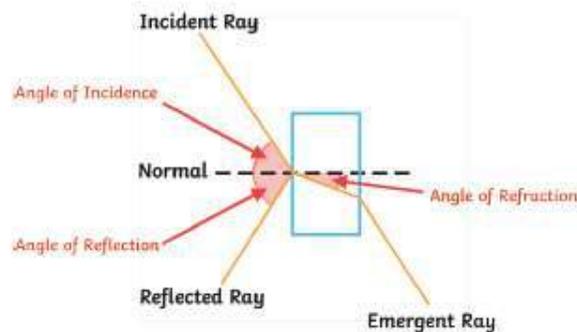
Method:

1. In a darkened room, set up the ray box on a flat surface and insert the filter to produce a single ray of light.
2. Place a glass block in the centre of a piece of plain A3 paper.
3. Draw a line around the glass block.
4. Draw a line at 90° to the glass block and label the line normal, as shown in the diagram.
5. Position the ray box so the ray of light hits the glass at an angle.
6. Using a pencil, draw the incidence, reflected and emergent rays as shown in the diagram.
7. Remove the glass block and draw the refracted ray going through the block.

8. Using a protractor, measure the angles of incidence, reflection and refraction. Record your results.
9. Repeat the experiment by placing a clear acrylic block on the A3 paper in the same position as the glass block.
10. The incident ray must follow the same line as before. Draw the reflected and refracted rays and measure using a protractor.
11. Collect four sets of results from other members of the class.

The law of reflection states:

$$\text{angle of incidence} = \text{angle of reflection}$$



Risk assessment:

The ray box will become hot during use and may cause minor burns. To prevent this, you should not touch the lamp and ensure you allow time for the ray box to cool after use.

You will be working in a semi-dark environment which means there is a higher risk of trips or falls. You should ensure your working space is clear of bags and coats, and that stools are tucked under desks before you start your investigation.

Required Practical Investigation 10

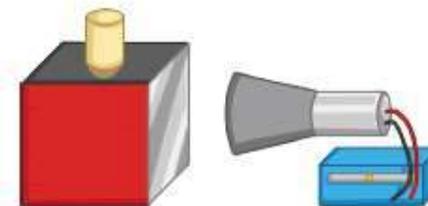
Aim: investigate how the amount of infrared radiation absorbed or radiated by a surface depends on the nature of that surface.

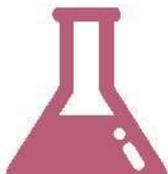
In this investigation, you are finding out which type of surface emits the most infrared radiation:

- dark and matt
- dark and shiny
- light and matt
- light and shiny

Method:

1. Place the Leslie cube on a heatproof mat.
2. Once the kettle has boiled, fill the Leslie cube with hot water.
3. Ensuring that the thermometer or the infrared detector is an equal distance from each of the surfaces (in turn) on the Leslie cube, measure the amount of infrared radiation emitted.
4. Repeat the experiment twice more to collect three results for each surface.





Science

Year 11 Chemistry: Chemical analysis 1

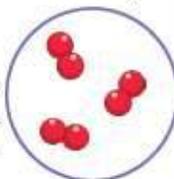
AQA GCSE Chemistry (Separate Science) Unit 8: Chemical Analysis

Pure Substances

Pure substances, in chemistry, only contain **one type of element** or **one type of compound**. For example, pure water will just contain water (a compound).

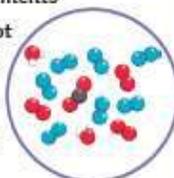
In our everyday language, we use the word 'pure' differently to how it is used in chemistry. Pure can mean a **substance** that has had **nothing else added** to it and is in its natural state. An example of this is pure orange juice. This means that the bottle will just contain orange juice and no other substances.

Elements are made up of **one type of atom**. For example, oxygen is made up of oxygen atoms. Carbon is made up of carbon atoms.



Compounds are **two or more elements** that are **chemically joined** together. For example, NaCl which is sodium chloride.

Mixtures are **two or more elements or compounds** that are **not chemically joined** together. An example of this is a standard cup of coffee. Coffee contains water, milk, coffee and possibly sugar. The components of the cup of coffee are not bonded together.



Pure Substances have a **sharp melting point** compared to **impure** substances which **melt over a range** of temperatures.

Formulations

Formulations are **mixtures of compounds or substances** that **do not react together**. They do **produce a useful product** with desirable characteristics or properties to suit a particular function.

There are examples of formulations all around us such as medicines, cleaning products, deodorants, hair colouring, cosmetics and sun cream.

Chromatography

Paper chromatography is a separation technique that is used to **separate mixtures of soluble substances**. How soluble a substance is determines how far it will travel across the paper.

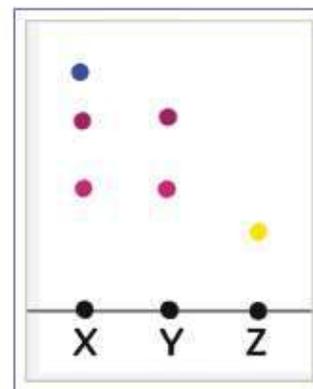
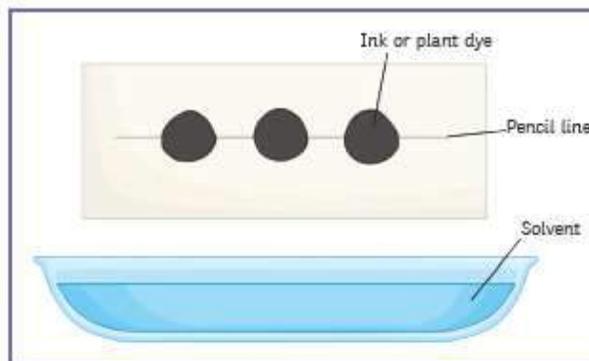
In chromatography, there are **two phases**: the **mobile** and **stationary** phase.

The **mobile phase** moves through the stationary phase. The **solvent** is the mobile phase. It moves through the paper carrying the different substances with it.

The **stationary phase** in paper chromatography is the **absorbent paper**.

Separation of the dissolved substances produces what is called **chromatogram**. In paper chromatography, this can be used to **distinguish** between those substances that are **pure** and those that are **impure**. **Pure substances** have **one spot** on a chromatogram as they are made from a single substance. **Impure substances** produce **two or more spots** as they contain multiple substances.

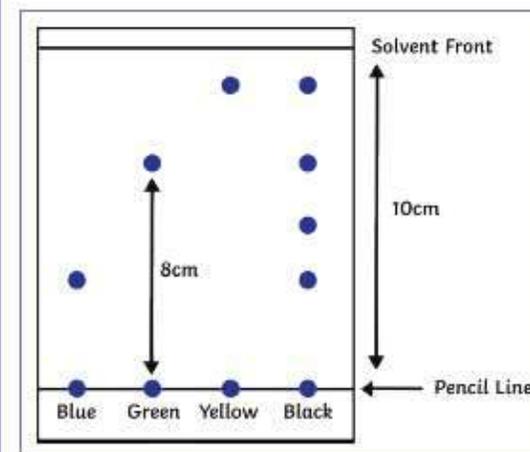
By calculating the **R_f values** for each of the spots, it is possible to identify the unknown substances. Similarly, if an unknown substance produces the **same number and colour of spots**, it is possible to match it to a known substance.



R_f Value

$$R_f = \frac{\text{distance travelled by substance}}{\text{distance travelled by solvent}}$$

Different compounds have different R_f values in different solvents. The R_f values of known compounds can be used to help identify unknown compounds.





Year 11 Chemistry: Chemical analysis 2

AQA GCSE Chemistry (Separate Science) Unit 8: Chemical Analysis

Required Practical – Paper Chromatography

Investigate how paper chromatography can be used to separate and distinguish between coloured substances.

Step 1 – Using a ruler, measure 10cm from the bottom of the chromatography paper and mark with a small dot using a pencil. Rule a line across the bottom of the chromatography paper with a pencil, going through the dot you have just made.

Step 2 – Using a pipette, drop small spots of each of the inks onto the pencil line. Leave a sufficient gap between each ink spot so that they do not merge.

Step 3 – Get a container and pour a suitable solvent into the bottom. The solvent should just touch the chromatography paper. The solvent line must not go over the ink spots as this will cause the inks to run into each other.

Step 4 – Place the chromatography paper into the container and allow the solvent to move up through the paper.

Step 5 – Just before the solvent line reaches the top of the paper, remove the chromatogram from the container and allow to dry.

Step 6 – Once the chromatogram has dried, measure the distance travelled by the solvent.

Step 7 – Measure the distance travelled by each ink spot.

Step 8 – Calculate the R_f value.

Compare the R_f value for each of the spots of ink.

$$R_f = \frac{\text{distance travelled by substance}}{\text{distance travelled by solvent}}$$

Page 22

Identification of the Common Gases



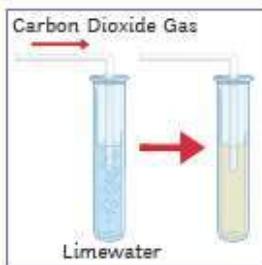
The Test for Hydrogen

Place a burning splint at the opening of a test tube. If hydrogen gas is present, it will burn rapidly with a **squeaky-pop** sound.



The Test for Oxygen

Place a glowing splint inside a test tube. The **splint will relight** in the presence of oxygen.



The Test for Carbon Dioxide

Calcium hydroxide (lime water) is used to test for the presence of carbon dioxide. When carbon dioxide is bubbled through or shaken with limewater, the limewater turns **cloudy**.



The Test for Chlorine

Damp litmus paper is used to test for chlorine gas. The litmus paper becomes **bleached and turns white**.

Flame Tests

Metal ions when heated produce a variety of flame colours. Flame tests are used to **identify the metal ion** that is present; each metal ion produces a different coloured flame.

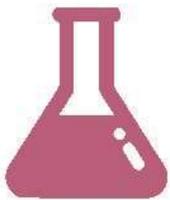
Step 1 – Dip a wire loop into a sample of the solid compound being tested.

Step 2 – Place the loop into the flame of the Bunsen burner. Ensure that the Bunsen burner is set to a roaring blue flame.

Step 3 – Observe the colour of the flame produced and record it in a table.

Mixtures of ions may cause some flame colours to not be as clear.

Ion	Colour of the Flame
Li^+	 crimson
Na^+	 yellow
K^+	 lilac
Ca^{2+}	 orange-red
Cu^{2+}	 green



Science

Year 11 Chemistry: Rates of reaction 3

Reversible Reactions

A reversible reaction is one in which the **reactants form products**. The products are then able to react together to **reform the reactants**.

For example:

A reacts with B to form C and D.

C and D are able to react to form A and B.

The equation would be as follows (where the **double arrow symbol** represents a reversible reaction is taking place):



The **forward reaction** goes to the **left** and the **backwards reaction** goes to the **right**. For example, if the forward reaction is exothermic then the backward reaction will be endothermic. The amount of energy that is transferred is the same for both the forward and reverse reaction.

Hydrated copper sulfate is a blue substance. We say that the copper sulfate is hydrated as it **contains water**. The copper sulfate is heated and the water evaporates leaving a white substance known as **anhydrous copper sulfate**. Anhydrous meaning **no water**.

The word equation for the reaction is as follows:

hydrated copper sulfate \rightleftharpoons anhydrous copper sulfate + water



The reaction can be reversed when water is added to the anhydrous copper sulfate.

Required Practical 5: Measuring the Production of a Gas

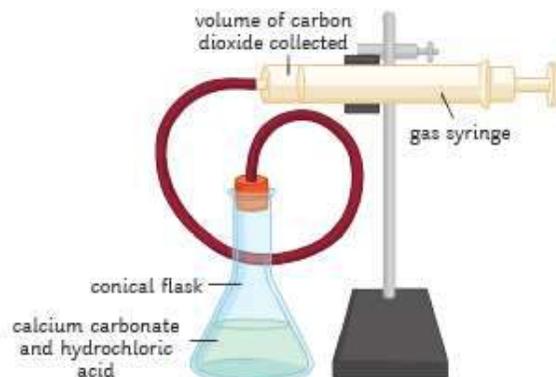
This method outlines one way to carry out an investigation to collect a gas from a chemical reaction.

The practical involves changing the concentration of hydrochloric acid and measuring the volume of carbon dioxide gas produced when the acid reacts with calcium carbonate.

The word equation for the reaction is as follows:

calcium carbonate + hydrochloric acid \rightarrow calcium chloride + water + carbon dioxide

The symbol equation for the reaction is:



Method

Step 1 – Clamp a gas syringe to a retort stand using a boss and clamp. Ensure the syringe is a quarter of the way from the top of the stand. Place the delivery tube to the end of the gas syringe.

Step 2 – Measure out 50ml of hydrochloric acid using a measuring cylinder and pour into a conical flask.

Step 3 – Using a top pan balance, measure out 0.5g of powdered calcium carbonate and place in the conical flask.

Step 4 – Immediately connect the bung and delivery tube to the conical flask. Start the stopwatch.

Step 5 – Record the volume of carbon dioxide gas produced every 10 seconds.

Step 6 – When the reaction has finished and there are no more bubbles of gas being produced, clean the equipment and repeat using four other different concentrations of hydrochloric acid.

When analysing the results from the practical investigation, plot a graph of Time (s) against Volume of Gas Produced (cm^3). Draw a curve of best fit through the points. A graph should be plotted for each concentration of acid.

Calculate the mean rate of reaction (cm^3/s) for each concentration of acid used. This can be calculated by dividing the total mass of gas produced (cm^3) by the reaction time (s).

Required Practical 5: Investigating a Change in Colour

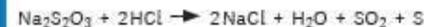


This method outlines one way to carry out an investigation into the effect of increased temperature on the rate of a reaction.

The word equation for this reaction is as follows:

sodium thiosulfate + hydrochloric acid \rightarrow sodium chloride + water + sulfur dioxide + sulfur

The symbol equation for this reaction is:



The reaction between sodium thiosulfate and hydrochloric acid produces a **precipitate**. **Sulfur** is responsible for the formation of the precipitate. A precipitate is a **solid** that is formed in a solution. It is the formation of this precipitate that causes the reaction mixture to become **cloudy**; the cloudiness is a way to measure the **reaction time**.



