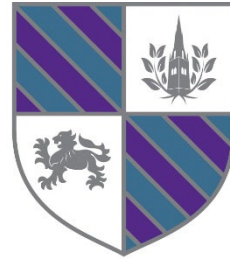


Student Name:



MAGNUS  
CHURCH OF ENGLAND  
ACADEMY

**Knowledge Organiser: April 2026**

**Year 11**

*“Wise men and women are always learning, always listening for fresh insights.”  
Proverbs 18:15 (The Message)*

Determination – Integrity – Ambition – Humility – Compassion



## Year 11 English Language and Literature : Character Traits

<b>Ambitious</b>	Having or showing a strong desire and determination to succeed;	
<b>Adventurous</b>	Willing to take new risks; daring; bold; brave.	
<b>Amiable</b>	Likeable; sociable; friendly.	
<b>Anxious</b>	Feeling or showing worry or nervousness; concerned; fretful.	
<b>Appreciative</b>	Feeling or showing gratitude or pleasure.	
<b>Assertive</b>	Having or showing a forceful character; confident.	
<b>Attentive</b>	Pays close attention to something; concentrating.	
<b>Attractive</b>	Pleasing or appealing to the senses; good-looking.	
<b>Authoritative</b>	Commanding and self-confident; likely to be respected and obeyed.	
<b>Brash</b>	Self-assertive in a rude, noisy way; impatient.	
<b>Charming</b>	Pleasant; attractive; likeable; endearing.	
<b>Combative</b>	Argumentative; ready or eager to fight or argue.	
<b>Complimentary</b>	Expressing a compliment; giving praise; flattering; admiring.	
<b>Conscientious</b>	Wishing to do one's work well and thoroughly; reliable; meticulous.	
<b>Considerate</b>	Careful not to inconvenience or harm others; caring; selfless.	
<b>Constant</b>	A situation that doesn't change; always there.	
<b>Curious</b>	Inquisitive; eager to know or learn something.	
<b>Deceptive</b>	Giving an appearance or impression different from the true one; misleading.	
<b>Deluded</b>	Believing something that is not true; foolish; duped; taken in by.	
<b>Demanding</b>	Making others work hard or meet high standards; not easily satisfied; severe.	
<b>Despicable</b>	Deserving hatred and contempt; detestable; loathsome.	
<b>Detached</b>	Separate or disconnected; isolated.	
<b>Determined</b>	Decided on a decision and standing firm with it; set on.	
<b>Devious</b>	Sly; uses underhand tactics to get desired goal.	
<b>Disillusioned</b>	Disappointed in someone or something that one discovers to be less good than one had believed.	
<b>Emotional</b>	having feelings that are easily excited and openly displayed; sensitive.	
<b>Encouraging</b>	One who is supportive; gives one confidence; positive about the future.	
<b>Feckless</b>	Irresponsible; lacking strength in character.	
<b>Fickle</b>	Changing loyalties or affections frequently; inconstant; changeable.	
<b>Forceful</b>	Strong; assertive; powerful.	
<b>Formidable</b>	Inspiring fear or respect by being impressively large; intimidating.	

## Year 11 English Language and Literature : Character Traits

<b>Generous</b>	Showing a readiness to give more money than is necessary.	
<b>High-handed</b>	Using power or position in authority without considering feelings of others; imperious.	
<b>Honest</b>	Free of deceit; truthful; direct.	
<b>Hypocritical</b>	Behaving in a way that suggests one has higher standards or more noble beliefs than is the case.	
<b>Impatient</b>	Having or showing a tendency to be quickly irritated or provoked; restlessly eager; intolerant.	
<b>Imposing</b>	Grand and impressive in appearance.	
<b>Impulsive</b>	Acting without thinking; instantaneous; rash.	
<b>Independent</b>	Free from outside control; not subject to another's authority; self-governing.	
<b>Indignant</b>	Feeling or showing anger/ annoyance at what is perceived as unfair.	
<b>Influential</b>	To have great influence over someone; powerful; controlling.	
<b>Inquisitive</b>	Having or showing an interest in learning things; curious.	
<b>Insensitive</b>	Showing or feeling no concern for others' feelings; blasé.	
<b>Insincere</b>	Doesn't express genuine feelings; dishonest; two-faced.	
<b>Integrity</b>	The quality of being honest and having strong morals; truthfulness.	
<b>Intelligent</b>	Clever; sharp; quick-witted.	
<b>Intimidated</b>	Being frightened or threatened; afraid.	
<b>Intimidating</b>	Having a frightening or threatening affect; unapproachable.	
<b>Introvert</b>	A shy person; reserved; withdrawn.	
<b>Irresistible</b>	Too attractive and tempting to resist.	
<b>Irresponsible</b>	Not thinking enough about the consequences of your actions; careless; reckless.	
<b>Jaunty</b>	A lively, confident character.	
<b>Judgmental</b>	Having or displaying an overly critical point of view.	
<b>Lacks self-confidence</b>	Lacks trust in own ability/ qualities.	
<b>Loner</b>	A person that prefers not to associate with others; reclusive.	
<b>Manipulative</b>	Exercising control or influence over someone; scheming; cunning; devious.	
<b>Naïve</b>	Showing a lack of experience; innocent.	
<b>Nervous</b>	Easily agitated; alarmed; anxious; edgy.	
<b>Opportunist/ chancer</b>	A person who takes advantage of opportunities when they arise regardless of planning.	
<b>Patient</b>	Able to accept or tolerate problems without getting irritated; easy going; tolerant.	
<b>Patronising</b>	Treat in a way that is <i>apparently kind or helpful but that betrays a feeling of superiority; humiliate; talk down to; put</i>	
<b>Persistent</b>	Continuing with something despite obstacles.	
<b>Pitiable</b>	Deserving of pity; pathetic; miserable.	