History

Year 10 History Knowledge Organiser- Elizabeth: Early Life

Early life

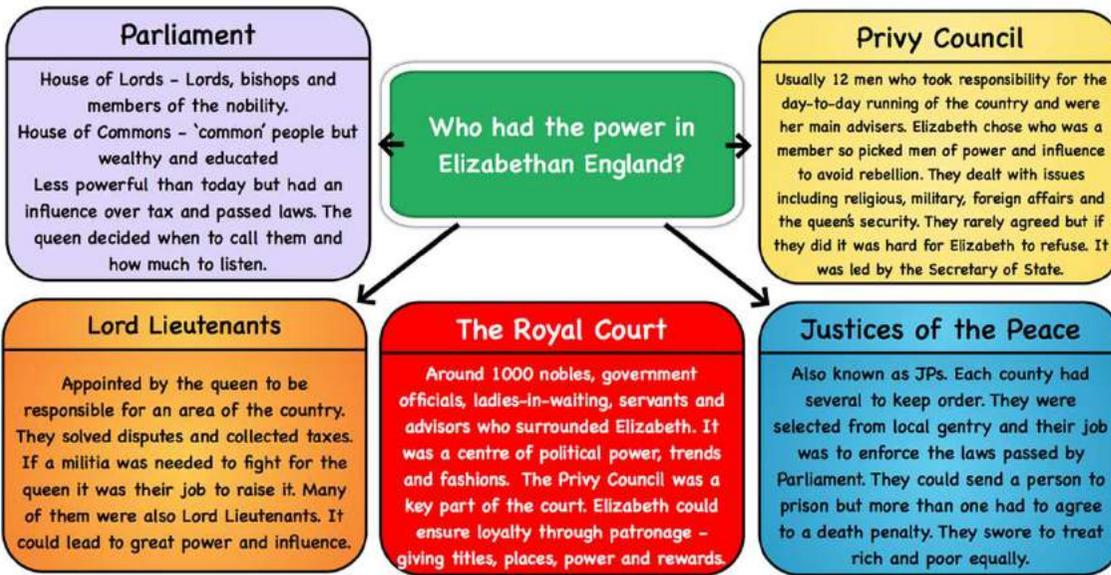
Her father, Henry VIII divorced his 1st wife to marry Elizabeth's mother Anne Boleyn. Anne was executed when Elizabeth was 3 for **treason**. After Henry's death, her brother Edward (Protestant) ruled, followed by her sister Mary (Catholic). Elizabeth became queen in 1558, aged 25.

Key individuals

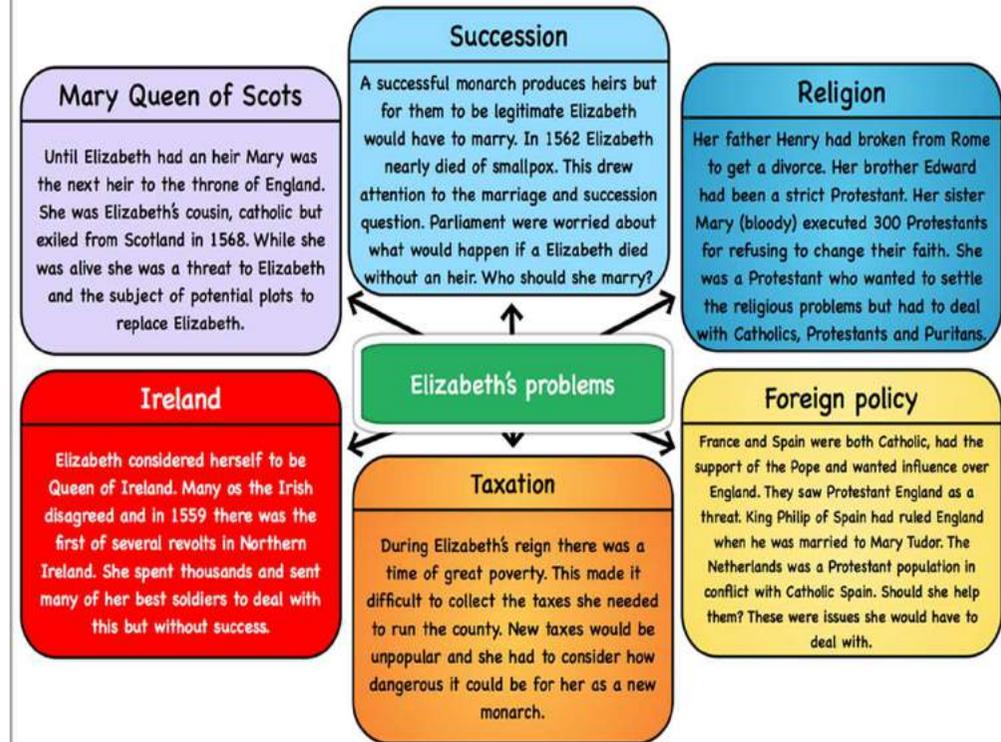
William Cecil: was Elizabeth's most trusted advisor. Served as Secretary of State twice.

Francis Walsingham: one of Elizabeth's closest advisors from 1573 onwards. Served as Secretary of State. Known as Elizabeth's 'spymaster'.

Who had power in Elizabethan England?



Elizabeth's problems



Key Terms	Definitions
Treason	A crime against the king
Parliament	The group which makes laws in England
Militia	A non-professional army called up to fight when needed
Patronage	Giving land, titles or power to gain an individual's support
Foreign affairs	Dealing with other countries
Gentry	The second highest class in England, they might be local JPs or hold other local jobs
Nobility	The highest social class in England, earls, lords & dukes. Given special rights & privileges



History

Marriage & early religious change

Why was marriage important?

Arguments for marriage

- England could gain an **alliance** with a foreign power
- Elizabeth might produce an **heir** and ensure the Tudor line continued
- An **heir** would prevent the Catholic Mary, Queen of Scots from ruling after Elizabeth

Arguments against marriage

- England could fall under the control of a foreign king or prince
- Marrying an Englishman could create problems over who had authority
- Mary's marriage to Philip II of Spain had dragged England into war
- Childbirth was risky



What was Elizabeth's religious settlement?

Elizabeth tried to find a compromise that all her subjects could work with. She chose a **'middle way'**. Therefore there were **Protestant** elements such as allowing priests to marry, services being held in English & her taking the title of 'governor' of the church. However there were **Catholic** elements too. Anyone who refused to attend church would pay a **recusancy fine**). She referred loyalty rather than religious conformity.

Who were the Puritans?

Extreme Protestants who believed that Elizabeth's Church of England was not strict enough

Issues: bishops clothing. Elizabeth told her bishops to wear a white surplice during services. Puritans wanted them to wear ordinary clothing. By 1566, Elizabeth told them to accept or be sacked.

By 1568: most Puritans asked the changes, but a small group called Presbyterians refused.

Prophesyings: prayer meetings held from 1570s. Often included critics of Elizabeth's church, so Elizabeth saw them as dangerous. Archbishop of Canterbury supported them, so Elizabeth suspended him

1580s: Elizabeth became stricter, unlicensed preaching banned, Puritans who did not conform imprisoned & fined. Puritan church broken during this time.

Who were the possible suitors?

Robert Dudley, Earl of Leicester

- Elizabeth's friend from childhood
- English
- Protestant
- BUT: other English nobles might be jealous of his power
- His wife died in mysterious circumstances.

Philip II of Spain

- Wealthiest monarch in the world
- Spanish
- Catholic
- England would gain an alliance
- BUT: the English disliked him
- He had dragged England into an unsuccessful war with France when married to Mary.

Francis, Duke of Anjou & Alencon

- French king's brother
- French
- Catholic
- England would gain an alliance
- BUT: Elizabeth was 46 (probably too old for children)
- The English disliked him

Key Terms	Definitions
Alliance	An agreement with a foreign country to support each other
Heir	The next in line to the throne
Suitor	Possible husbands
Catholic	Believed the Pope was god's representative on earth. Religion of Mary I & Mary, Queen of Scots.
Protestant	Newer form of Christianity, believed a person didn't need a priest to communicate with God & church services should be in English.
Religious Settlement	Elizabeth's attempt to find a religious compromise. Introduced in 1559.
Recusancy fines	Money paid for not attending church



History

Rebellions & later religious changes

Northern Rebellion 1569

Why: many Catholic northern lords angry with Elizabeth's changes to their power (more **Protestant** southern lords on the Council of the North)

Events: Duke of Norfolk plotted to marry Mary, Queen of Scots. Supported by the Earls of Northumberland and Westmorland. Plot was uncovered, Norfolk sent to the Tower of London.

Rebellion continued without him, Took control of Durham cathedral & celebrated mass. Turned towards Tutbury (where M, Q of S was imprisoned). Earl of Sussex raised an army of 14,000 and the rebels broke up.

The papal bull 1570

The Pope excommunicated Elizabeth from the Catholic Church & called on Catholics to end her rule. English Catholics now had to choose between loyalty to Elizabeth or their religion

Ridolfi Plot 1571

Led by Roberto Ridolfi. Wanted to replace Elizabeth with M, Q of S, who would marry Norfolk. This time there would be help from the Netherlands at the same time as another Northern Rebellion took place. Discovered by Walsingham's network of spies. Norfolk executed.



How did Elizabeth's policy towards Catholics change?

Became stricter. 1581: it became **treason** to attend a **Catholic mass & recusancy fines** increased to £20.

1585: treason to have a priest in your home.

1593: Catholics couldn't travel more than 5 miles from their home.

Why did the plots fail?

Spies: Walsingham's spy network meant that few plots got past their earliest stages.

A skilled politician: Elizabeth dealt with her Parliament effectively. She listened to advice but normally got her own way.

Unconvincing alternatives: the other options were M, Q of S or a foreign king such as Philip II of Spain. Neither of these were popular choices.

Punishments: Rebels were tortured & executed. Anyone who challenged Elizabeth could see what the consequences were.

Religious settlement: kept most people happy. It was not always applied strictly in the most Catholic areas.

Key Terms	Definitions
Mass	Catholic religious service
Missionaries	Someone who wants to spread their religious faith
Jesuits	Members of the Catholic Society of Jesus, their aim was to spread their religion.
Seminary	A college for training Catholic priest.

Foreign interference in religion

Missionaries: started arriving in England from the **seminary** in Douai from 1574. They aimed to convert England back to the Catholic faith.

Jesuits: first arrived in 1580 with the aim of returning England to Catholicism. **Jesuit** priests were seen as a threat to Elizabeth's rule & treated harshly. Many executed, including Edmund Campion. He entered England secretly & travelled around preaching. He was arrested after a few months & found guilty of **treason**.



France & Spain's actions

Both countries hoped Elizabeth would be overthrown but neither went to war with her until Spain attacked in 1588. Philip supported the seminary at Douai.

Why did Essex rebel?

1595: became a privy councillor, had a monopoly on sweet wine, developed a rivalry with Robert Cecil, defeated the Spanish in 1596.

1598: nearly drew his sword in a privy council meeting.

1599: sent to Ireland, made a truce with the Irish, knighted his army leaders & then left Ireland without permission.

1601: rebelled, but arrested & then executed.



History

Mary, Queen of Scots

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

1542: became Queen of Scotland at 6 days old

1548: sent to live in France

1558: married the Dauphin of France, Francis

1559: became Queen of France, when her father-in-law died

1560: Francis died, Mary was sent back to Scotland

1565: married Henry, Lord Darnley

1566: Mary's secretary David Rizzio was murdered in front of her. Darnley was probably involved.

1566: gave birth to her son, James

1567: Darnley was murdered in suspicious circumstances. Shortly after Mary married Lord Bothwell who many people thought had been involved in Darnley's murder

July 1567: Mary was forced to abdicate from the throne

1568: she lost a battle against the Protestant lords & ran away to England. She hoped that her cousin Elizabeth would help her get her throne back. Elizabeth put her in prison for the next 19 years

1586: Babington Plot uncovered. This was a plan to assassinate (murder) Elizabeth

1587: executed

What was the Babington Plot?

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

Should Elizabeth execute Mary?

NO

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

YES

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



Did killing Mary solve Elizabeth's problems?

- Elizabeth's heir was now James VI of Scotland (Mary's Protestant son).
- Catholics viewed Mary as a martyr & saw Elizabeth as a heretic.
- Elizabeth had murdered a queen, why couldn't other people do the same & murder her?

Key Terms	Definitions
Martyr	A person who dies for their beliefs
Heretic	Someone who holds different religious beliefs, that are seen as wrong



History

The voyages of exploration & conflict with Spain



Why is Sir Francis Drake famous?

1577-1580: becomes the first person to **circumnavigate** the globe. He & his cousin, John Hawkins first Englishmen to kidnap Africans & sell them as slaves. Drake was a **privateer** who attacked Spanish ships & stole their cargo.

What new technology was developed?

Lateen sails: triangular sails which made ships faster & easier to steer.
Astrolabe: sailors could judge how far south/north they were.

Where were trade links established?

Attempts were made to find a direct route to India & the Far East to cut out the middlemen. Muscovy Company established in 1555 & given the monopoly of trade with Moscow. East India Company established in 1600 to oversea trade with India. English involvement in the slave trade grew throughout the period.

How successful were attempts to colonise?

1584: Sir Walter Raleigh given permission by Elizabeth to explore, colonise & rule any land not already ruled by a Christian. In return she would receive 1/5 of all the gold & silver found there. Raleigh sent colonists to North America. Colony established at Roanoke but it failed.

How did the voyages benefit England?

Wealth

- Drake stole from Spanish ships & ports
- Hawkins made money for himself & the country though selling slaves
- England started to build the foundations of a trading empire that would grow in future centuries

Power

- Navy grew & was successful
- The navy could be used to dominate smaller countries

Territory

The first attempt to develop a colony failed but more were built in the next few centuries

Why was the Netherlands an issue between England & Spain?

1566: Protestant uprising in several Dutch cities (Philip ruled the Netherlands). Philip sent in soldiers, but this led to more rioting.

Elizabeth sent money to help the rebels & allowed English volunteers to fight. She also allowed the rebel ships to use English ports. She was in a difficult position as she needed to maintain English trade routes as well as not upsetting Philip.

Philip sent a powerful army under the Duke of Alava to put down the rebellion but he was unable to. The Protestant leader of the Dutch rebels, William, Duke of Orange was assassinated in 1584 & Elizabeth sent troops under the command of the Duke of Leicester in 1585. This achieved nothing but was clearly an act of war against Philip.