# Year 11 — English Literature Paper 1 Revision

A Christmas Carol, Charles Dickens		Conflict Poetry		Conflict Poetry	
<i>'Hard and sharp as flint [...] as solitary as an oyster'</i>	The adjectives 'hard' and 'sharp' imply Scrooge has a tough exterior, but the simile 'as flint' suggests if hit hard enough it could spark a fire inside to create change. The simile comparing him to an oyster emphasises this by focusing on a hard exterior that if cracked open, may hold a pearl (something of beauty).	<b>Exposure</b>	<i>'but nothing happens' Repeated at the end of every stanza. Could show frustration that the war continues or that the soldiers are waiting, or that men are left to die of exposure.</i> <i>'merciless iced east winds that knife us' Personification of the wind as relentless and constant. The verb 'knife' makes the wind sound stabbing and lethal.</i>	<b>Cousin Kate</b>	<i>'bound you with his ring' bound suggests being tied up or constrained, ring is marriage – loss of innocence and freedom after marriage</i> <i>'my shame, my pride' opposites and repetition. A child born out of wedlock is seen as a 'shame' but she also loves her son. Chance that he will inherit and therefore the speaker will be elevated above 'Lady Kate'. Conflict between two women about class, marriage and being exploited by a Gentleman.</i>
<i>'If they would rather die, they had better do it, and decrease the surplus population'</i>	Scrooge shows his callous, selfish attitude towards the poor by viewing them as better off dead and simply a 'surplus', viewing them in monetary terms as opposed to human beings.	<b>The Prelude</b>	<i>'small circles glittering idly in the moon' The patterns in the water as he rows. A sense of peace, beauty and serenity. 'Idly' and 'small' suggest calm and tranquillity. 'Glittering' creates a sense of magic.</i> <i>'huge peak black and huge' A total contrast to how the natural world was perceived earlier. He's lost for words, or overwhelmed – repetition x 2 'huge'. 'Black' makes it seem looming, sinister.</i>	<b>The Charge of the Light Brigade</b>	<i>'the six hundred' repeated to show how many soldiers died, glorifying conflict and personal sacrifice</i> <i>'volley'd and thunder'd' the movement and sounds of the cannon balls, contracted to fit the anapaestic tetrameter (horse hoof beat)</i>
<i>'I wear the chain I forged in life...The chain was made up of cash boxes...ledgers... heavy purses'</i>	Marley's Ghost tells Scrooge that unless he changes he will have a chain holding him to the earth, forged by his sins 'boxes, ledgers, purses' (money). This is used to scare Scrooge and make him realise where his sins lie.	<b>Poppies</b>	<i>'leaned against it like a wishbone' Wishing to be reunited with her child. Leaning against the memorial as if tired or grieving.</i> <i>'intoxicated' Drunk with excitement at an adventure (to war?) contrasts to the mother's difficulty in letting go. Youth vs experience/ naivety vs experience.</i>	<b>Catrin</b>	<i>'tight red rope of love' relationship between mother and daughter – possibly an umbilical cord, a rope can bind which is positive (connection, safety) but also negative (restraint). Red is equally ambiguous – strong emotion, love or hatred.</i> <i>'trailing love and conflict' contrasting emotions which often occur in parent/child relationships as the child grows up to be more independent</i>
<i>'A solitary child, neglected by his friends is left there still – Scrooge sobbed'</i>	The Ghost of Christmas Past shows Scrooge his time as a child at school, and Scrooge shows a moment of emotion. The reader is given a reason to sympathise with Scrooge, and Scrooge is given a reminder of who he was and how he felt.	<b>Half-Caste</b>	<i>'explain yusef wha yu mean' Deliberate misspellings to convey the sound of a Caribbean accent. Pride in ethnicity, culture. Anger, demanding an explanation for the racist language 'half caste'.</i> <i>'de whole o yu eye an de whole o yu ear an de whole o yu mind' A playful command for people to be more open minded. The irony is that people who use the term 'half caste' are themselves only 'half' aware.</i>	<b>War Photographer</b>	<i>'arbitrary as a blood stain on a wall' arbitrary = can mean whimsical, by chance OR tyrannical, absolute and domineering. The war photographer has seen terrible things and knows the photographs don't tell the full story just like a blood stain. Shadows of conflict.</i> <i>'I took a pair of peach, sun-gilded girls' took shows the power of a photographer to create meaning to choose what to show and what not to show. Contrast between the subjects she photographs.</i>
<i>'They are Man's. This boy is ignorance. This girl is Want. Beware for I see that written which is Doom.'</i>	Dickens explains that Mankind's ignorance and want has poisoned them, and that ignorance especially will cause 'Doom'. This summarises his message to the upper class, that their ignorance will lead to the death of people and ultimately society.	<b>A Poison Tree</b>	<i>'my wrath did grow' Wrath = extreme anger, the strong emotion grows even bigger as the speaker 'waters' it with their 'fears' an example of the extended metaphor of negative feelings as a tree that we can choose to nurture. Free will, choices, conflict in relationships.</i> <i>'apple bright' links to Biblical imagery (Eve ate the apple, Original Sin and temptation)</i>	<b>Belfast Confetti</b>	<i>'Balaclava, Raglan, Inkerman, Odessa Street' Belfast Streets named after famous battles. The poet reflects on a society that is built on a history of conflict. He calls it a labyrinth (a maze) and says he knows it well. He knows society's violent history.</i> <i>'where am I coming from? Where am I going? A fusillade of question marks' Punctuation used to represent bomb explosions throughout the poem. Links between language and conflict. A sense of confusion and loss of identity caused by conflict.</i>
<i>'It was shrouded in a deep black garment... left nothing visible except one outstretched hand.'</i>	The Ghost of Christmas Yet to Come does not speak to Scrooge, as Scrooge must decide to change by himself and without guidance. He is dressed as the Grim Reaper to emphasise that ultimately Scrooge will end up dead and without mourners if he does not change.	<b>The Destruction of Sennacherib</b>	<i>'like a wolf on the fold' The Assyrian is described as a predator in this simile, rhymes with the next line 'gleaming purple and gold' to create a rhyming couplet; a pattern which is repeated throughout – beat like horse hooves (anapaestic tetrameter)</i>	<b>The Class Game</b>	<i>'well, Mate' colloquial language, sarcastic in tone but also pride in working class dialects.</i> <i>'cos we live in a corpy' Liverpool dialect word for council house (corporation)</i>
<i>'I will honour Christmas in my heart. I will live in the Past, the Present and the Future. I will not shut out the lessons that they teach'</i>	By Stave 5, Scrooge is a changed man and promises to keep the lessons of all three Ghosts in his heart. The repetition of 'I will' shows that he has changed and that he now has a more positive and charitable attitude in life.	<b>The Man He Killed</b>	<i>'quaint and curious war is!' unusual choice of words to describe war, ironic, shows how strange it is to shoot someone you would be friends with if there wasn't a war on. Similarities between the young men are greater than their artificial differences.</i> <i>'because – because he was my foe // Just so' a critical view of war and conflict, deceptively simple showing up the concept of 'foes' and 'enemies' as ridiculous</i>	<b>No Problem</b>	<i>'I am not de problem' Caribbean dialect, proud of 'non Standard English' ways of speaking, identity and accent are linked.</i> <i>'sum of me best friends are white' a play on a racist expression that some white people use to show affinity with black people's fight for equality. A</i>

**GCSE Foundation Formula Sheet - need to know.**

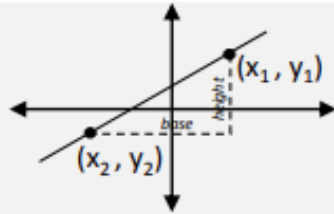
**Equations of Straight Line Graphs**

Gradient:

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

or

$$m = \frac{\text{height}}{\text{base}}$$



Equation of a Line  
 $y = mx + c$

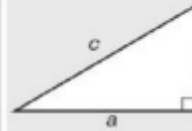
Midpoint of 2 points  $(x_1, y_1)$  and  $(x_2, y_2)$

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

**Pythagoras**

Pythagoras' Theorem \*

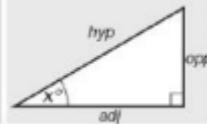
For a right-angled triangle,  
 $a^2 + b^2 = c^2$



Trigonometric ratios (new to F)

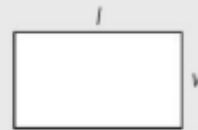
$\sin x^\circ = \frac{\text{opp}}{\text{hyp}}$ ,  $\cos x^\circ = \frac{\text{adj}}{\text{hyp}}$ ,  $\tan x^\circ = \frac{\text{opp}}{\text{adj}}$

\*

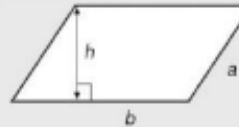


**Areas**

Rectangle =  $l \times w$



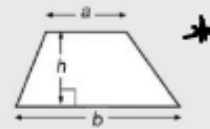
Parallelogram =  $b \times h$



Triangle =  $\frac{1}{2} b \times h$



Trapezium =  $\frac{1}{2} (a + b)h$



**Angles in Polygons**

Sum of Interior Angles =  $(n - 2) \times 180^\circ$

Where  $n$  is the number of sides of the shape

Exterior Angles add up to  $360^\circ$

One exterior angle in a REGULAR polygon =  $\frac{360^\circ}{n}$

Pairs of Interior and Exterior Angles add up to  $180^\circ$

**Constructing Pie Charts**

The angle to draw for each sector is

$$\text{Angle} = \frac{\text{frequency}}{\text{total}} \times 360^\circ$$

**Compound Growth & Decay**

The amount after  $n$  years (or days, etc.) is:

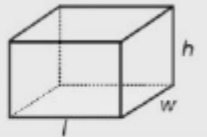
$$\text{starting amount} \times \left(1 \pm \frac{r}{100}\right)^n$$

where  $r$  is the rate of change.

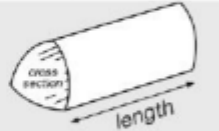
The  $\pm$  means + for growth and - for decay

**Volumes**

Cuboid =  $l \times w \times h$



Prism = area of cross section  $\times$  length \*



Cylinder =  $\pi r^2 h$



**Circles**

Circumference =  $\pi \times \text{diameter}$ ,  $C = \pi d$  \*

Circumference =  $2 \times \pi \times \text{radius}$ ,  $C = 2\pi r$

Area of a circle =  $\pi \times \text{radius squared}$ ,  $A = \pi r^2$  \*



**Compound measures**

Speed

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



Density

$$\text{density} = \frac{\text{mass}}{\text{volume}}$$



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

### Volumes

Cuboid = $l \times w \times h$	
Prism = area of cross section $\times$ length	
Cylinder = $\pi r^2 h$	
Pyramid = $\frac{1}{3} \times$ area of base $\times$ h	

### Circles

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

### Gradient of a Line

$m = \frac{y_2 - y_1}{x_2 - x_1}$

or

$m = \frac{\text{height}}{\text{base}}$

### Perpendicular Gradients

Given a gradient of a line  $m$ , the gradient of the line perpendicular to it is:  $-\frac{1}{m}$

## GCSE Maths Higher Formula Sheet

These formulae are not given to you and you need to know them

all \* are provided.

### Pythagoras

**Pythagoras' Theorem**  
For a right-angled triangle,  $a^2 + b^2 = c^2$

**Trigonometric ratios (new to F)**  
 $\sin x^\circ = \frac{\text{opp}}{\text{hyp}}$ ,  $\cos x^\circ = \frac{\text{adj}}{\text{hyp}}$ ,  $\tan x^\circ = \frac{\text{opp}}{\text{adj}}$

### Compound measures

**Speed**  
 $\text{speed} = \frac{\text{distance}}{\text{time}}$

**Density**  
 $\text{density} = \frac{\text{mass}}{\text{volume}}$

### Quadratic equations

**The Quadratic Equation**  
The solutions of  $ax^2 + bx + c = 0$ , where  $a \neq 0$ , are given by  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

### Direct & Inverse Proportion

If  $x$  is directly proportional to  $y^n$  then  
 $x \propto y^n$  so  $x = ky^n$

If  $x$  is inversely proportional to  $y^n$  then  
 $x \propto \frac{1}{y^n}$  so  $x = \frac{k}{y^n}$

### Lowest Common Multiple

The LCM of two numbers,  $a$  and  $b$ , is  
$$\text{LCM} = \frac{a \times b}{\text{HCF}}$$

### Constructing Pie Charts

The angle to draw for each sector is  
$$\text{Angle} = \frac{\text{frequency}}{\text{total}} \times 360^\circ$$

### Length of diagonal across a Cuboid (3D Pythagoras)

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

### Area of a Sector

$$A = \frac{\theta}{360^\circ} \times \pi r^2$$

### Length of an Arc

$$A = \frac{\theta}{360^\circ} \times \pi d$$

### Equation of a straight Line

Given a point  $(x_1, y_1)$  and the gradient  $m$ , the equation of a straight line is  
$$y - y_1 = m(x - x_1)$$

Substitute the numbers in, expand and simplify

### Midpoint of two points

between  $(x_1, y_1)$  and  $(x_2, y_2)$   
$$\left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

### Angles in Polygons

Sum of Interior Angles =  $(n - 2) \times 180^\circ$

Where  $n$  is the number of sides of the shape

Exterior Angles add up to  $360^\circ$

One exterior angle in a REGULAR polygon:  
$$\frac{360^\circ}{n}$$

Pairs of Interior and Exterior Angles add up to  $180^\circ$

### Stratified Sampling

The frequency for a group in a stratified sample is  
$$\frac{\text{frequency of group}}{\text{total frequency}} \times \text{sample size}$$

### Quadratic Sequences

The  $n^{\text{th}}$  term of a quadratic sequence is in the form  $an^2 + bn + c$ , where

$2a = 2^{\text{nd}}$  difference  
 $3a + b = 1^{\text{st}}$  difference (between 1<sup>st</sup> and 2<sup>nd</sup> term)  
 $a + b + c = 1^{\text{st}}$  term in the sequence

### Median from a Histogram/Frequency Table

$$L + \frac{m - p}{f} \times w$$

$L$  is the lower limit of the median class  
 $m$  is the median point  
 $p$  is the total frequency of the previous bars  
 $f$  is the frequency of the median class  
 $w$  is the class width of the median class

### Compound Growth & Decay

The amount after  $n$  years (or days, etc.) is:

$$\text{starting amount} \times \left(1 \pm \frac{r}{100}\right)^n$$

where  $r$  is the rate of change.  
The  $\pm$  means  $+$  for growth and  $-$  for decay

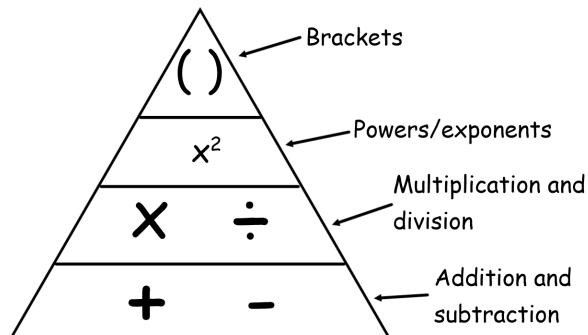
### Trigonometric formulae

Sine Rule  $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

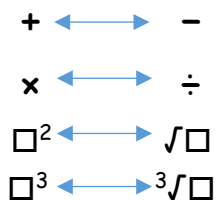
Cosine Rule  $a^2 = b^2 + c^2 - 2bc \cos A$

Area of triangle =  $\frac{1}{2} ab \sin C$

### Order of Operations



### Inverse Operations



### Square Numbers

- $1 \times 1$  or  $1^2 = 1$
- $2 \times 2$  or  $2^2 = 4$
- $3 \times 3$  or  $3^2 = 9$
- $4 \times 4$  or  $4^2 = 16$
- $5 \times 5$  or  $5^2 = 25$
- $6 \times 6$  or  $6^2 = 36$
- $7 \times 7$  or  $7^2 = 49$
- $8 \times 8$  or  $8^2 = 64$
- $9 \times 9$  or  $9^2 = 81$
- $10 \times 10$  or  $10^2 = 100$
- $11 \times 11$  or  $11^2 = 121$
- $12 \times 12$  or  $12^2 = 144$

### Cube Numbers

- $1^3 = 1 \times 1 \times 1 = 1$
- $2^3 = 2 \times 2 \times 2 = 8$
- $3^3 = 3 \times 3 \times 3 = 27$
- $4^3 = 4 \times 4 \times 4 = 64$
- $5^3 = 5 \times 5 \times 5 = 125$

### Written methods

#### Multiplication (Grid method)

$26 \times 5$

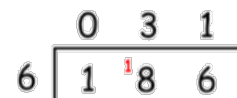
<b>X</b>	20	6
5	100	30

The 26 is broken into 20 and 6. These numbers are multiplied as shown.

The results are then added,  $100 + 30 = 130$ .

#### Division (Bus stop)

$186 \div 6$



6 doesn't divide into 1, so the 1 carries.

6 divides into 18, 3 times.

6 divides into 6, once.

### Multiplying Integers

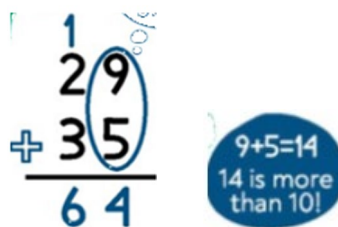
If the signs are the same, the result is positive.

$+ \times + = +$      $- \times - = +$   
 $+ \times - = -$      $- \times + = -$

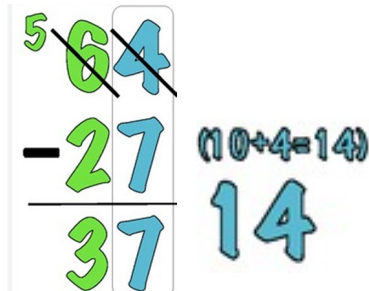
### Adding Negative Numbers

<b>+ add +</b>	Add the numbers; end result is a positive E.g. $3 + 5 = 8$
<b>+ add -</b>	Find the difference between the numbers; end result takes the sign of the number with largest magnitude. E.g. $3 + -5 = -2$
<b>- add -</b>	Add the integers; end result is a negative $-3 + -5 = -8$

### Column Addition



### Column Subtraction



### Rounding (to different degrees of accuracy)

**\* 5 and above rounds up \***

**24.356** To the nearest integer (whole number)  
24

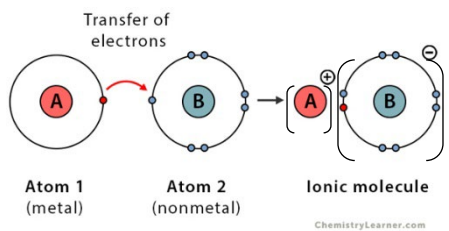
**24.356** To 3 significant figures (starting at first non-zero digit)  
24.4

**24.356** To 2 decimal places (digits after the decimal point)  
24.36

Draw in your line then check the number to the right

Bonding

### Ionic Bond



Transfer of electrons

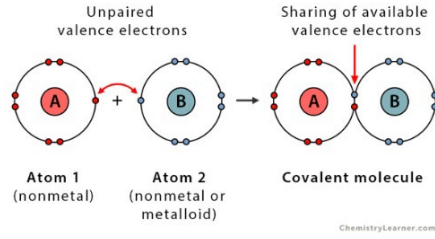
Atom 1 (metal)      Atom 2 (nonmetal)      Ionic molecule

ChemistryLearner.com

The **metal** atom will lose an electron and become a positively charged ion the **non metal** will gain the electron and become a negatively charged ion.