Armada plan

- Philip would send an armada of ships from Spain to anchor off the Dutch coast.
- Spanish soldiers would be sailed across to England & march on London.
- Lead by the Duke of Medina-Sidonia, who had no experience of commanding a navy.

English navy

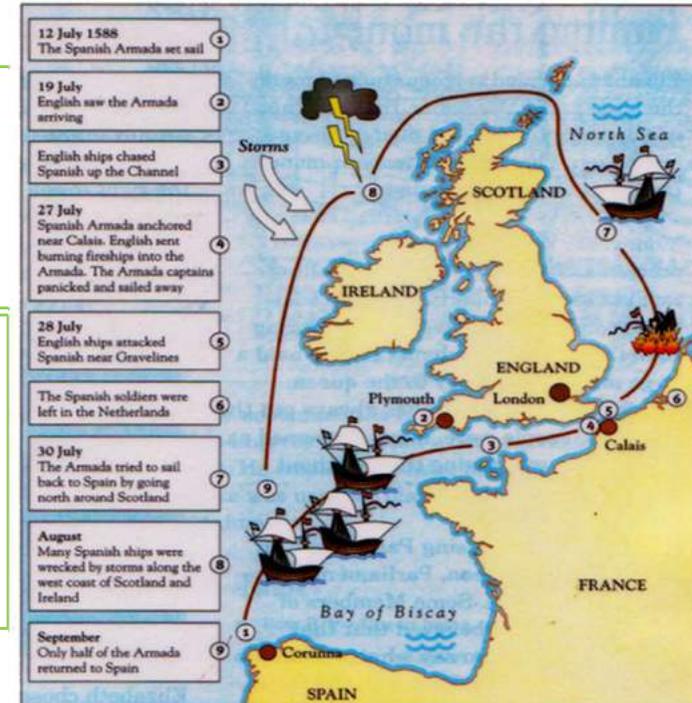
John Hawkins given responsibility for developing Elizabeth's navy. Philip II of Spain also doing the same at this point. English sailors such as Drake & Hawkins involved in many raids of Spanish, such as attack on Cadiz in 1587. Other tactics: fireships & line of battle. Cannons allowed attacks from a distances instead of boarding.

Why did the Armada fail?

English tactics: The fireships broke up the Spanish fleet & mean that individual ships could be attacked. Commanders like Drake were good tacticians. The English ships were faster.

Spanish mistakes: The Spanish ships were slower & less manoeuvrable. The soldiers were not ready when the fleet arrive to pick them up. Many of their cannons were designed to fight on land, not sea.

Weather: many Spanish ships were destroyed on their way home.



The route of the Spanish Armada

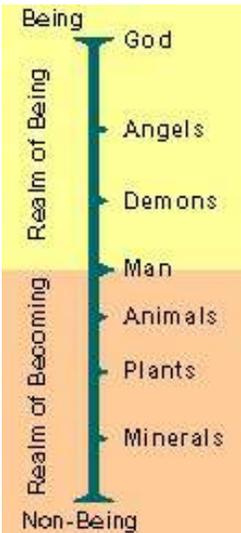
Key terms	Definitions
Circumnavigate	Travel all the way around the globe
Privateer	A ship's captain with permission to attack foreign ships
Colonies	Areas of other countries ruled by another



History

Life: wealth & poverty

Great Chain of Being



Nobility

- Second to the queen
- Dukes, earls & barons
- Average income £6,000
- Special privileges e.g. if they committed treason they would be beheaded

Gentry

- Landlords of the countryside
- Average income £10-200
- Some took on roles such as JPs & members of Parliament

Elizabethan country houses

- Gentry had increased prosperity, some built grand houses to demonstrate this.
- Often had references to classical civilisations in their design and decoration.
- Wealth was demonstrated through new technology such as huge glass windows & elaborate furnishings.

Why was poverty increasing?

- Closure of the monasteries
- Henry VIII's decision to **debase** coins
- A series of poor harvests 1594-98
- **Enclosure**
- **Rack renting**



Key Terms	Definitions
Enclosure	The change from arable (crop) farming to sheep, which involving putting a barriers around the land
Debasing	Mixing in less valuable metals into coins
Rack renting	When landlords unfairly increased rents
Deserving poor	The old, sick or young
Undeserving poor	Those who could work but chose not to

Poverty

1495: beggars punished in the stocks

1531: publically whipped, a second offence resulted in a hole burnt in their ear, for a third they were hanged.

Deserving poor: treated with sympathy & given help such as wealthy providing charity.

Undeserving poor: punished

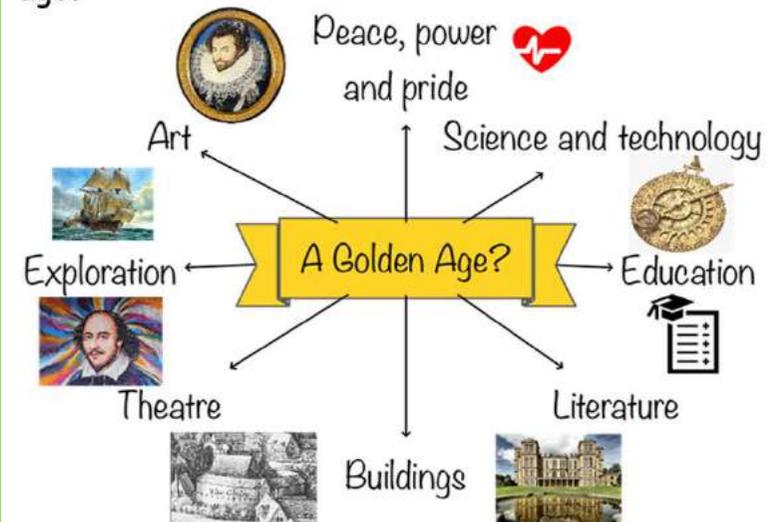
1576: Act for setting the poor on work - local towns given responsibility for looking after the poor. Each town used different methods e.g. York established a House of Correction & beggars had to work. Ipswich a youth training scheme was introduced, so children learnt a trade.

1601: Poor Law - wealthy of each area would be taxed to pay for the care of the poor. Healthy poor would work for their upkeep & any who refused would be sent to the House of Correction

Leisure time

Theatres popular entertainment for all classes. Purpose built theatres such as The Globe & The Rose could hold about 3,000 spectators. Standing was cheaper. Puritans opposed the theatre, seeing it as sinful. People thought large gatherings might spread disease & encourage crime.

Why can the Elizabethan age be seen as a golden age?



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.

Measuring development

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

Economic indicators examples

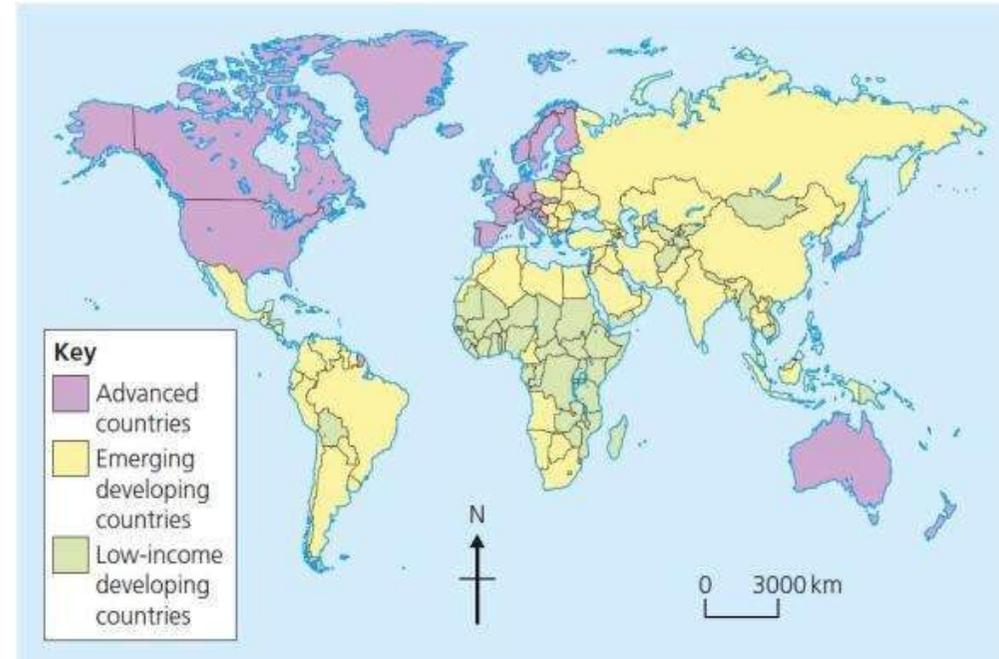
Employment type	The proportion of the population working in primary, secondary, tertiary and quaternary industries.
Gross Domestic Product per capita	This is the total value of goods and services produced in a country per person, per year.
Gross National Income per capita	An average of gross national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

Unit 2b

The Changing Economic World



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.

Human factors affecting uneven development

Aid	Trade
<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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
<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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
<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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.

Physical factors affecting uneven development

Natural Resources	Natural Hazards
<ul style="list-style-type: none"> Fuel sources such as oil. Minerals and metals for fuel. Availability for timber. Access to safe water. 	<ul style="list-style-type: none"> Risk of tectonic hazards. Benefits from volcanic material and floodwater. Frequent hazards undermines redevelopment.
Climate	Location/Terrain
<ul style="list-style-type: none"> Reliability of rainfall to benefit farming. Extreme climates limit industry and affects health. Climate can attract tourists. 	<ul style="list-style-type: none"> Landlocked countries may find trade difficulties. Mountainous terrain makes farming difficult. Scenery attracts tourists.

Consequences of Uneven Development

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

Wealth

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

Health

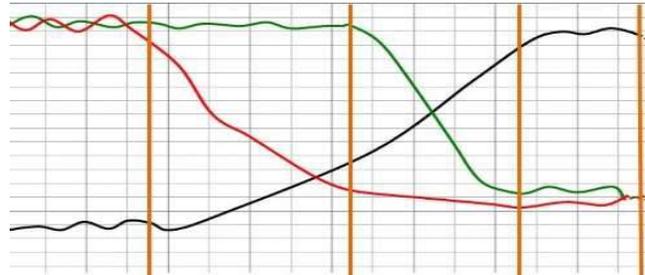
Better healthcare means that people in more developed countries live longer than those in less developed countries.

Migration

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

The Demographic Transition Model

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



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

Reducing the Global Development Gap

Microfinance Loans

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

Foreign-direct investment

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

Aid

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

Debt Relief

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

Fair trade

This is a movement where 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.

Technology

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

Reducing the Development Gap In Jamaica

Location and Background

Jamaica is a LIC island nation part of the Caribbean. Location makes Jamaica an attractive place for visitors to explore the tropical blue seas, skies and palm filled sandy beaches



Tourist economy

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

Multiplier effect

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

Development Problems

- Tourists do not always spend much money outside their resorts.
- Infrastructure improvements have not spread to the whole island.
- Many people in Jamaica still live in poor quality housing and lack basic services such as healthcare.

Case Study: Economic Development in Nigeria

Location & Importance

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



Influences upon Nigeria's development

Political

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

Social

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

Cultural

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

Industrial Structures

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

The role of TNCs

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

Changing Relationships

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

Environmental Impacts

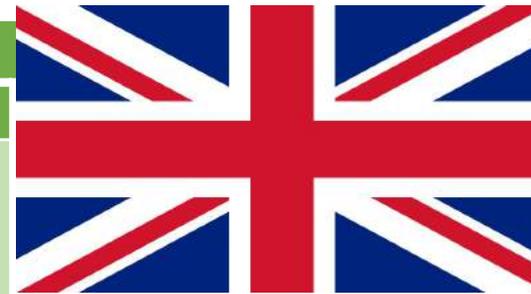
The 2008/09 **oil spills devastated swamps** and its **ecosystems**.
 Industry has caused **toxic chemicals** to be discharged in open sewers - **risking human health**.
80% of forest have been **cut down**. This also increases **CO² emissions**.

Aid & Debt relief

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

Effects of Economic Development

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



Case Study: Economic Change in the UK

UK in the Wider World

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

Causes of Economic Change

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

Developments of Science Parks

Science Parks are groups of scientific and technical knowledge based businesses on a single site.

- Access to **transport routes**.
- **Highly educated workers** who benefit from **attractive working conditions**.
- Attracts **clusters** of related **high-tech businesses**.

Towards Post-Industrial

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

CS: UK Car Industry

Every year the UK makes 1.5 million cars. These factories are owned by large TNCs. i.e. **Nissan**.

- 7% of energy used there factories is from **wind energy**.
- New cars are more energy **efficient and lighter**.
- Nissan produces **electric and hybrid cars**.

Change to a Rural Landscape

Social

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

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.

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.

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.

Que voudrais-tu faire comme emploi ?	F	What do you want to do as a job?
Après avoir fini mes études	26	After having finished my studies
je voudrais être journaliste	27	I would like to be journalist
parce que c'est bien payé et on peut voyager.	28	because it is well paid and one can travel.
Cependant, je n'aimerais pas être infirmier	29	However, I would not like to be a nurse
car ma mère m'a dit que c'est trop stressant,	30	because my mum told me that it is too stressful,
bien que ce soit gratifiant.	31	although it is rewarding.
Si j'ai des bonnes notes, j'irai à l'université	32	If I have good grades, I will go to university
où j'ai l'intention d'étudier l'histoire	33	where I intend to study history
car j'aurai besoin d'un diplôme.	34	because I will need a degree.
Que voudrais-tu faire à l'avenir ?	G	What do you want to do in the future?
A part le travail, mon rêve serait de	35	Apart from work, my dream would be to
prendre une année sabbatique et faire du bénévolat	36	take a gap year and do voluntary work
parce que j'adore les voyages et	37	because I love travelling and
on peut aider les gens.	38	you can help people.
Un jour j'aimerais me marier et fonder une famille	39	One day I would like to get married and start a family
Ce serait parfait pour moi !	40	That would be perfect for me!
As-tu un petit boulot ?	H	Do you have a part time job?
Pour gagner de l'argent de poche	41	To earn pocket money
je tends la pelouse et je passe l'aspirateur.	42	I mow the lawn and do the hoovering
et mes parents me donnent dix euros par heure.	43	and my parents give me ten euros an hour.
J'aimerais avoir un petit boulot	44	I would like to have a part time job
et livrer les journaux, par exemple,	45	and deliver the newspapers, for example,
car c'est bien payé, mais il faut se lever tôt.	46	because its well-paid, but you must get up early.
Décris un stage que tu as fait.	I	Describe work experience that you've done.
L'année dernière j'ai fait un stage dans un bureau	47	Last year I did work experience in an office
où j'ai fait des photocopies et j'ai répondu au téléphone.	48	where I made photocopies and I answered the phone
C'était assez ennuyeux et le chef était trop sévère	49	It was quite boring and the boss was too strict
donc je n'ai pas beaucoup appris.	50	so I didn't learn a lot.