An ionic bond is the strong electrostatic force of attraction between oppositely charged ions.

### Covalent Bond



Unpaired valence electrons      Sharing of available valence electrons

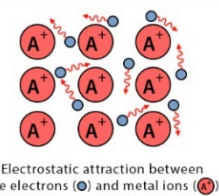
Atom 1 (nonmetal)      Atom 2 (nonmetal or metalloid)      Covalent molecule

ChemistryLearner.com

Two or more non metal atoms will share electrons to fill their outer shell.

Group 7 elements share 1 electron.  
Group 6 elements share 2 electrons.  
Group 5 elements share 3 electrons.

### Metallic Bond

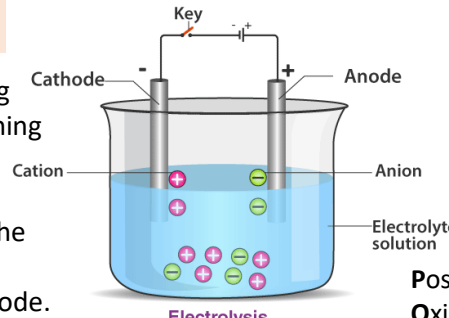


Electrostatic attraction between the electrons (e-) and metal ions (A+)  
ChemistryLearner.com

Metals need to lose electrons to become stable. If there are only metal atoms around the electrons have nowhere to go and become delocalised – they are free to move from ion to ion.

A metallic bond is the strong electrostatic forces of attraction between delocalised electrons and metal ions.

### Electrolysis



Electrolysis is the breaking down a substance containing ions using electricity.

When a charge is set up the ions will move to the oppositely charged electrode.

Electrolysis

Electrolysis will only work if an electrolyte is used. An electrolyte is the molten or dissolved substance that contains ions that can carry charge.

**Positive Anode Negative Is Cathode**  
**Oxidation Is Loss Reduction Is Gain**

Subject Terminology

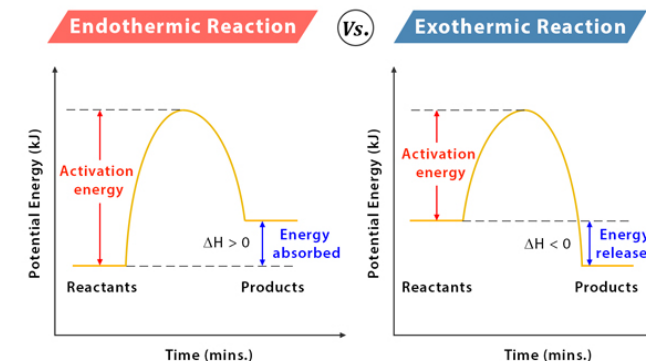
Key Word	Definition
Intermolecular forces	Weak forces of attraction between covalent molecules.
Electrostatic attraction	Forces of attractions between oppositely charged ions in a giant ionic lattice.
Atomic Mass	The number of protons and neutrons in the nucleus of an atom
Activation energy	The minimum amount of energy required to start a reaction
Overall energy change	The difference in the energy of the reactants and products in a reaction

Energy Changes

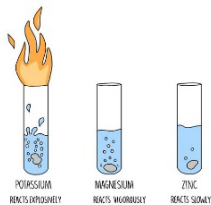
Exothermic reactions release heat energy into the surroundings. The energy in the bonds in the products have less energy than the bonds in the reactants.

Endothermic reactions takes in heat from the surroundings. The energy in the bonds in the products have more energy than the bonds in the reactants.

Endothermic and Exothermic Reactions Energy Graph



### Reactivity



↑ increasing reactivity

potassium  
sodium  
calcium  
magnesium  
aluminium  
carbon  
zinc  
iron  
tin  
lead  
hydrogen  
copper  
silver  
gold  
platinum

More reactive than carbon  
Extracted by electrolysis

Less reactive than carbon  
Extracted by reduction

Very unreactive  
Found in their native state

The reactivity series allows us to predict how metals will react.

A more reactive metal will displace a less reactive metal from a compound.

Oxidation is the loss of **electrons** from a substance. It is also the gain of oxygen by a substance.

**Reduction** is the gain of electrons by a substance. It is also the loss of oxygen from a substance.

### Subject Terminology

Key Word	Definition
Acid	A substance that when dissolved in water it has a pH of less than 7 and release H <sup>+</sup> ions.
Alkali	A substance that when dissolved in water it has a pH of more than 7 and release OH <sup>-</sup> ions.
Base	A substance that can neutralise acids, they can be soluble (alkali) or insoluble.
Salt	A compound formed when some or all of the hydrogen in an acid is replaced by a metal.

### Periodic Table – Group 1, 7, 0

Properties as you go DOWN Group 1, 7 and 0.		
Group 1	Group 7	Group 0
Reactivity increases	Reactivity decreases	Unreactive
Melting and Boiling points get lower	Melting and Boiling points get higher	Boiling point gets higher
Relative atomic mass goes up	Relative atomic mass goes up	Relative atomic mass goes up

#### Group 1 Elements

- 1 electron in the outer shell. This makes them very reactive.
- Easily lose one electron in outer shell to form a full outer shell.
- They form positive ions.
- They're soft.
- They have a low density.

#### Group 0 Elements

- Also called the noble gases.
- Colourless gases at room temperature.
- All have 8 electrons in the outer shell, apart from Helium which has 2 - stable full outer shell.
- Unreactive.

#### Group 7 Elements

- Also called the halogens.
- As elements they form molecules that contain two atoms.
- E.g. Cl<sub>2</sub> is chlorine

### Making Salts required practical



1. React an acid with an excess of metal, metal oxide, hydroxide or carbonate until no more reacts.

2. Filter the mixture to get a solution of the salt with the excess solid left behind

3. Heat the solution to start evaporating the water from the solution.

4. Turn off the heat and leave until all of the water has evaporated, leaving the solid salt behind.



#### Identify the variables

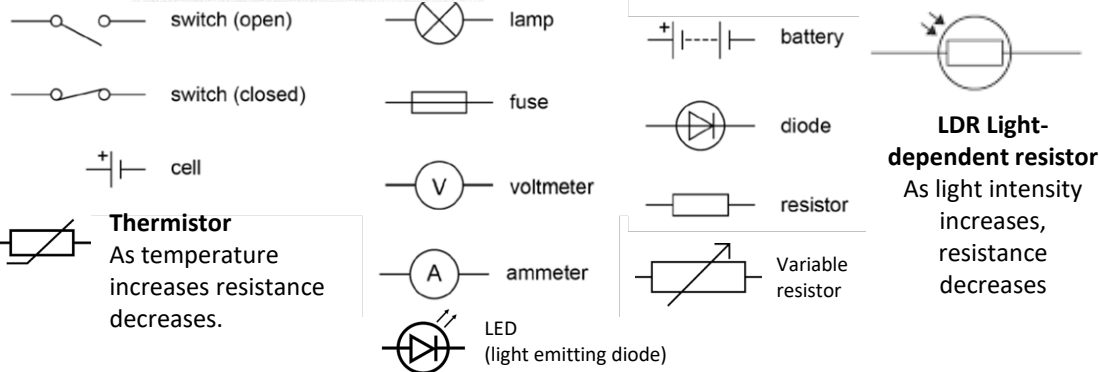
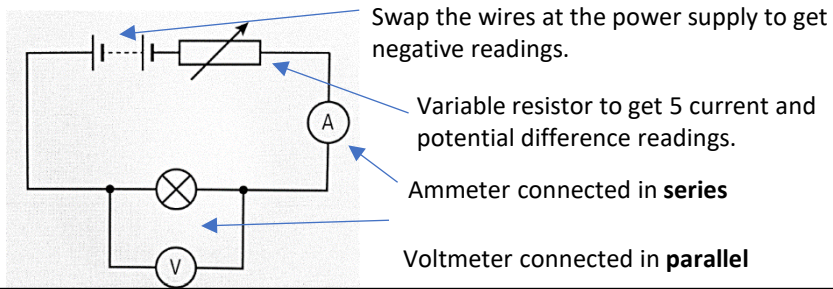
**Independent variable** – the variable that is changed during a scientific experiment when you carry out a repeat.

**Dependent variable** – the variable being tested or measured during a scientific experiment.

**Control variable** – a variable that is kept the same during a scientific experiment. Any change in a controlled variable would invalidate the results.