Grammar – Higher-level tenses (conditional, imperfect & future simple)

PRESENT (what you do)	IMPERFECT (what you did/used to do)	CONDITIONAL (what you would do)	FUTUR SIMPLE (what you will do)
je suis (I am)	j'étais (I was/used to be)	je serais (I would be)	je serai (I will be)
j'ai (I have)	j'avais (I had/used to have)	j'aurais (I would have)	j'aurai (I will have)
je fais (I do)	je faisais (I did/used to do)	je ferais (I would do)	je ferai (I will do)
je vais (I go)	j'allais (I went/used to go)	j'irais (I would go)	j'irai (I will go)
c'est (it is)	c'était (it was)	ce serait (it would be)	ce sera (it will be)
il y a (there is)	il y avait (there was)	il y aurait (there would be)	il y aura (there will be)

We can combine these tenses to create 1) simple and 2) complex 'si clauses'.

1) PRESENT + FUTUR SIMPLE

e.g. Si j'ai des bonnes notes, j'irai à l'université.
If I have good grades, I will go to university.

Si je fais mes devoirs, je serai plus fort en maths.
If I do my homework, I will be better at maths.

2) IMPERFECT + CONDITIONAL

e.g. Si j'étais le directeur, il y aurait une piscine.
If I was the headteacher, there would be a pool.

Si j'avais l'argent, je ferais le tour du monde.
If I had the money, I would do an around-the-world trip.



Sentence builder – talking about school.

Mon collège s'appelle Da Vinci Academy. My college is called Da Vinci		C'est un collège It's	mixte a mixed school publique/privé a public/private school pour les filles/garçons for girls/boys	pour les élèves de onze à seize ans. for students aged 11-16. avec environ cinq-cents élèves. with around 500 students.		
On a de la chance car il y a We're lucky because there is/are		des grands labos de science big labs une bonne cantine a good canteen		mais malheureusement il n'y a pas de but unfortunately there isn't	piscine a pool gymnase a gym bibliothèque a library	ce qui est dommage. which is a shame.
Si j'étais le directeur/la directrice il y aurait If I was the headteacher there would be		une jolie cour de récréation a pretty playground				
Ma matière préférée c'est My favourite subject is Ce que j'aime le plus c'est What I like the most is J'ai toujours aimé I've always liked J'aime aussi I also like		l'anglais English l'EPS PE l'histoire history la biologie biology la chimie chemistry la géographie geography la physique physics le dessin art le français French les maths maths		parce que je le/la/les trouve facile(s) / fascinant(e)(s) / utile(s). because I find it easy / fascinating / useful. car le/la prof est sympa et je l'aime bien. because the teacher is nice and I like him/her. car je suis doué(e) en maths/sciences/langues. because I'm good at maths/sciences/languages.		
cependant however je n'aime pas I don't like ce que j'aime le moins c'est what I like the least is				parce qu'on a trop de devoirs. because we have too much homework. parce que c'est trop difficile/ennuyeux/inutile. because it's too difficult/boring/useless. car le/la prof est sévère et je le/la déteste. because the teacher is strict and I hate him/her. car je suis faible en maths/sciences/langues. because I'm bad at maths/sciences/languages.		
Selon les règles au collège According to the rules at school	Il faut you must	être à l'heure be on time porter l'uniforme scolaire wear school uniform	ce que je trouve which I find	raisonnable reasonable (in)juste (un)fair logique logical ridicule ridiculous frustrant frustrating	parce que because parce qu' because	c'est/ce n'est pas dangereux/important/illégal. it is/it is not dangerous/important/illegal. l'école, c'est pour apprendre. school is for learning. la mode n'a pas de place à l'école. fashion has no place at school. on n'est pas de bébés. we're not babies. il faut respecter les autres. one must respect others.
	Il ne faut pas you must not Il est interdit de it's forbidden to Il n'est pas permis de it's not allowed to on n'a pas le droit de you don't have the right to	utiliser son portable use your phone de porter des bijoux / de maquillage wear jewellery / make up manquer les cours skip class fumer smoke se droguer do drugs	Je pense que c'est I think it's Je ne pense pas que c'est I don't think it's			
En France In France	ils portent leurs propres vêtements they wear their own clothes ils redoublent they repeat the year if they fail les cours finissent à 17h lessons finish at 5pm ils n'étudient pas la religion. they don't study RE		tandis qu'au Royaume-Uni whereas in the UK		nous portons l'uniforme scolaire. we wear uniform. nous ne redoublons pas. we don't repeat the year. la journée finit plus tôt. the day finishes earlier.	
Je préfère I prefer	le système français the French system		parce que l'uniforme scolaire est inutile. because school uniform is useless.			
	le système britannique the British system		parce que les horaires sont plus raisonnables. because the timings of the day are more reasonable. car le redoublement n'est pas une bonne idée. because repeating the year isn't a good idea.			
À l'école primaire at primary school	j'étais membre de la chorale I used to be a member of the choir j'avais beaucoup de temps libre I used to have a lot of free time		mais maintenant	je suis délégué(e) de classe I am a class representative j'ai trop de devoirs I have too much homework		



Sentence builder – future career & personal ambitions.

N.B. Unlike in English, you **don't** need an article (i.e. 'un' or 'une') here

COMPLEX PHRASE	NOUN	FUTURE VERB	JOB	CONNECTIVE	REASON
Après avoir fini After having finished	mes études my studies	je voudrais être I would like to be	acteur/actrice actress avocat(e) lawyer	parce qu' because puisque' since étant donné qu' given the fact that	on peut parler les langues étrangères we can speak foreign languages
	mes examens my exams le lycée college l'université university mon apprentissage my apprenticeship mon diplôme my degree	j'aimerais être I would like to be je rêve d'être I dream to be mon ambition est d'être my ambition is to be j'ai envie d'être I fancy being	boucher/bouchère butcher caissier(ière) cashier chanteur(euse) singer cuisinier(ière) cook facteur/factrice postman fonctionnaire civil servant footballeur(euse) footballer homme/femme d'affaires business man/woman infirmier(ière) nurse		on peut gagner beaucoup d'argent we can earn a lot of money on peut voyager partout dans le monde we can travel everywhere in the world on peut travailler avec les ordinateurs we can work with computers on peut travailler avec les gens/enfants we can work with people/children on peut aider les gens we can help people.
Si j'ai des bonnes notes If I have good grades		j'ai l'intention d'être I intend to be	informaticien(ne) IT worker ingénieur engineer journaliste journalist mécanicien(ne) mechanic médecin doctor pilote d'avion pilot pompier fireman professeur teacher secrétaire secretary serveur/serveuse waiter vendeur(euse) shop assistant	parce que/car because puisque since étant donné que given the fact that	c'est bien payé it's well paid c'est gratifiant it's rewarding c'est un métier/emploi intéressant it's an interesting job j'adore la musique I love music le sport sport les voitures cars je suis très for(te) en maths / français I am very good at Maths/French
SEQUENCERS Aussi / de plus Après Tout d'abord Un jour	also after first of all one day	je voudrais/j'aimerais I would like to j'espère I hope to mon rêve serait de my dream would be to	fonder une famille m'installer avec mon copain/ma copine continuer mes études à l'université (la fac) faire le tour du monde faire du bénévolat devenir apprenti(e) prendre une année sabbatique		start a family move in with my boyfriend/girlfriend continue my studies at university (uni) travel around the world do voluntary work become an apprentice take a gap year

'The 4 Js': 3 tenses!!

- 1) **J'aime** + **infinitive** (present) *I like to...*
- 2) **J'ai décidé de** + **infinitive** (past) *I decided to...*
- 3) **Je vais** + **infinitive** (near future) *I am going to...*
- 4) **Je voudrais** + **infinitive** (future) *I would like to...*

WOW phrases

- bien que ce soit** + adj = although it is...
- il faut que je fasse...** = I must do...
- afin que je puisse** = so that I can...
- si j'avais le choix, je voudrais** + infinitive
= if I had the choice, I would like...
- si j'étais le maire/le directeur, il y aurait...** =
= if I was the mayor/the headteacher, there would be...

INFINITIVES
-ER, -IR, -RE

PRESENT	PERFECT PAST TENSE	NEAR FUTURE
je joue (I play)	j'ai joué (I have played)	je vais jouer (I am going to play)
je regarde (I watch)	j'ai regardé (I have watched)	je vais regarder (I am going to watch)
j'écoute (I listen)	j'ai écouté (I have listened)	je vais écouter (I am going to listen)
je mange (I eat)	j'ai mangé (I have eaten/ate)	je vais manger (I am going to eat)
je lis (I read)	j'ai lu (I have read)	je vais lire (I am going to read)
je fais (I do)	j'ai fait (I did/have done)	je vais faire (I am going to do)
je bois (I drink)	j'ai bu (I have drunk/drank)	je vais boire (I am going to drink)
je prends (I take)	j'ai pris (I have taken/took)	je vais prendre (I am going to take)
j'ai (I have)	j'ai eu (I have had)	je vais avoir (I am going to have)
je suis (I am)	j'ai été (I have been/was)	je vais être (I am going to be)
je vais (I go)	je suis allé (I went)	je vais aller (I am going to go)
je sors (I go out)	je suis sorti (I went out)	je vais sortir (I am going to go out)
je reste (I stay)	je suis resté (I stayed)	je vais rester (I am going to stay)

Describing a photo

- **'Sur la photo il y a' + noun**
(remember article – un/une/des – un homme; une femme; un garçon, une fille, des arbres, des bâtiments, des voitures, beaucoup de personnes...)
- **Ils sont contents**
Elles sont contentes (they are happy)
- **Il fait beau** (it is nice weather)

PRESENT (what you do)	IMPERFECT (what you did/used to do)	CONDITIONAL (what you would do)	FUTUR SIMPLE (what you will do)
je suis (I am)	j'étais (I was/used to be)	je serais (I would be)	je serai (I will be)
j'ai (I have)	j'avais (I had/used to have)	j'aurais (I would have)	j'aurai (I will have)
je fais (I do)	je faisais (I did/used to do)	je ferais (I would do)	je ferai (I will do)
je vais (I go)	j'allais (I went/used to go)	j'irais (I would go)	j'irai (I will go)
je joue (I play)	je jouais (I used to play)	je jouerais (I would play)	je jouerai (I will play)
je mange (I eat)	je mangeais (I used to eat)	je mangerais (I would eat)	je mangerai (I will eat)
c'est (it is)	c'était (it was)	ce serait (it would be)	ce sera (it will be)
il y a (there is)	il y avait (there was)	il y aurait (there would be)	il y aura (there will be)

Checking your writing

- Do you have **3 tenses** – multiple correct examples?
- At least **3 opinions + reasons**?
- **Adjective endings**?
- **WOW phrases**?

A01

Develop ideas through investigations and showing understanding of sources



Mood board

Theme – consider your theme, have you got a set idea already or are you happy to collect a wider range of ideas

Use a range of sources – don't find pictures from just one place use different sources like, photographs, wallpapers/fabric samples, lettering, magazines etc...

Pick a style – pull it all together with a colour/theme or style to make your page 'work' as a whole

Apply ideas – your mood board should be a visual representation of your mind map



Mind map

Keywords – add branches to your mind map that include key ideas and words, using one word for each branch will allow you to develop more ideas rather than using a phrase or sentence

Central idea – this is the starting point of your mind map and shows the topic you are exploring. All keywords should link from this idea.

Include images – imagery can convey much more than a word or sentence and can help you to develop your ideas as well



Artist Research and Analysis of Work

There are several things you must include in your research to show understanding of your chosen artist

Bio – a quick gathering of facts with the artists birth/death, style, important works

Collect images – select images of their work that are relevant and images that appeal to you, comment on why you like them

Analysis – To show understanding of the artist you must discuss their work. This will allow you to explore ideas and consider different options before you begin creating your own art work.

Reproduction – either copy a small piece of their work or work in the artist's style to show your understanding of their work

Content – Looking at the subject of the work.

What is it? What exactly can you see? What is happening? What does the work represent?
 What does the artist call the work?
 Does the title change the way we see the work?
 What is the theme of the work?
 Landscape, portrait, journey, moment, memory, event, surreal, fantasy, abstract, message.

Form – Looking at the formal elements.

What colours does the artist use? Why? How is the colour organised?
 What kind of shapes can you see?
 What kinds of lines and marks does the artist use?
 What is the surface like? What textures can you see?
 What patterns can you see?
 How big is the work?
 Light, delicate, layered, strong, rough, dark, peaceful, dripped, textured, scale, vivid, bright.

PROCESS – How the work has been developed and made.

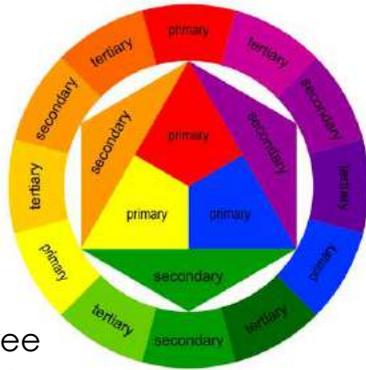
What materials and tools have been used?
 What is the evidence for how it has been made?
 Painted, drawn, woven, printed, cast, stitched, constructed, collaged.

Mood – Looking at the communication of moods and feelings.

How does the work make you feel?
 Why do you feel like this?
 Does the colour, texture, form or theme of the work affect your mood?
 Quiet, contemplative, thoughtful, hopeful, peaceful, elated, joyful, reflective.

A02

Refine ideas by experimenting with appropriate media, materials, techniques and processes



You don't have to use a specific media in your project, just show some variation.

For example if an artists uses pen, you could try using, pen, pencil, charcoal, biro, coloured pen etc.