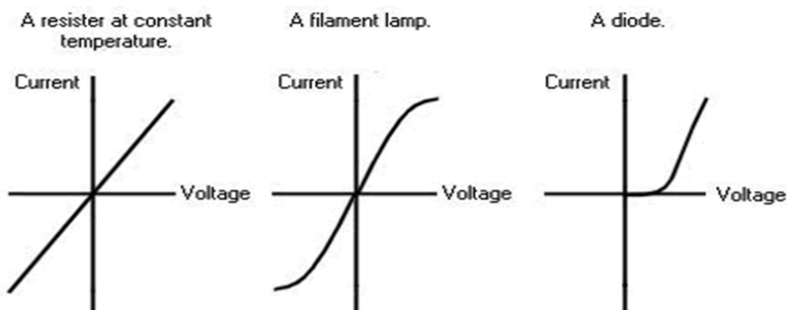
Electricity

Investigating circuit components required practical



IV graphs for circuit components

This graph shows a **directly proportional relationship** as the line of best fit is a **straight line through the origin**. This is an **Ohmic conductor**.



These are non-ohmic conductors as there is not a directly proportional relationship.

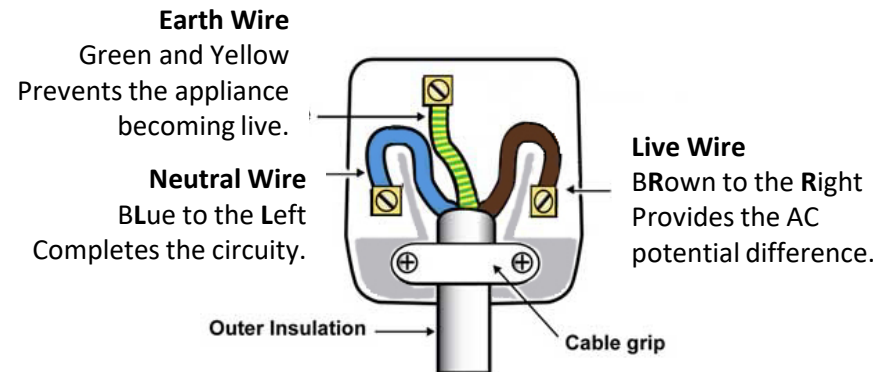
Equations to learn

Symbol equation	Word equation
$P = I V$	Power = current x potential difference
$P = I^2 R$	Power = current <sup>2</sup> x resistance
$Q = I t$	Charge flow = current x time
$E = P t$	Energy = power x time
	Efficiency = $\frac{\text{useful energy output}}{\text{total energy input}}$
$V = I R$	Potential difference = current x resistance
$E = Q V$	Energy = charge flow x potential difference
$E_p = m g h$	Gravitational potential energy = mass x gravitational field strength x change in height

Electricity in the Home

Mains electricity is alternating current (AC). This means the potential difference changes direction.

Mains frequency = 50Hz  
Mains potential difference = 230V

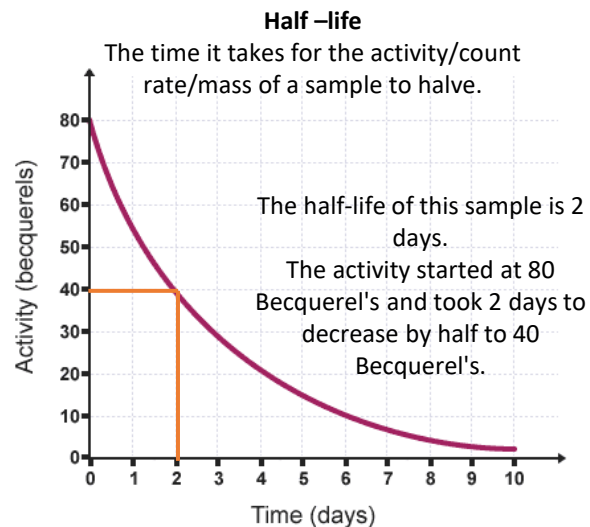
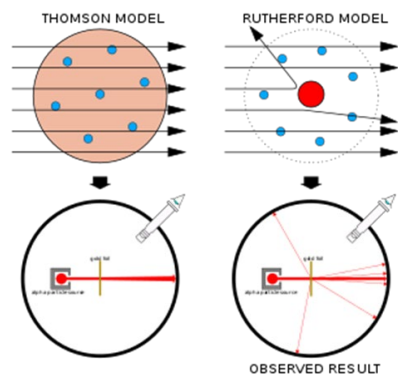


Radioactivity

	Structure	Ionising Power	Stopped by
<b>Alpha</b>	2 protons 2 neutrons	Strong	Paper, skin
<b>Beta</b>	Fast moving electron	Moderate	A few mm of aluminium
<b>Gamma</b>	Electromagnetic wave	Weak	Thick lead or concrete

**Rutherford's alpha scattering experiment**  
**Disproved the plum pudding model**

- Alpha particles were fired at very thin gold foil
- They expected the alpha particles to pass straight through because the positive charge was evenly distributed through the atom.
- The actual result was that most went through the gold foil but some alpha particles were partially deflected, some particles bounced straight back.
- They decided there must be something dense and positive in the centre of the atom (the nucleus)



**Energy stores**

- Gravitational potential energy – stored in objects raised off the Earth's surface (due to their position on Earth)
- Kinetic energy – stored in a moving object
- Thermal energy – stored in hot objects
- Chemical energy – stored in fuel, batteries, foods
- Elastic potential energy – stored in objects that are stretched or squashed

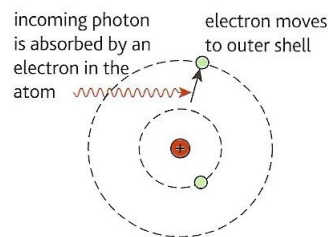
**Energy transfers**

- Mechanical – when an object is moved by a force
- Sound } By radiation/waves
- Light } By radiation/waves
- Electrical • By heating

**Ionisation vs Excitation**

**Excitation:** an electron absorbs energy and moves to a higher energy level.

**Ionisation:** an electron is removed from the atom.

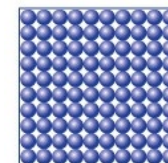


**Subject Terminology**

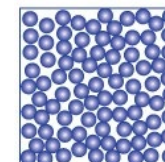
Key Word	Definition
Repeatability	Measurements are repeatable when repeated by the same person, using the same method and give similar results.
Reproducibility	Measurements are reproducible if similar results are obtained by different investigators with different equipment.
Zero error	Caused when equipment is not set to zero
Random error	Results vary in unpredictable ways, reduce random error by taking repeats and calculating a mean.
Anomalous result	A result that does not fit the pattern. Ignore anomalous results when calculating a mean.
Non-renewable	An energy resource that cannot be replenished.
Renewable	An energy resource that can be replenished.

**Arrangement and Behaviour of solids liquids and gases**

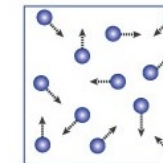
**Solid particles are :**  
Tightly packed, regular pattern, most dense, vibrate around fixed positions, have the least internal energy, strong bonds between the particles



**Liquid particles are:**  
Very close, random arrangement, dense, move freely over each other, have more energy than solids, less energy than gases, weak bonds between the particles

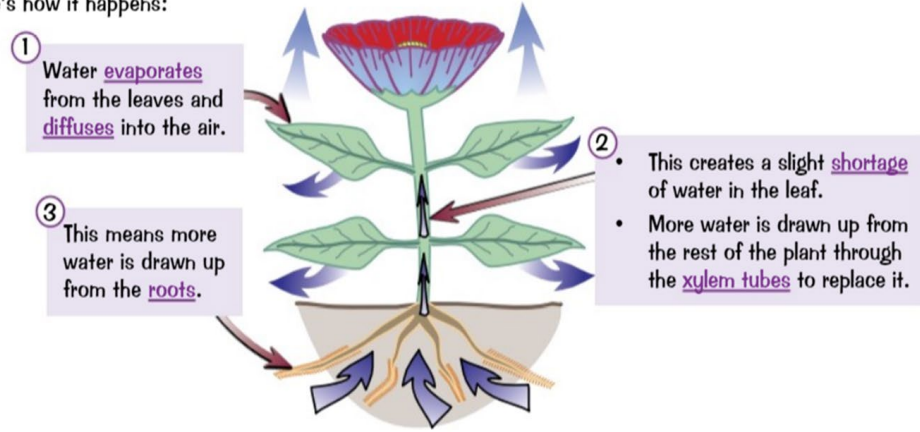


**Gas particles are:**  
far apart, randomly arranged, least dense, move randomly in all directions, have the most energy, have no bonds between the particles



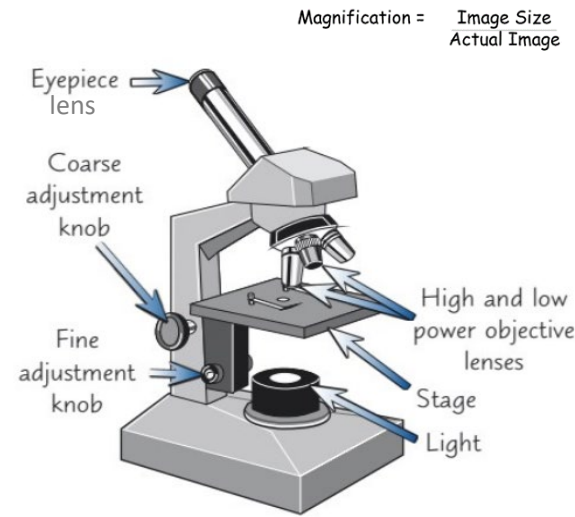
**Transpiration is the Loss of Water from the Plant**

- 1) Transpiration is caused by evaporation and diffusion of water from a plant's surface (mainly the leaves).
- 2) Here's how it happens:

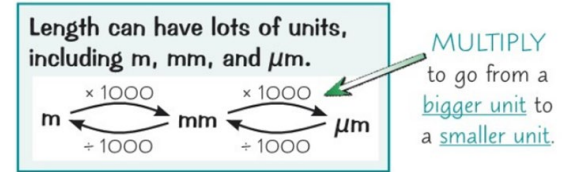


**Microscopes core knowledge**

Using a microscope method

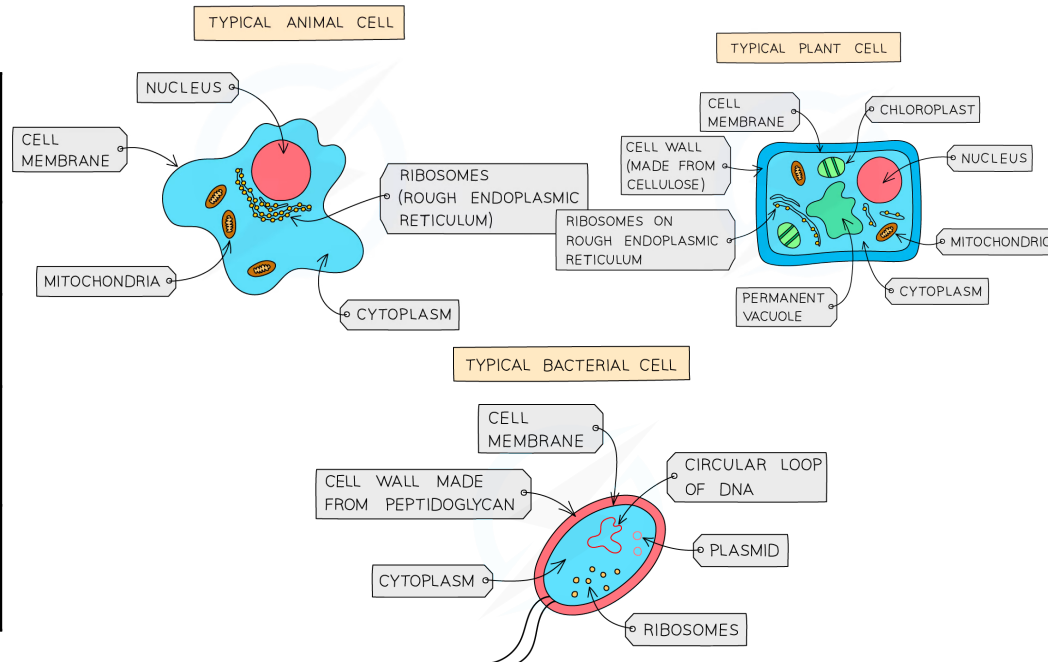


1. Clip the slide to the stage
2. Start with the lowest magnification objective lens
3. Twist the coarse adjustment knob to move the stage up to just below the lens
4. Move the stage down until the image is in focus
5. Move the fine adjustment knob to get a clear image

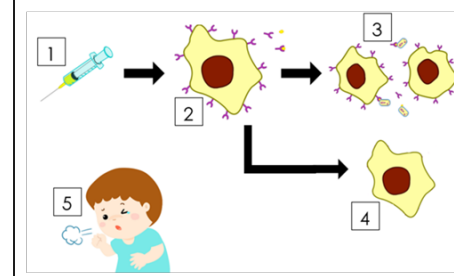


**Subject Terminology**

Key Word	Definition
Resolution	The ability to distinguish between 2 points on a picture
Transpiration	The evaporation of water from a leaf through the stomata
Communicable disease	A disease that can be transmitted from person to person
Vaccine	A dead or inactive pathogen used in vaccination to develop immunity to a disease



**How a vaccination works**



**1. Vaccination given**  
 Injected with a small amount of dead or inactive pathogen

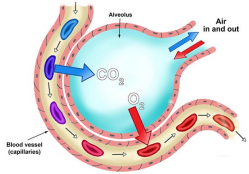

**2. Antibodies produced**  
 White blood cells produce antibodies to attack antigens

**3. Attract more white blood cells**  
 More white blood cells produce antibodies

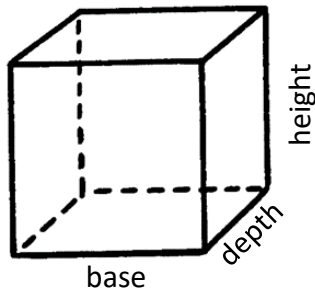
**4. Memory cells**  
 These cells stay in the blood in case we are infected in the future. Infection with same pathogen later on

**5. White blood cells can quickly respond**  
 and produce antibodies to kill pathogens

## Exchange surfaces and specialised cells

Specialised cell / exchange surface	Function	Adaptations
Alveoli 	Gas exchange in the lungs. Oxygen moves into the blood and carbon dioxide moves out	Large surface area Short diffusion pathway Steep diffusion gradient
Root hair cells 	To absorb water and minerals from the soil in plants	Large surface area Short diffusion pathway Steep diffusion gradient

## Surface area to volume ration of a cube



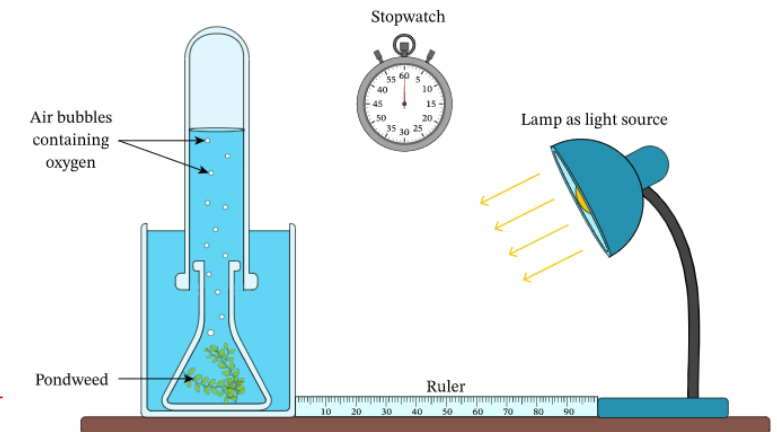
1. Calculate the surface area of 1 side of the cube by using base x height
2. A cube has 6 sides so to calculate the total surface area x the surface area of one side by 6.
3. Calculate the volume of the cube by doing base x height x width
4. Now divide surface area by the volume to get the ratio

## Subject Terminology

Key Word	Definition
Photosynthesis	The process by which plants make glucose using carbon dioxide and water and energy from light
Limiting factor	Anything that slows down the rate of photosynthesis
Diffusion	The movement of particles from an area of high to low concentration
Alveoli	Tiny air sacs found in lungs that maximise the rate of gas exchange

## Photosynthesis key practical

1. Set up a test tube rack containing a boiling tube at a distance of **10 cm** away from the light source
2. Fill the boiling tube with the sodium **hydrogen carbonate solution**.
3. Place the piece of **pondweed** into the boiling tube with the cut end uppermost. Gently push the pondweed down with the glass rod.
4. Leave the boiling tube for 5 minutes.
5. Start the stop watch and count the **number of bubbles produced in one minute**
6. Record the results in a table
7. **Repeat** the count twice more so that the mean number of bubbles per minute can be calculated.
8. Move the test tube rack to a distance of **20 cm from the light** source and repeat steps 4–6.
9. Repeat using distances of **30 cm and 40 cm** between the test tube rack and the light source.