Colour Theory

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

Secondary colours are made by mixing two primary colours

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

Harmonious colours are next to each other on the colour wheel

Complementary colours are opposite each other on the colour wheel

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

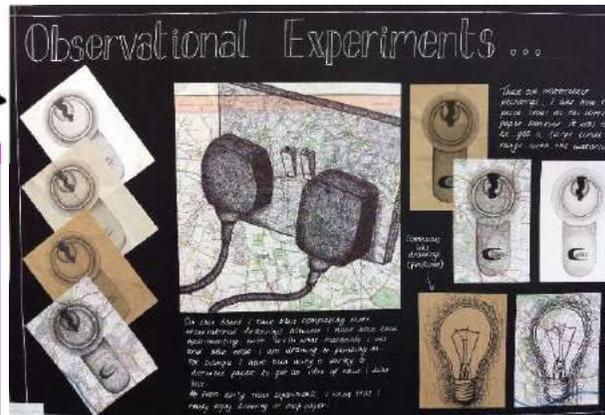
Shade – when you add black to a colour to make it darker



Experimentation

You MUST try things more than once to show improvement and refinement. See how the artist has tried the same sketches in lots of different media and on different surfaces.

Be brave in your use of media, aim to show off your best skills.



Pencil		The basic tool for drawing, can be used for linear work or for shading
Biro		Drawings can be completed in biro and shaded using hatching or cross hatching
Pastel (chalk/oil)		Oil and chalk pastels can be used to blend colours smoothly, chalk pastels give a lighter effect
Coloured pencil		Coloured pencil can be layered to blend colours, some are water soluble
Acrylic paint		A thick heavy paint that can be used smoothly or to create texture
Watercolour		A solid or liquid paint that is to be used watered down and layered
Monoprint		Where ink is transferred onto paper by drawing over a prepared surface
Collograph		A printing plate constructed of collaged materials
Card construction		Sculptures created by building up layers of card or fitting together

Media	The substance that an artist use to make art
Materials	The same as media but can also refer to the basis of the art work eg, canvas, paper, clay
Techniques	The method used to complete the art work, can be generic such as painting or more focus such as blending
Processes	The method used to create artwork that usually follows a range of steps rather than just one skill

A03

Record observations, ideas and understandings as you develop your work

Take your own photographs and work from them as much as possible. Taking your own photographs will allow you to create a more personalised response.



Create both primary and secondary studies.

Create **maquettes** (a miniature scale model) in paper, card, etc to show your ideas.



You may want to produce another mood board or mind map as you develop your project and narrow down ideas.



All ideas and observations **MUST** clearly link to your project/theme. No random art work.

How to 'record'

Observational drawing	Drawing from looking at something (not from imagination)
Primary observation	Drawing directly from looking at objects in front of you
Secondary observation	Drawing from looking at images of objects
Photographs	Using a camera or smartphone to take pictures to draw from (this is also classes as a primary observation)
Sketches	Basic sketches and doodles to show undeveloped and initial ideas.
Annotations	Writing about your art work

Annotation

Describes writing notes, using images and explain your thoughts to show the development of your work.

You must annotate and reflect on your work as it progresses to show your intentions and ideas.

Step 1 – Describe

- What is the image of?
- What have you done?

Step 2 – Explain

- How was this work made?
- How did you produce these effects?
- How did you decide on the composition?

Step 3 - Reflect

- Why did you use these methods?
- Why do some parts of the work 'work' better than others?
- Why might you do things differently next time?



AO4

Present a personal and meaningful response that realises intentions and shows an understanding of visual language

Telling a story with your art and sketchbook, using your work to convey a message instead of relying on words.

Avoid sticking with your first idea. Sometimes your initial idea is worth pursuing but before a final piece is decided upon you should have considered at least three different design ideas.

Sketchbook checklist

- Have you demonstrated what the starting point, theme or brief means to you personally?
- Have you established a link between the starting point and your chosen sources?
- Have you reflected your understanding of the social and cultural context?
- Is there a clear link between your sources and your own work?
- Is it clear what ideas or techniques from your sources you have developed?
- Have you selected and presented your studies carefully?
- Made use of your discoveries?
- Made clear links between your work and that of other artists, designers and craftspeople?
- Collected images to show your inspiration and stimuli?
- Made use of drawings, sketches, jottings, photographs and experiments with different media?
- Annotated images to explain how they fit into your development process?
- Demonstrated your understanding through correct use of art and design vocabulary?
- Shown experimentation and selection of the most successful results for your project?
- Organised your recordings and presented them to show and explain your decisions?
- Clearly linked all of your work to your starting point?

Thinking about your Final Piece

- Use materials and media that you can control well and have practised with.
- Your final piece should show influences from the artists you have studied
- Remember to think about composition rules when designing your final piece

Present your work well, this doesn't mean fancy background. Just take care on every page.

A rough idea

A basic sketch of a final idea

A visual Maquette

A small image or model created in materials that replicate the end result

Final piece

An image or sculpture pulling all prep work together.



The Formal elements of Art

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

Clients Team, (Client, Architect, Engineer, Quantity Surveyor, Project Manager, Designer)

Job role	Activities (AC1.1)	Responsibilities (AC1.2)	Outputs (AC1.3)
Client	<p>The client is the customer of the entire industry.</p> <p>Appoint a team of professionals</p> <p>Delegate administration responsibilities or administer the contract themselves.</p> <p>Ensure the wider team is paid in a timely and consistent manner.</p>	<p>Fulfil their duties under CDM regulations</p> <p>Satisfy themselves that the project is feasible in commercial, practical and beneficial terms.</p> <p>Choose and appoint suitably qualified and experienced construction professionals by following the advice of their project manager.</p> <p>Trust their team to procure, design, construct and ultimately deliver solutions</p>	<p>Successfully manage and deliver a project</p> <p>Controls the risks from health and safety of those that might be affected.</p> <p>Ensure the contractors get paid for the work that they have done.</p>
Architect	<p>Creating design to meet client requirements</p> <p>Creating detailed drawings for the contractor, with exact measurements and building materials needed</p> <p>Assessing client needs, identifying potential risks, overseeing the whole construction process.</p>	<p>Considering budget, safety and community needs for a project.</p> <p>Ensuring building regulations, planning laws and environmental considerations are met.</p>	<p>Overall responsibility for creating designs of buildings for client and ensuring it is compliant with regulations and legislation requirements.</p>
Civil Engineer	<p>Assisting with site investigations</p> <p>Developing detailed designs</p> <p>Communicating and liaising effectively with colleagues and architects, subcontractors, contracting civil engineers, consultants, co-workers and clients</p>	<p>Managing budgets and other project resources.</p> <p>Managing change, as the client may change his or her mind about the design</p> <p>Assessing the potential risks of specific projects.</p>	<p>Ensuring planning conditions are met (e.g. specific improvements or methods of work) using highly specialised sub contractors.</p>

Clients Team, (Client, Architect, Engineer, Quantity Surveyor, Project Manager, Designer)

Job role	Activities (AC1.1)	Responsibilities (AC1.2)	Outputs (AC1.3)
Structural Engineer	<p>Supervising project teams and giving progress reports to clients and senior managers</p> <p>Using computer simulations to predict how structures will react under different conditions, for example high winds or earth tremors</p>	<p>Making sure projects meet legal guidelines, environmental directives, and health and safety requirements</p> <p>Ensuring accuracy in calculating the loads and stresses on different parts of a structure like the foundations, beams, arches and walls.</p>	Ensuring the structure and layout of buildings is accurate in planning and monitoring of construction process.
Quantity Surveyor	<p>Preparing tender and contract documents</p> <p>Working out the cost of repair and maintenance work</p> <p>Establishing exactly what a client wants</p> <p>Weighing up commercial risks</p>	<p>Allocating work to subcontractors</p> <p>Valuing completed work and arranging payments</p> <p>Making sure a project meets every legal and quality standard</p> <p>Making sure that the client gets value for their money.</p>	Ensure performance of contractors is compliant, safe, timely and satisfactory quality of work and that they are paid on time.
Project Manger	<p>Understanding what the client or company wants to achieve</p> <p>Agreeing the timescales, costs and resources needed to deliver the project</p> <p>Drawing up a detailed plan for how to achieve each stage of the project</p> <p>Selecting and leading a project team.</p>	<p>Negotiating with contractors and suppliers for materials and services</p> <p>Directing a multi-disciplinary team and ensuring that each stage of the project is progressing on time, on budget and to the right quality standards</p> <p>Resolving any issues/ delays which may occur</p>	Ensure project is complete and compliant for the client in a safe and timely manner.
Designer	<p>Overseeing internal and external design teams</p> <p>Making sure that design information is available to those who need it, when they need it</p>	<p>Working with clients to ensure that their requirements are fulfilled.</p> <p>Keeping up to date with changing legislation and codes of practice.</p>	Ensure clients design requirements are met and are compliant with regulations.

Contractors Team, (Builder/Site Engineer, Site supervisor, Safety Officer, Tradesperson, Specialist Sub-contractor)

Job role	Activities (AC1.1)	Responsibilities (AC1.2)	Outputs (AC1.3)
Builder/site engineer	Handling health and safety on a project Setting bench marks of work to be done Setting and agreeing budgets for the work Working with client, contractors, architects	Being directly responsible for the work being carried out and the decision making Working on site— Quality assurance and inspection of work carried out	H&S on site and ensuring compliance of build Ensure the realisation of the project in a safe, timely, efficient and productive and profitable approach
Site supervisor	Supervise the labour force Plan work to be done Organise plant and site facilities to meet deadlines Prepare reports Overseeing the selection and requisition of materials and plant (heavy machinery)	Make sure quality of health and safety on site is high Problem solving as issues arise & communicating to all parties Acting as the main technical adviser on a construction site for all	subcontractors, crafts people and operatives Ensuring stick to budgets and requirements of client Ensure programme of work and safety on site is followed
Safety Officer	Investigating accidents and writing reports Identifying potential hazards Completing risk assessments and site inspections Suggesting improvements	Ensuring staff understand safety processes Checking equipment is safe Reviewing health and safety policies Ensuring compliance with H&S legislation and regulations	Ensure H&S compliance on site Use data to write reports to help reduce risk on site

Contractors Team, (Builder/Site Engineer, Site supervisor, Safety Officer, Tradesperson, Specialist Sub-contractor)

Job role	Activities (AC1.1)	Responsibilities (AC1.2)	Outputs (AC1.3)
Trades persons	<p>e.g. bricklayer, steel erector, roofer, plasterer, decorator</p> <p>Bricklayer: Work from plans and specifications</p> <p>Produces high quality brick work</p> <p>Steel erector:</p> <p>Planning the layout of the structure using the drawings of construction engineering professionals prior to assembly</p> <p>Fixing safety netting and edge rails</p> <p>Working out how to fit the steelwork together following engineers instructions.</p>	<p>Bricklayer:</p> <p>Ensures follows and understands the requirements of the plans</p> <p>Works with Builder/site supervisor</p> <p>Follows H&S principles of the site</p> <p>Steel erector:</p> <p>Ensure the steel structure is safe and appropriate and safe for site</p> <p>Ensure working at height platforms meet legislation requirements</p> <p>Working with and liaising with engineers, builders and other contractors</p>	<p>Bricklayer: Produces brickwork</p> <p>Steel erector: produce an appropriate scaffolding structure which meets H&S legislation.</p>
Specialist sub-contractors	<p>Follow instructions from main contractor or client</p> <p>Plan and manage their work around other professionals to ensure H&S, quality production and programmes of work.</p> <p>E.g. Asbestos removal</p> <p>Do a site audit to check for asbestos and plan for removal</p> <p>Remove asbestos safely and securely</p>	<p>Consult about H&S or professional opinions</p> <p>Achieve the highest standards of quality</p> <p>Work safely on site</p> <p>Asbestos removal: Follow H&S legislation requirements and ensure appropriate PPE is worn, safe disposal etc.</p> <p>Liaise with site team to advise and keep informed</p>	<p>Ensure specialist work is carried out to the highest quality.</p>

Statuary Personnel Team, (Public Health Inspector, Town Planner, Planning Officer, Planning Consultant, Building Inspector, Building Controller)

Job role	Activities (AC1.1)	Responsibilities (AC1.2)	Outputs (AC1.3)
Public health inspector	Ensure that local and national environmental standards of living, working, resting and leisure are achieved and maintained. Review impact of chemical, biological contamination , noise, air and water pollution .	Protection and wellbeing of those that share community Remain accountable. Research issues in relation to environmental and health governance law. Respect opinions and cultures Enforce the law Educate, support and offer guidance on how to comply with the law	Ensure that local and national environmental standards of living, working, resting and leisure are achieved and maintained . Make recommendations and ensure compliance with these and legislation
Town planner/planning officer/planning consultant	Manages the development of cities, towns and countryside. Reviewing and monitoring existing planning policy documents. Helping to ensure that areas are attractive, safe and pleasant to live. Helping to draft and review planning applications . Conducting appropriate research to inform planning applications.	Assisting with consultations and negotiations with consultants and developers . Helping to enforce planning controls for developments i.e. impose conditions e.g. developer must build a school within the housing development. Helping to prepare policy or guidance documents on how to manage historic environments. Ensuring regulations and laws are complied with on matters of development or re-development.	Validate the suitability of developments Ensure planning conditions are understood and carried out Balance the needs of stakeholders Ensuring regulations and laws are complied with
Building inspector / Building control officer (BCO)	Work on the planning and construction phases of a variety of projects, from small house extensions to major city developments . Working closely with the construction workers on planning proposals, approve drawings and plans.	Keeping records and issue completion certificates. Suggesting ways to improve the energy use of building to people like the construction manager. Starting legal proceedings should work not be in line with regulations.	Ensure plans and works are carried out to meet building regulations and compliance. Produce a final compliance certificate .