**Independent variable** = Light intensity

**Dependent variable** = Number of bubbles per minute

**Control variables** = Temperature (L.E.D), concentration of sodium hydrogen carbonate solution, same pondweed cutting

## Resource Challenges

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

### Significance of Water

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

#### FOOD



#### WATER



#### ENERGY



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

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

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

### Demand outstripping supply

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

#### 1. Population Growth



#### 2. Economic Development



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

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

#### Resource Reliance Graph

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

Resource consumption exceeds Earth's ability to provide!

#### 3. Changing Technology and Employment



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

## Food in the UK



### Growing Demand

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

### Impact of Demand

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

#### Agribusiness



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

#### Sustainable Foods



Organic foods that have little impact on the environment and are healthier have been rising. Local food sourcing is also rising in popularity.  
• Reduces emissions by only eating food from the UK.  
• Buying locally sourced food supports local shops and farms.  
• A third of people grow their own food.



## Water in the UK



### Growing Demand

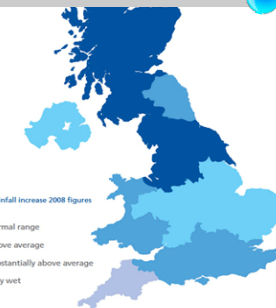
The average water used per household has risen by 70%. This growing demand is predicted to increase by 5% by 2020. This is due to:  
• A growing UK population.  
• Water-intensive appliances.  
• Showers and baths taken.  
• Industrial and leisure use.  
• Watering greenhouses.

#### Pollution and Quality



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

#### Water stress in the UK



#### Management

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

#### Water Transfer

Water transfer involves moving water through pipes from areas of surplus (Wales) to areas of deficit (London).  
Opposition includes:  
• Effects on land and wildlife.  
• High maintenance costs.  
• The amount of energy required to move water over long distances.

## Unit 2c



# The Challenge of Resource Management

## Energy in the UK



### Growing Demand

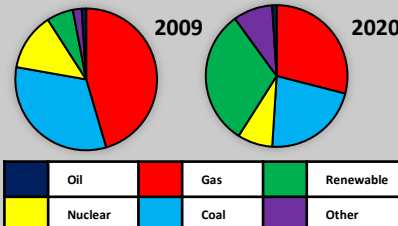
The UK consumes less energy than compared to the 1970s despite a smaller population. This is due to the decline of industry.

### Changes in Energy Mix

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

### Energy Mix

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



## Energy in the UK (continued)

### Significance of Renewables

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

### Exploitation

**Nuclear**  
New plants provide job opportunities. Problems with safety and possible harm to wildlife. Nuclear plants are expensive.

**Wind Farm**  
Locals have low energy bills. Reduces carbon footprint. Construction cost is high. Visual impacts on landscape. Noise from wind turbines.

## Option 1: FOOD

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

### Human

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

### Physical

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

### Increasing Food Supply

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

### C.S. Almeria, Spain

Located in Almeria, the site involves huge greenhouses using hydroponics.

Advantages: low energy costs due to year-round warm weather. Jobs created in the local area. Produce is cheaper for the consumers. Multiplier effect has happened in the area.

Disadvantages: waste is a big issue in and around Almeria. Natural water sources are being used faster than they can be replaced. Natural ecosystems have been destroyed by the greenhouses.

### Sustainable Food Supply

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

### C.S. NEE- Jamalpur, Bangladesh Rice and Fish Farming

**Rice and fish are cultivated in the same field. The fish eat pests and weeds which allows to rice to thrive as well as producing fertiliser from their waste.**

#### Advantages

The fish provides a valuable supply of protein for the local people, so improving their health.  
The increased rice yield not only helps to feed the farmers' families, but also provides a surplus to sell at market, so increasing their incomes.  
This sustainable method of farming increases food production without the use of increased artificial chemicals or impacting on the local environment

#### Disadvantages

Very small scale so only a small number of farmers can benefit.  
Takes a long time to set up.  
Farms can easily be damaged or destroyed by flooding.

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

# Paper 2 AQA Knowledge Organiser: Normans - Historic Environment: Pevensey Castle

January 5th 1066 - King Edward of England dies.



Late January - William, Duke of Normandy, begins preparations to invade England.

## Timeline: Key Dates 1066



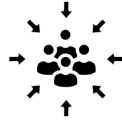
September 8 - Harold disbanded his army on the south coast of England, believing that William will not attempt a crossing of the English Channel that year.



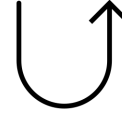
September 28 - After setting sail a day earlier, the Norman fleet lands at Pevensey.



January 6th 1066 - Harold Godwinson is crowned King of England.







August 12 - William's army and fleet are based at St. Valery in Normandy, but are unable to cross the English Channel due to adverse winds.













September 25 - King Harold Godwinson arrives in York, after a four-day march from southern England, and then defeats and kills Harald and Tostig at the Battle of Stamford Bridge.



### Key People: Individuals

<b>Harold Godwinson</b>	Earl of Wessex and brother in law to Edward. He was very powerful and became king after Edward died. Edward promised him the throne as he died. Defeated and killed at the Battle of Hastings.	
<b>William Duke of Normandy</b>	Believed he should be king as he was promised the throne by Edward. Invaded England in 1066 and defeated Harold Godwinson at the Battle of Hastings.	
<b>Robert of Mortain</b>	He was the half brother of William. He provided ships for William's invasion. After the successful invasion Robert was given land in England including the area which included Pevensey.	
<b>Harald Hardrada</b>	King of Norway who believed he should be king because his ancestor Cnut once was.	

### Key Terms/Concepts:

<b>Heir</b>	The person next in line to the throne.	
<b>Coronation</b>	When someone is crowned the next king or queen.	
<b>Oath</b>	A promise to someone or about something.	
<b>The Papal Banner</b>	A banner/flag given by the Pope to William in support of his invasion.	
<b>Mercenaries</b>	A professional soldier hired to serve in a army.	
<b>Knights</b>	A man who serves his lord as a mounted soldier.	
<b>Motte and Bailey Castle</b>	The first castles built by the Normans out of wood.	
<b>Battle of Stamford Bridge</b>	The battle in the north of England where the Vikings were defeated by Harold Godwinson.	
<b>Harbour</b>	A place on the coast where ships may moor in shelter.	
<b>Tide</b>	The alternate rising and falling of the sea, usually twice in each day.	

# Paper 2 AQA Knowledge Organiser: Normans - Historic Environment: Pevensey Castle

January 5th 1066 - King Edward of England dies.



Late January - William, Duke of Normandy, begins preparations to invade England.



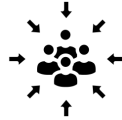
**Timeline: Key Dates 1066**  
September 8 - Harold disbanded his army on the south coast of England, believing that William will not attempt a crossing of the English Channel that year.



September 28 - After setting sail a day earlier, the Norman fleet lands at Pevensey.



January 6th 1066 - Harold Godwinson is crowned King of England.



August 12 - William's army and fleet are based at St. Valery in Normandy, but are unable to cross the English Channel due to adverse winds.



September 25 - King Harold Godwinson arrives in York, after a four-day march from southern England, and then defeats and kills Harold and Tostig at the Battle of Stamford Bridge.



## Pevensey Castle:

### **Before the Normans:**

Pevensey was an existing Roman fort which had been constructed in around 290. Once an impressive structure, the fort had fallen into disrepair.

### **During the invasion:**

When William landed at Pevensey he started to construct a motte and bailey castle to secure his position. This type of castle was quick and easy to build. It is believed he brought a pre built wooden castle structure with him from Normandy.

### **After the Battle of Hastings:**

The castle was the quickest route to Normandy. The castle was given to William's half brother Robert of Mortain. Robert would have started to construct the castle out of stone.

## Why did William want to invade England?

**Causes:** Edward the Confessor had died without an heir. This resulted in a crisis where four men wanted the throne. This included Harold Godwinson and William Duke of Normandy. Harold Godwinson was already a powerful English earl in Wessex and William was a powerful landholding duke in Normandy. William had been promised the throne by Edward and Harold swore an oath to uphold this promise. Harold however was told he could be king on Edward's deathbed.

**Events:** Harold Godwinson was crowned king on the 6th January 1066. This led to William starting his preparations for an invasion of England to take what he believed was his.