General Team, (Administrator, Finance Officer, Public Liaison Officer, Purchasing Officer, Caterer, Security)

Job role	Activities (AC1.1)	Responsibilities (AC1.2)	Outputs (AC1.3)
Administrator	<p>Collect paperwork, electronic communications and ensure the relevant people complete the tasks or provide out-standing information</p> <p>Keeps programmes of work up-to-date and emails out to all relevant parties</p>	<p>Ensures day-to-day communications are effective and are kept up-to-date</p> <p>Ensures reports or spreadsheets are passed on to the correct people</p> <p>Remain approachable and work with colleagues</p>	<p>Keep documents up-to-date and distribute to the relevant people</p> <p>Pass on information and ensure all aspects of paperwork have been completed</p>
Finance officer	<p>Collect information e.g. profit margins, turnover and pro-cess them into monthly accounts report</p> <p>Analyses forecasted buying proposals and ensures there is funding to avoid litigation (getting sued)</p> <p>Works closely with site/project manager/quantity surveyors to maximise operational efficiency</p>	<p>Ensure accounts are accurate and transparent</p> <p>Present monthly commercial reports to the board of directors</p> <p>Ensure monthly anticipated and projected cash flow is accurately fore-cast so that funds are available to pay the supply chain (sub-contractors and tradespeople)</p>	<p>Ensure accounts are accurate and transparent</p> <p>Ensure there are funds to pay supply chain</p> <p>Keep Directors informed of accounts</p>
Public liaison officer (PLO)	<p>Inform the general public, clients and wider stakeholders of the development and any impacts of it on a day-to-day basis</p> <p>Liaises with press, Uses social media</p>	<p>Ensures the organisation is proactively public facing and accountable</p> <p>Ensures any press statement is approved by at least 2 board directors</p> <p>Ensures the organisation shows a consistent and positive image in terms of H&S, environment, quality and educational/training matters.</p>	<p>Ensures the organisation communicates a positive message to the public and wider stakeholders</p>

General Team, (Builder/Site Engineer, Site supervisor, Safety Officer, Tradesperson, Specialist Sub-contractor.

Job role	Activities (AC1.1)	Responsibilities (AC1.2)	Outputs (AC1.3)
Purchasing/procurement officer	<p>Advertise and appoint all opportunities for tradespeople, designers and specialist contractors who may offer goods or services</p> <p>All posts must meet national and European procurement and government guidelines, to ensure fairness and transparency.</p>	<p>Ensure the local supply chain (within 200 miles) is made aware of opportunities, work with PLO to advertise and promote opportunities.</p> <p>Ensure rules of the UK and European procurement law are followed.</p> <p>Accountable person for all matters relating to purchasing or procurement by keeping records to demonstrate at least 3 quotes have been received and fairly processed. Allows the team to compare the value for money.</p>	<p>Ensure all opportunities for goods and services meet UK and European procurement law</p> <p>Ensure process is fair and transparent</p>
Catering	<p>Provides refreshments, snacks, lunches for the workforce both in the office and on site</p> <p>Provide value for money.</p>	<p>All staff must have food preparation qualifications (e.g. L2 Food Safety) to meet government standards.</p> <p>Ensure provide nutritious and inclusive food (e.g. halal, vegetarian etc) as well as allergies (nut allergy, coeliac)</p>	<p>Provide nutritious food and drink to the work-force at a reasonable price</p> <p>Meet Food safety requirements</p>
Security	<p>Asset protection of the site, vehicles and workforce</p> <p>Monitors exposure to risks of fire, theft and vandalism through use and maintenance of electronic surveillance systems and physical presence on site</p> <p>Can carry out drug and alcohol tests on workforce.</p>	<p>Secure perimeter fencing to stop people from entering the site</p> <p>On all projects values at > £5m provide 24hr, 365 provide CCTV, full time guard for 10 weeks leading up to practical completion</p> <p>On projects valued at < £5m provide an 'outside of normal hours' alarm with an attendant reactive visiting guard, who can reach site in 20 mins, provide guard for 10 weeks leading up to practical completion.</p>	<p>Remain accountable and proactive professional team that protects the interests relating to security of the organisation at all times.</p>



Grown

Where does our food come from?
All our food comes from **plants** and **animals**

Reared

Caught



Food Packaging Date Marks

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

Different Types of Food Production



Keyword	Meaning
Genetically modified	A food which has had its genes altered to give it a useful characteristic such as improving its growth or colour
Intensive farming	Uses chemicals to achieve maximum yields (can also be known as conventional farming

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

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

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

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

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

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

- Foods:
Milk, cheese, yoghurt, poultry
- Foods:
Eggs, meat
- Foods:
Eggs, meat & fish
- Foods:
Eggs, chicken, fruit and vegetables
- Foods:
Sugar, bananas, coffee, tea
- Foods:
Fish, seafood

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



Some is local

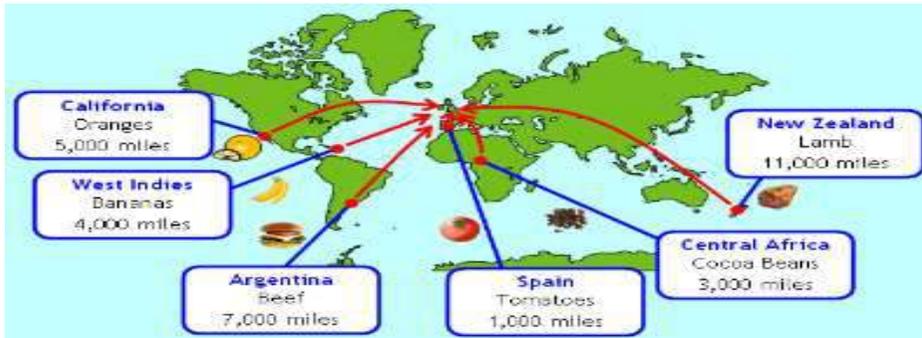


Some comes by lorry from all over the UK or Europe

Food miles

How far does our food travel to get to us?

Some is flown here from all over the world



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

Keyword	Meaning
Food miles	The distance a food travels from where its produced to the consumer
Food security	Is where people have access to enough nutritious food to stay healthy and active
Food poverty	Is where a person isn't able to access or afford nutritious food.

Keyword	Meaning
Primary processing	Prepares raw food so that they are ready to be eaten or cooked immediately or used as ingredients to make other food products
Secondary processing	After primary processing, comes secondary processing. Primary processed foods are turned into other food products by altering them in some way or combining them with other ingredients.
Manufactured	Where a product has gone through several stages to reach its final point.
Fortification	Where nutrients are added to a food
Additives	Something that is added to food to improve its properties. Some are natural and some are made artificially

RAW FOODS
Image: Fresh carrots in a field.

PRIMARY PROCESSED FOODS
Image: A plastic bag of whole carrots.

SECONDARY PROCESSED FOODS
Images: Carrot sticks, shredded carrots, and a box of Libby's Diced Carrots.

MANUFACTURED PRODUCTS
Images: A packet of Covent Garden Soup Co. Carrot & Coriander soup, a Cottage Pie, a carrot cake, a jar of M Classic Coleslaw, and a jar of Hipp organic tender carrots & potatoes.

Foods and Cuisines from Around The World



A **cuisine** is a style of cooking from a particular country or region of the world. Different cuisines have different ingredients, styles and preparation & cooking techniques. **Some examples are shown below.**

Staple foods are crops that grown in particular parts of the world due to their climate and conditions. E.g. wheat in Europe, rice in Asia or maize in South America.



UK

Roast dinner. Fish & Chips. Bakewell Tart.



Japan



Sushi. Ramen. Udon noodles. Jasmine Rice.



Italy

Pizza, Pasta, Lasagne, Risotto, Gelato.



China



Spring Rolls. Stir fry. Sweet & Sour. Chow Mein.



Mexico

Chilli Con Carne, Burritos, Tacos, Salsa, Guacamole



India

Samosas, Curries, Tandoori Chicken, Nan Breads



Environmental Issues With Food Production

Environment

Refers to the air, water and land where people and animals live.

Sustainability

We need to look after our environment by using less energy, reducing the consumption of water, avoiding waste and recycling/reusing as much as possible.

Carbon footprint

A measure of the impact your personal lifestyle has on the environment (**including your food choices**).

Landfill

Nearly a third of all food we produce ends up in landfill sites where it gives off methane gas as it decomposes. This adds to carbon emissions.

Composting - Left over food can be composted for the garden. (vegetable peelings, fruit waste, teabags, eggshells, toilet roll tubes, egg boxes etc). **Meat, fish and dairy products cannot be composted.**



- 1 only buy what you need**
20-30% of everything we buy ends up in landfill
- 2 eat less meat and dairy**
70% of the world's footprint is from animal products
- 3 eat less processed food**
the more processed a food is, the bigger its footprint
- 4 buy local and in season**
these foods have travelled less and stored less
- 5 grow your own food**
the ultimate in local, seasonal, unprocessed food



Reuse left over food to make another dish. E.g. left over chicken in a curry, fruit in a smoothie.

Recycle/reduce as much packaging as you can. Reuse jars/containers, use bags for life, avoid buying over packaged food.





What can impact our food choice?

Food choices for a balanced diet depend on many factors, such as:

- advertising and other point of sale information;
- cost and economic considerations;
- cultural or religious practices;
- environmental and ethical considerations;
- food availability;
- food preferences;
- food provenance;
- health concerns;
- individual energy and nutrient needs;
- portion size;
- social considerations.

Environmental and ethical considerations

Some considerations when buying food might be:

- fair trade;
- local food;
- genetically modified (GM) food;
- organic food;
- free range.

Health concerns

People may choose their food based on their own or their family's health and wellbeing:

- allergy and intolerance, e.g. lactose intolerance, coeliac disease, wheat allergy, dairy allergy;
- body image;
- health issues, e.g. coronary heart disease, type 2 diabetes, inflammatory bowel disease, over or under malnutrition;
- mental health.

Food Choice – KEY WORDS

Keyword	Meaning
Advertising	Advertising is a form of communication for marketing and used to encourage, persuade, or manipulate an audience to continue or take some new action.
Ethical	Relating to personal beliefs about what is morally right and wrong.
Food certification and assurance schemes	Defined standards of food safety, quality or animal welfare.
Marketing	Promoting and selling products or services, including market research and advertising.
Religion	A particular system of faith and worship.
Seasonal food	Food grown at a particular time of year

Cultural or religious practices

People around the world choose to eat or avoid certain food due to their cultural or religious practices.

Religion	Pork	Beef	Lamb	Chicken	Fish
Islam	x	Halal only	Halal only	Halal only	✓
Hinduism	x	x	✓	✓	✓
Judaism	x	Kosher only	Kosher only	Kosher only	✓
Sikhism	x	x	✓	✓	✓
Buddism (strict)	x	x	x	x	x
Seventh-day Adventist Church	x	x	x	✓	✓
Rastafari movement	x	x	x	x	x

Food prices

Food prices can and do change throughout the year and over time.

This may be due to a variety of reasons, including:

- climate and weather patterns;
- crop failure;
- crop disease;
- seasonality;
- consumer demand;
- agricultural costs increase;
- fuel prices go up;
- increased use of bio fuels.

Budgeting

There are many things that we can do to spend money wisely on food. Examples can include:

- eating the seasons;
- stocking up on food with a long shelf-life;
- taking time to plan meals and write a shopping list;
- cooking using one pot;
- making fake-aways rather than buying takeaways;
- using leftovers;
- replacing branded items with cheaper items;
- comparing prices and shop around to find the cheapest items;
- growing your own food.



Unit 4 – Introduction to Music Composition

Useful symbols and key terminology used in Music Notation – all symbols you can use in your own composition

Term	Symbol:	Effect:		
pianissimo	<i>pp</i>	very soft	 stave	 = 96 metronome mark
piano	<i>p</i>	soft	 ledger lines	 beamed notes
mezzo piano	<i>mp</i>	moderately soft	 treble clef	 dotted notes
mezzo forte	<i>mf</i>	slightly loud	 bass clef	 barlines
forte	<i>f</i>	loud	 semibreve	 3/4 time signatures
fortissimo	<i>ff</i>	very loud	 minim	 double barlines
fortepiano	<i>fp</i>	loud then soft	 crotchet	 sharp
sforzando	<i>sfz</i>	sudden accent	 quaver	 flat
crescendo		gradually louder	 semiquaver	 key signatures
diminuendo		gradually softer		 natural



The Rhythm Tree

NOTES



Semibreve = 4 beats



Minim = 2 beats



Crotchet = 1 beat



Quaver = 1/2 beat



Semiquaver = 1/4 beat

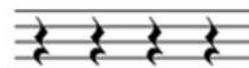
RESTS (silences in music)



Semibreve rest = 4 beats



Minim rest = 2 beats



Crotchet rest = 1 beat



Quaver rest = 1/2 beat



Semiquaver rest = 1/4 beat

Musical Elements

- Timbre** *Sound quality*
- Pitch** *High or low sounds*
- Texture** *How many sounds?*
- Tempo** *Fast or slow?*
- Duration** *Long or short?*
- Structure** *The musical plan*
- Dynamics** *Loud or quiet?*

Keywords
RISK ASSESS
COLLEAGUES
TIMEKEEPING
DEADLINES
REHEARSAL
REPERTOIRE
PROFESSIONAL
CONSTRCTIVE
POSITIVE
CONSISTENT
SIGNIFICANT
CONTRIBUTION
TIMESCALES

G \flat	A \flat	B \flat	D \flat	E \flat	G \flat	A \flat	B \flat	D \flat	E \flat	G \flat	A \flat	B \flat						
F \sharp	G \sharp	A \sharp	C \sharp	D \sharp	F \sharp	G \sharp	A \sharp	C \sharp	D \sharp	F \sharp	G \sharp	A \sharp						
F	G	A	B	C	D	E	F	G	A	B	C	D	E	F	G	A	B	C



Word	Common Abbreviations	English Definition and Description	Symbol
Accent		Marked. Note to be played more forcefully than those before or after it	
Forza	fz	With force. Strongly accented	
Glissando	Gliss.	Glide. A rapid glide or slide up or down between two notes, playing all of the notes in between.	
Legato		Tied together. Notes are played slurred together, with no breaks in between	
Marcato	Marc.	Marked. Note or passage to be played more forcefully than those before or after it (also called an accented note)	
Rinforzando	rfz	Reinforcing	
Sforzando	Sfz.	Using force.	
Staccatissimo		Very detached. Notes are played as an exaggerated staccato.	
Staccato	Stacc.	Detached. Notes are played short and separated from one another	
Tenuto		Sustained. Hold the note for its full length	

Keyword	Definition
Piano	Soft
Forte	Loud
Stave	The 5 lines notation is written on
Instrumentation	The instruments or collection of instruments used in a composition/performance
Bowing	The direction of the bow on string instruments
Up Bow	Where the string bow goes from the tip to the heel (usually a lighter timbre)
Down Bow	Where the string bow goes from the heel to the tip (usually stronger in timbre)
Tremolo	Rapid repetition of a single note
Pizzicato	Where a string is plucked rather than bowed
Articulation	Where notes are played in a certain way for a desired affect, such as staccato (short) and legato (smooth)



	accent
	alla-breve cut-time
	alto tenor
	appoggiatura
	arpeggio (arrow-up/down)
	arrow-down (also arrow-up)
	bar
	bass
	bass-drum (percussion.lisp)
	beam beat-subdivision
	brace
	bracket
	breath-mark
	(cancel b-major)
	change-beat

	circled-stem (accent.lisp)
	coda
	common-time
	cow-bells (percussion.lisp)
	crescendo
	cymbal (percussion.lisp)
	dashed-bar
	detache
	diminuendo
	doink (accent.lisp)
	double-bar
	double-flat
	double-mordent
	double-sharp
	double-tongue (accent.lisp)
	double-whole-rest
	down-bow
	eighth-rest
	begin/end-first-ending
	fermata hold
	3 fingering

	fingernail (accent.lisp)
	flat small-flat
	glissando portamento
	gong (percussion.lisp)
	grace-note
	half-rest
	hard-stick (percussion.lisp)
	hauptstimme (accent.lisp)
	hi-hat (percussion.lisp)
	inverted-mordent
	left-hand-pizzicato stopped-note
	little-swell
	maracas (percussion.lisp)
	marcato
	martellato (accent.lisp)
	martele
	measure-rest (see also rests.lisp)
	metal-stick (percussion.lisp)
	$\text{♩} = 60$ (mm 60)
	mordent

treble, or G, clef

middle C

ledger line

bass, or F, clef

BTEC Travel and Tourism – Unit 3, The travel and tourism customer experience

Customer service is the provision of service to customers before, during and after a purchase/service.

The aims of customer service (which vary depending on the organisation) include:

- o meeting customer needs (general public, young families, individuals with disabilities, large groups etc.)
- o meeting organisational targets, e.g. visitor numbers, bookings, sales
- o increasing profits
- o creating new business
- o encouraging repeat business.

Customer service provision of organisations is related to the type and size of an organisation.

Size of organisation:

- **small** – fewer than 50 employees
- **medium** – fewer than 250 employees
- **large** – more than 250 employees.

Type of organisation:

- **private**, e.g. tour operators, accommodation providers, visitor attractions, airlines
- **public**, e.g. visitor attractions, tourist information centres (TICs), Visit Britain, Visit Scotland, Visit Blackpool, World Tourism Organisation
- **voluntary**, e.g. charities.

Relationships between organisations and their customers can vary depending on customer service aims and size and type of an organisation.



Customer types

Travel and tourism organisations need to meet and respond to the needs of different customer types, including internal and external customers.

Internal customers:

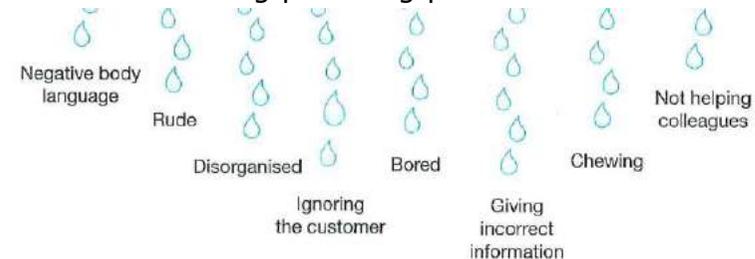
- colleagues and staff with whom you work closely
- supervisors and managers
- directors and owners
- staff at other branches
- suppliers.

External customers:

- individuals and single customers
- groups, which may be organised groups
- those with special interests
- different cultures/ethnicity
- those with additional physical needs.
- existing or new
- families
- Couples
- business people
- different age groups

Needs of different types of customer

- Products and services to meet specific needs e.g. accommodation, facilities
- Accurate information, e.g. giving directions, signposting to facilities, price, availability, product knowledge.
- Health, safety and security.
- Assistance, e.g. with luggage, with language, for parents with young children or babies, elderly customers.
- Advice may be needed, e.g. the suitability of a tourist attraction, how to obtain a visa, solving problems or issues, matching suitable destinations to customer needs.
- Specific needs, e.g. induction loop, disabled access.
- Unstated needs including providing products and services as booked.



■ Examples of bad customer service behaviours

BTEC travel and Tourism – Unit 3, The travel and tourism customer experience: Assessment Themes

Responding to customer needs

- ❑ Making suitable recommendations in response to enquiries e.g.
 - destinations with features that appeal to customers and which are appropriate to customer needs, e.g. appropriate visitor attractions, transport links
 - products and services to meet customer needs, e.g. accommodation, facilities, meeting a specific need
- ❑ Written requests in the form of an email for information, a completed booking form or a letter.
- ❑ Verbal requests, either face to face or over the telephone.
- ❑ Recognising unstated needs, e.g. parents with a baby may need priority boarding on a flight if they are travelling with a pushchair; a customer with reduced mobility may need ground-floor accommodation at a hotel and disabled access for a wheelchair.

Exploring expectations of different types of customer in the travel and tourism sector

How do organisations meet and exceed customer expectations.

- Meeting expectations, including level of products, level and efficiency of service.
- Exceeding expectations, including over and above what is expected, preempting needs and solving problems for the customer.



Customer service

What are the skills needed to deliver customer service. How do these skills compare when required by different types of travel and tourism organisations.

- Skills and techniques:
 - Skills and techniques needed to provide excellent customer service in different situations, e.g. patience, empathy, active listening when dealing with different situations, showing sensitivity towards different customer types, use of correct language in all situations
 - Teamwork impact on customer service, e.g. working as a team and supporting each other when dealing with customers can boost morale and ensure that customers receive the best service.
- Policies and standards:
 - Key customer service policies and procedures, e.g. complaints policy, mission statement
 - Customer service standards setting and maintenance.
- Impacts:
 - Impact of product and service knowledge on customer service delivery, e.g. lack of product and service knowledge may impact on the service provided to customers and complaints may follow if customers do not get the information they require; excellent product and service knowledge will encourage customers to repeat business, i.e. stay loyal as well as recommend products and services to others.
- Technology:
 - The role of technological developments in improving the customer experience, e.g. self-check-in at airports and online check-in have reduced queuing time for short-haul flights and business travellers, meaning that people are happier with the service they have received; online booking systems mean that commission charges paid to travel agents can be passed on as a discount to customers who book direct with tour operators; helping customers to save money will enhance the customer experience.

BTEC travel and Tourism – Unit 3, The travel and tourism customer experience: Assessment Criteria



Top 10 Soft Skills for Customer Service Jobs



Level 2 Pass	Level 2 Merit	Level 2 Distinction
Learning aim A: Investigate travel and tourism customer service		
2A.P1 Describe the main aims of customer service for three different travel and tourism organisations in relation to their role and functions.	2A.M1 Explain, using relevant examples, how the main aims of customer service for two different travel and tourism organisations help the organisations to carry out their role and functions.	2A. D1 Compare and contrast the how the main customer service aims for two different travel and tourism organisations help the organisations to carry out their role and functions.
Learning aim B: Explore the needs and expectations of different types of customer in the travel and tourism sector		
2B.P2 Explain the needs of three customer types and how they are met.	2B.M2 Compare, using relevant examples, how two travel and tourism organisations respond to external customer needs to meet and exceed customer expectations.	2B.D2 Evaluate the success of two different travel and tourism organisations in recognising, meeting and exceeding external customer needs.
2B.P3 Explain how three travel and tourism organisations respond to external customer needs to meet and exceed customer expectations.		
Learning aim C: Understand the importance of customer service to travel and tourism organisations		
2C.P4 Explain customer service skills relevant to two travel and tourism organisations.	2C.M3 Compare customer service skills relevant to two travel and tourism organisations.	2C.D3 Recommend and justify improvements to poor customer service for one travel and tourism organisation.
2C.P5 Assess the impact of excellent and poor customer service on travel and tourism organisations.	2C.M4 Compare, using relevant examples, the impacts of excellent and poor customer service on two travel and tourism organisations.	

Gross motor development:

- Newborns are born with reflexes – sucking, rooting, startling, grasping – which help them survive. Movements are uncontrolled and uncoordinated:
- at three months able to lift up head and chest when on their stomachs and bring hands together over body
- at six months can roll over from back to front
- at nine months can sit unsupported and is usually mobile by crawling or rolling, may pull up to stand alone and walk by holding on to furniture
- at twelve months pulls up to stand, stands alone, walks holding on to furniture.

Fine motor development:

- No coordinated movement but newborns will grasp things put into their hands as a reflex action
- at three months can watch their hands and hold a rattle for a moment
- at six months can reach for a toy and move a toy from one hand to the other
- at nine months can use a pincer grasp (index finger and thumb) to grasp objects, can deliberately release objects by dropping them
- at twelve months can use pincer grasp to pick up small objects, points using index finger.



Cognitive development:

- at one month 'freezes' if hears a sound played softly
- at three months can recognise familiar routines, alert and follows movement with eyes if objects are close
- at six months can explore objects by putting in mouth, recognises voices
- at eight or nine months can look for dropped objects and objects that they see being hidden
- at twelve months enjoys throwing toys to the ground and watching their descent, learns by trying things out and repeating if successful. This approach to learning is called 'trial and error'

Emotional and social development:

- at one month can focus on human faces with interest
- at six weeks can smile
- at three months enjoys being held and forms indiscriminate attachments
- at six months can recognise and respond to emotions in others
- from seven to eight months can form specific attachments and show wariness of strangers
- from eight months develops specific attachments and imitates actions of others, such as clapping
- from eight months experiences separation anxiety from primary carer(s).

Communication and language development:

- at one month can turn head to adult voice, at six weeks begins to coo
- at three months smiles when hears a familiar voice
- at six months makes short babbling sounds, such as 'da' and 'ba'
- at nine months understands 'no', vocalises in long strings of babbling
- at twelve months knows own name and understands simple instructions

Development: Birth – 12 months

Gross motor development:

- at fifteen months can crawl upstairs and may walk hesitantly
- at eighteen months can walk unaided, can walk upstairs with help and can squat to pick up toys
- at two years can run, climb onto furniture and use sit-and-ride toys
- at two and a half years can kick a large ball and can jump with two feet together from a low step
- at three years able to run forwards and backwards, steer and pedal a tricycle, walk upstairs with alternate feet and throw a large ball.

Fine motor development:

- at fifteen months pincer grasp is precise, uses palmar grasp to hold crayons
- at eighteen months can build a tower of three bricks, can feed self with a spoon and scribble using a crayon in palmar grasp
- at two years can draw dots and circles, can put on shoes and fasten with Velcro® but not buckles and laces
- at two and a half years starts to show a hand preference, can pull down items of clothing and starting to develop tripod grasp
- at three years can use tripod grasp, draw a circle, hand preference is established for most tasks.



Development: 12 month – 3 years

Cognitive development:

- at fifteen months explores objects by sight and sound
- at eighteen months very curious to explore environment, remembers where things belong
- at two years recognises self in mirror, can remember past experiences
- at two and a half years recognises self in photographs, with help can complete simple puzzles
- at three years understands the difference between past and present, can complete simple puzzles

Communication and language development:

- at fifteen months communicates by pointing and vocalising, has up to six words
- at eighteen months has around 15 words, able to communicate wishes, understands simple requests
- at two years has up to 50 words, able to join words, enjoys looking at books
- at two and a half years has around 200 words, starting to use simple sentences, asks questions, uses personal pronouns, plurals and negatives
- at three years speech is clear to anyone unfamiliar with child, enjoys books and turns pages.

Emotional and social development:

- at eighteen months emotionally dependent on parents and key persons, plays alone but enjoys being near adults and siblings, insistent on immediate attention to needs and can copy adult actions
- at two years unable to wait for needs to be met, may be distracted from tantrums, plays in parallel with other children but unable to share toys
- at two and a half years plays alongside other children and engages in onlooker play, very dependent on adults and jealous of other children gaining attention, responds well to adult attention and praise and has tantrums when frustrated
- at three years finds it easier to wait, starting to take turns and share, enjoys being with other children and will comfort another child.

Gross motor development:

- from three to four years can hop on one foot, walk along a line, aim and throw a ball and kick it with force, ride a tricycle using pedals
- from four to five years can run avoiding obstacles, skip with a rope, throw a large ball to partner and catch it.

Fine motor development:

- from three to four years can button and unbutton clothes, use scissors to cut out simple shapes, draw a person with head, trunk and legs, eat with a knife and fork, thread beads to make a necklace
- from four to five years can form letters, write own name and colour in pictures.

Cognitive development:

- from three to four years can recognise and name primary colours, understands what is meant by 'more', can tell whether an object is heavy or light, arranges objects into categories, makes a connection between people and events
- from four to five years can count accurately up to 10, can add two sets of objects together, can match equal sets, understands the need for rules, names the time of day associated with activities.

Communication and language development:

- from three to four years, speech can be easily understood, although some words may be incorrect, uses questions and by four years language is fluent, with some speech immaturities
- from four to five years can count accurately up to 10, uses complex sentences with words such as 'because', can talk about what has happened and what might happen, uses language to argue and answer back.

Emotional and social development:

- from three to four years can cope with separation from primary carer with someone they know, is beginning to play cooperatively and show clear friendship preferences, and plays with others
- from four to five years can work out what other people may be thinking, which helps them to negotiate with others, able to understand the need for rules, develops close friendships develop, behaviour mostly cooperative and separates more easily from parents.

Development: 3 – 5 years



Gross motor development:

- from five to eight years can hop, skip and jump confidently, can swerve and dodge when running, balance on a beam, ride a bicycle and use roller skates
- coordination is more proficient, allowing for tasks that require coordinated movements including improved ball skills, swimming activities, hopscotch.

Cognitive development:

- from five to eight years can recognise numerals up to 100, do simple calculations, show simple reasoning and be reasoned with
- from seven years can 'conserve' quantities and numbers, complete a simple maze, is starting to tell the time, understands the need for and uses rules.

Emotional and social development:

- from five to six years starts to compare self with others and becomes more aware of the feelings and needs of others
- confidence in self may be shaken by 'failure'
- from five to seven years has strong friendships, often of the same gender, can understand that others have different viewpoints than them, can read facial expressions of others accurately and recognise what others might be feeling.

Development: 5 years – 8 years

Fine motor development:

- from five to eight years can tie and untie shoelaces, and accurately cut out shapes
- from six years able to thread a large-eyed needle and sew large stitches, has good control over pencils and paintbrushes, allowing for more detailed drawings and clear handwriting.

Communication and language development:

- from five to eight years uses language to reason and explain ideas, understands and enjoys jokes and riddles
- uses more complex sentence structures and asks what, when, who, where, how, why questions
- from seven years has mastered the basics of reading and writing.



Name of test	Component of fitness it tests	Units of measurement
Vertical jump test	Anaerobic power	Kgm/s
Forestry Step Test	Aerobic endurance	MI/kg/min
Multistage fitness test	Aerobic endurance	MI/kg/min
Jackson-Pollock Skinfold test	Body Composition	Body fat %
Body Mass Index (BMI)	Body composition	Kg/m ²
Bioelectric Impedance Analysis (BIA)	Body composition	Body fat %
Illinois Agility Test	Agility	Seconds
Sit and Reach	Flexibility	Cm
One minute press up test	Muscular endurance	Repetitions (reps)
One minute sit up test	Muscular endurance	Repetitions (reps)
35m sprint test	Speed	m/s
Hand grip dynamometer test	Muscular strength	KgW

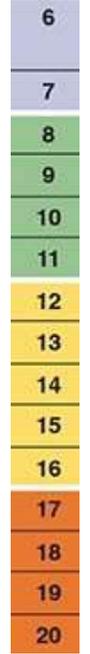
The (RPE) Borg scale:

Estimates how hard a person is working during exercise. A person will rate how tired they are using this scale →

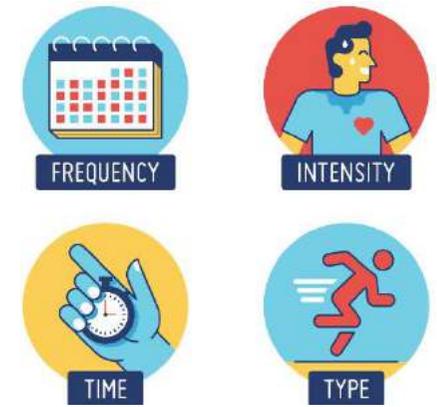
Rating of Perceived Exertion (RPE) can also be used to predict heart rate. The following equation is used:

RPE x 10 = Heart Rate (BPM)

- 6 – 7 = Extremely Light Intensity
- 8 – 11 = Light to Medium Intensity
- 12 – 16 = Medium to Hard Intensity
- 17 – 19 = Very to Extremely High Intensity
- 20 = Exhaustion.



FITT =



Goals Can Be:

1. Short term
2. Medium term
3. Long term
4. Outcome orientated
5. Performance related
6. Process orientated

Target setting

Targets should be set around the performers strengths and areas for improvement. Targets need to be realistic and achievable. For example, you could use the SMARTER model:

- S**pecific – applied to a precise element of activity
- M**easurable – way of measuring development
- A**chievable – the goal must be attainable
- R**ealistic – consider all elements that could prevent achievement
- T**imed – timescales are needed for completion of the target
- E**xciting – motivating the performer
- R**ecorded – record progress

3 Types of Motivation:
1) Intrinsic. 2) Extrinsic. 3) Achievement.

Principles of Training - V.I.P.A.R.R.S!

Variation = Boredom can lead to a decrease in motivation to train so try to make training different and fun.

Individual Needs = the programme should be designed to meet your training goals, ability, level of fitness, skill level, and exercise likes/dislikes.

Progressive Overload – In order to progress, training needs to be demanding enough to cause the body to adapt, improving performance. Overload can be achieved by using the FITT principles.

Adaption = this occurs during the recovery period after the training session is complete. Adaption is how your body increases its ability to cope with training loads

Reversibility = any improvement in fitness that takes place as a result of training will be reversed when a person stops. If you are unable to train due to injury or illness fitness levels will decrease. Also known as de-training. If muscles get smaller then this is known as atrophy.

Rest and Recovery = these are essential to allow the body to repair and adapt, with renewal of body tissues. If your body doesn't get a chance to recover then the rate of progression can be reduced.

Specificity = training should be specific to the individual's sport, activity or physical/skill related fitness goals to be developed

What is Circuit Training?

Circuit Training (example →) is a form of body conditioning that involves endurance training, resistance training and exercises performed in a circuit, similar to high-intensity interval training. It targets Muscular Strength and Muscular Endurance.



Leadership Styles:

- 1) **Autocratic** – Command style where the leader commands and everybody follows.
- 2) **Democratic** – More laid-back where the group are involved in decisions and discussions.
- 3) **Laissez Faire** – Very relaxed approach where the group are responsible for making the decisions.



Different Types of Sport Leaders

Coach
Manager
Assistant coach
PE Teacher
Mentor
College tutor
Club coach
Fitness instructor



Responsibilities

= Jobs that someone fulfilling a role (eg. PE teacher) must ensure they complete to ensure safety of their participants and themselves.

Describe (**PASS**) and explain (**MERIT**) four different attributes of an effective sports leader

All leaders have different personalities as they have their own characteristics. It is important that leaders are confident and are able to plan and lead sport and physical activity sessions

- **Introverts** are individuals who do not actively seek excitement and would rather be in calm or quiet places. In the world of sport introverts tend to prefer sports that require low levels of excitement but require high concentration levels and accuracy.
- **Extroverts** are inclined to get bored quickly and are often poor at task that require a great deal of concentration.

Personality Types



Important Attributes For A Sports Leader

Communication skills (verbal, non-verbal, listening)

Organisation (equipment, facilities)

Knowledge (laws of game, A&P, injury, tactical, fitness)

Use of language (appropriate, style)

Evaluation of performance (to inform improvements)

Appearance (professional, inspirational, authoritative)

Enthusiasm (show passion and inspire players / students)

Confidence (to encourage risk-taking and good performance)

Motivation (to get the best out of players / students)

Humour (to make playing / learning enjoyable)

Personality (introvert / extrovert)

Unit 6 – Leading Sports Activities

Component 1: Comparative Study

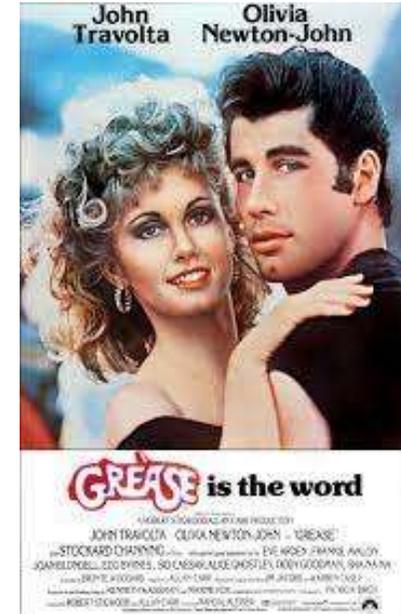
1950's set in the 1920's



What could you be asked in this main question?

Compare how the same theme is explored in each of your comparative study films. In your answer, you should consider:

- how characters and narratives illustrate the theme you have identified
- similarities between the way the theme you have identified is explored in each of your films
- differences between the way the theme you have identified is explored in each of your films.



1970's set in the 1950s

'Singin' In the Rain' 1952 Donen and Kelly USA

The 1950s was an era for reflection by the film industry as the pre-eminence of the Hollywood studios was threatened by their requirement to sell their theatre chains after the Paramount Decree of 1948, and by the combined impact of the rise of television ownership and suburbanization.

Costume is deliberately evocative of the 1920s setting but is at once both stylish and informal, to suggest the actors' off-screen personas.

'Grease' 1978 Kleiser USA

The film is set in the 1950s (Singin' in the Rain was released in 1952) but deals with issues rarely seen in mainstream Hollywood film from that era such as sex, teen pregnancy and gender politics.

Outdoor setting with classic American high school iconography. Dress codes key to understanding characters.

Looking at the aesthetic of Singin' in the Rain and Grease – both have 'historical' American settings that are explored through the mise-en-scène. Both share a nostalgic view of the past; almost a pastiche of the eras in which they are set.

Component 1 Section A

Example of Question 1 for 'Singin' In the Rain'

Identify one example of costume used in your chosen film.

Briefly outline what this costume tells us about the character.

Explore how mise-en-scène is used in one sequence from your chosen film. [10]

Example of Question 2 for 'Grease'

Identify one character type featured in your chosen film.

Briefly outline the role of this character type in your chosen film.

Explore how genre conventions are used in one sequence from your chosen film. [10]

Example of the Big Question in Component 1

Compare the contexts of your chosen films. In your answer, you may consider:

- Social, cultural contexts (e.g. attitudes and beliefs at the time)
- Historical, political contexts (e.g. key events at the time)
- Production (e.g. technological, institutional)

[20]

Timeline Events will be questioned here.

Key Terminology

Aesthetics

Part 1: What is Aesthetics?

Aesthetics refers to the style and look of a film.

The director uses a combination of elements to construct the style of the film which prompts the audience to respond to characters, situations and locations in a particular way. The construction of the scene/film also allows the director to explore themes and develop messages for the audience.



Cinematography



Cinematography is the art of the camera, where it is positioned, how it moves and how the shot is lit. When we are examining how a scene has been constructed this is an essential element in considering how the audience have been positioned.

Movement V's Shots

Camera Movement

Aerial

These shots are usually taken from a helicopter and allow the audience to enjoy the spectacle of the landscape.

Crane

When the camera is placed on a crane, it allows the shot to 'sweep' over the action of the scene.

Pan

The camera is in a fixed position and moved horizontally. A **whip-pan** is when the panning motion is very fast, disorientating the audience, creating a sense of realism.

Tilt

The camera is in a fixed position and moved vertically.

Tracking/ Dolly shot

The camera is placed on a track in a 'dolly' (like a train track and a car), and the dolly is then pushed alongside the action. This is quite a fluid movement.

Steadicam

This is a type of **handheld** shot, a stabiliser is used to make the free moment of the camera operator smooth, handheld shots can also be 'wobbly' and unstable, creating a more realistic and immersive effect.

Zoom

This is where the shot is moved by adjusting the camera lens, from close up to long shot zoom out, or from long shot to close up, zoom in.

Camera shots:

Extreme close-ups are reserved for moments of extreme emotion and intimacy.

Close-ups allow the audience to emotionally connect with characters.

Medium/Mid shots, for example from the torso to the head.

Long shots show the full length of the character and may be used to demonstrate their isolation.

Extreme long shots, often used to establish a location or to 'show off' spectacular SFX.

High Angle is when the camera is placed high/above the subject, it can be used to imply a character is submissive, insignificant or victimised as the camera is in a powerful position 'looking down on them'. Extreme high angles are called '**Birds Eye View Shots**'.

Low Angle shots are when the camera is below the subject, placing them in a position of power, and the audience in a lower status, 'looking up at them'. Extreme Low Angles are called '**Worms Eye view shots**'.

60° angle shots (off-centre shots), Dutch/canted angles, are used to visualise a sense of uncertainty, that 'something is not right'.

Colour filters

These are a very powerful tool for the director, blue tones can be used to suggest decay and death, warm sepia tones can be nostalgic and comforting.

Mise-en-scene

This is a French term meaning 'everything in the frame', this includes the arrangement and design of props, costume, performance, special effects and setting.

An analysis of the style chosen for these elements of mise-en-scene is a very rich area to discover meaning.

Settings

You should consider who does the space 'belong' to? And what does it say about them? When exploring characters' personal spaces such as their room or their home, it is an extension of their character, what does it tell us about their hopes, dreams and fears?

Spaces are designed to create meaning and are an extension of the directors' aesthetic, but we also need to consider HOW they have been shot, what angles and filters have been used? And what could that imply about the status of that place and the people within it?

Props

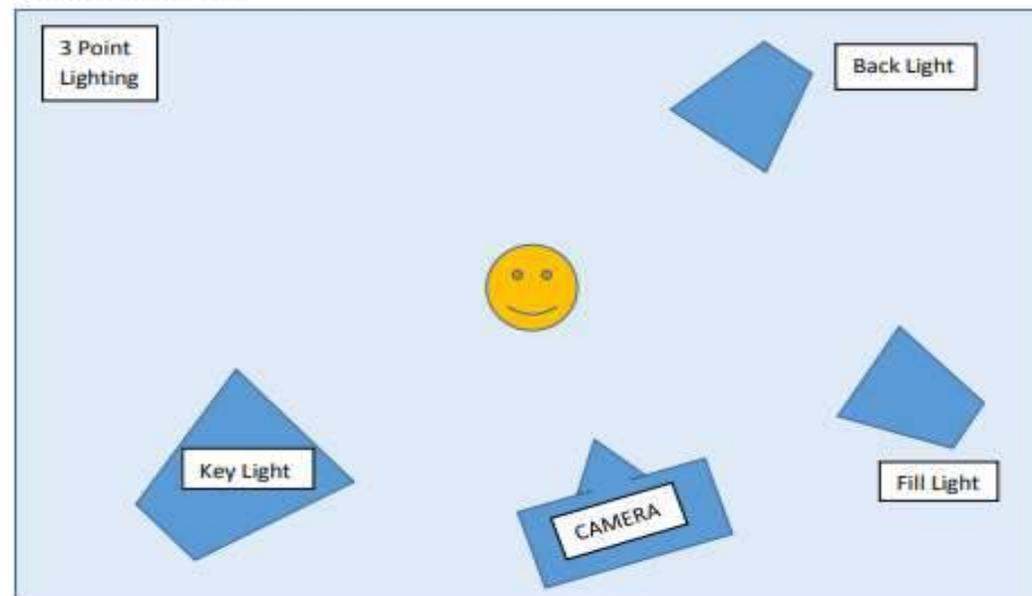
These are another aesthetic design feature that can be considered as an extension of character, what can they represent about them?

Costume & make-up

These designed elements express a characters intention, mood and back story. The choice of colour, texture, and fashion, hair and special effects make up, made by the design team can tell us all about a character without words. Characters can be designed to echo different eras, genres or styles to prompt the audience to read that character in a different way.

Lighting

When using a studio/set the traditional lighting set up is a 3 point set-up, **Key Light** is usually 'front on' to the subject and is the main source of light, a **back light** is used to define the shape of the character against the background and a **fill light** is used to illuminate shadow.



High Key Lighting

The High Key Lighting is bright and full, this is used by a director to imply an upbeat and hopeful mood, often used in comedies and musicals.

Low Key Lighting

The Low Key Lighting is dark and full of shadow, this is used by the director to imply mystery, fear & uncertainty, commonly used in horror and thriller genres.

Natural Light

When shooting on location, using natural light is preferable, but additional lights are needed to create particular effects, such as a '**halo effect**' created by back lighting to suggest an angelic trait within the character.