## Factor - How William gathers support for the invasion

**What support did William gather?** William needed to ensure the support to successfully complete his invasion.

- 1. The Pope** - the Pope gave William a Papal Banner in a show of support for William's invasion.
  - 2. The Norman Nobility** - William needed the support of the Norman nobility and promised them land and wealth in return for their support and resources.
  - 3. Other European Powers** - William had the support of the French King, he also gained support from other powers like Denmark and the Holy Roman Empire.
- How did he prepare?** William gathered around 6-7000 men from the whole of France. He also gathered around 700 ships to transport his men, supplies and horses. Many of the men were mercenaries attracted to the potential wealth.

## Factor - Harold Godwinson's bad luck and mistakes

### **What threats did Harold face in the north?**

Early 1066 - Harold Godwinson's younger brother had been removed as the Earl of Northumbria. He was replaced by Morcar. Tostig fled to Scotland.

### **What threats did Harold face in the south?**

Summer 1066, Harold stationed his soldiers on the south coast waiting for William's invasion. By the 8th Sept when it didn't come and supplies ran out Harold was forced to disband his troops.

**Further threats in the North:** In late Sept 1066, the Viking invaded in the north. Harold Marched up north to defeat the Vikings at the Battle of Stamford Bridge. Harold then got news that William had landed at Pevensey in the south.

## Factor - How the weather helped William's invasion

### **What issues did William face crossing the Channel?**

The wind was blowing in the wrong direction which was dangerous and could result in ships smashing against the shore. The tide changed every 6 hours so they needed to leave when the tide was high. They wanted to sail at night and arrive in the daylight to unload their supplies.

### **How did the wind make William's invasion a success?**

The wind direction preventing William crossing the channel sooner. By the time the wind had changed Harold has disbanded his troops. William was forced to move his troops closer to England when the wind halted his first channel crossing. When he finally crossed and unloaded his barons and knights unloaded the ships.

## Factor - Why Pevensey was the ideal place to land the invasion force

Pevensey stood on a low peninsula which jutted out into the sea and was joined to the mainland by a narrow neck of dry land. Pevensey had a shallow beach and a natural harbour. This allowed the Normans to unload the ships which brought their supplies and horses across the Channel quickly and easily. Pevensey provided a safe and secure route to Normandy for future supplies and, had it been necessary in the months after the battle of Hastings, for retreat. William's choice of Pevensey as the place to land was also well-chosen because it was a defensible site with an existing fortification. The Romans had built a fort there in about CE 290.

**Task 6 – Pitch Your Creative Proposal- 10 marks****Your Pitch Must Demonstrate:**

- 1. Clear presentation skills** (tone, confidence, clarity).
- 2. Strong communication** of your event and creative intentions.
- 3. Use of practical examples** (from Task 5).

**Time limit:** 10-minute recorded pitch.

**Task 7 – Evaluation of Creative Proposal- 20 marks****What to Evaluate:**

- 1. Feedback from the commissioning panel**  
What worked well? What could be improved?
- 2. Whether you met the commission requirements**  
(parade, tourism focus, length, originality, engagement)
- 3. Strengths & areas for development**  
Skills gained, challenges, improvements.
- 4. Action plan for future projects**  
Targets, next steps, professional development

**Subject Terminology**

<b>Venue</b>	Where the performance takes place: school halls; local village or community hall; inside shopping centres or in open air public spaces (site specific); local theatre; social club, hotel function rooms.
<b>Target audience</b>	Who the performance is aimed at. For example: Age range of the audience; minority groups; parents and toddler groups; local community; national audience.
<b>Style and genre</b>	The <i>genre</i> of a play refers to the type of story being told and is decided by the <i>playwright</i> . The <i>style</i> of a play is how the work is presented on stage.
<b>Personnel</b>	Who will you need to employ to run your event? Music director; Technical director; Set designer; Choreographer; Light and sound technicians; Stage manager; Costume designer; Hair and make-up artists; Videographer.
<b>Marketing</b>	The activity or business of promoting and selling products or services. You will be marketing your event.

**✓ During the Pitch**

1. Begin with a confident introduction
2. Clearly communicate your intentions and event concept
3. Show practical examples smoothly and explain their purpose
4. Link everything back to the commission
5. Show enthusiasm for your idea
6. Conclude with a strong, memorable final statement

### Form and structure:

The piece is in **verse-chorus** form.

Intro	Verse 1 / Verse 2	Chorus 1 / Chorus 2	Link 1 / Link 2	Instrumental	Chorus 3	Outro
1 - 4	5 - 39 / 14 - 39	40 - 57	58 - 65	66 - 82	40 - 92	93 - 96
4 bars	35 bars / 26 bars	18 bars	8 bars	17 bars	22 bars	4 bars

### Metre and rhythm:

**Simple duple time** – 2/2 (split common time) – with two minim beats in every bar.

Uses distinctive **ostinato rhythms** for both riffs, consisting almost totally of **quavers**, with constant use of **syncopation**.

**Vocal rhythm** looks complex but follows the natural rhythm of the lyrics.

### Background details:

Composed by band members **David Paich** and **Jeff Porcaro**.

Recorded by the American rock band Toto in **1981** for their fourth studio album entitled **Toto IV**.

Released in **1982** and reached number one in America on 5 February **1983**.

Genre: **soft rock**.

### Instrumentation:

**Rock band:** drum kit with additional percussion, lead and bass guitars, synthesisers, male lead vocals and male backing vocals.

### Harmony:

**Diatonic;** mixture of root position and inverted chords.

**Riff a** can be heard during the intro, verses, link sections, instrumental and outro. This riff uses a three-chord pattern: **A – G#m – C#m**.



Choruses use a standard chord pattern: **vi (F#m) – IV (D) – I (A) – V (E)**.

The **harmonic rhythm** (the rate of chord change) is mostly once per bar.

### Dynamics:

Most of the song is **mezzo-forte** (moderately loud) whilst the choruses are **forte**.

### Melody:

Mostly **conjunct** (moving in step) with a **wide vocal range**.

**Riff b** uses the **pentatonic scale** (interpreted through E major):



**Vocal improvisations** occur towards the end of the song.

### Texture:

**Homophonic:** melody and accompaniment.

### Tonality:

The majority of the song is in **B major** whilst the choruses are all in **A major**.

### Tempo:

The tempo is **moderately fast**.

## Form and structure:

The piece is in **Binary** form (**AB**).  
 Section A is 16 bars long.  
 Section B is 24 bars long.  
 Each section is repeated (**AABB**).

## Dynamics:

Mostly **forte** throughout, although no markings appear on the score.  
 On some recordings, **terraced dynamics** (sudden changes) are included.

## Background details:

Composed by **Johann Sebastian Bach** (1685 – 1750), one of the main composers of the **Baroque** era in music.  
 Badinerie is the last of seven movements from a larger piece called **Orchestral Suite No.2**.  
 The piece was composed between **1738-1739**.

## Tonality:

Section A begins in **B minor** (tonic) and ends in **F# minor** (dominant minor).  
 Section B begins in **F# minor** (dominant minor) and ends in **B minor** (tonic).  
 Section A modulates from B minor through **A major** before arriving at F# minor.  
 Section B modulates from F# minor through **E minor, D major, G major** and **D major** before arriving at B minor.

## Harmony:

**Diatonic**; mixture of root position and inverted chords; uses V7 chords and a Neapolitan sixth chord.  
 Imperfect and perfect cadences are clearly presented throughout. Both sections end with a **perfect cadence**.

## Metre and rhythm:

**Simple duple time** – 2/4 – with two crotchet beats in every bar.  
 Uses **ostinato rhythms** which form the basis of two short musical ideas (X and Y), consisting almost totally of **quavers and semi-quavers**.

## Instrumentation:

**Flute, string orchestra and harpsichord**.  
 The score has five parts (flute, violin 1, violin 2, viola and cello). The harpsichord player reads from the cello line and plays the notes with their left hand whilst filling in the chords with their right hand.

## Melody:

The movement is based on **two musical motifs**.



Both motifs begin with an **anacrusis**. Motif X is entirely **disjunct** whilst motif Y **combines disjunct and conjunct** movement.  
 Typical **ornaments and compositional devices** of the period are used including **trills, appoggiaturas** and **sequences**.

## Texture:

**Homophonic**: melody and accompaniment.  
 The flute and cello provide the main musical material; however, the 1<sup>st</sup> violin participates occasionally.  
 The 2<sup>nd</sup> violin and viola provide harmony with less busy musical lines.

## Tempo:

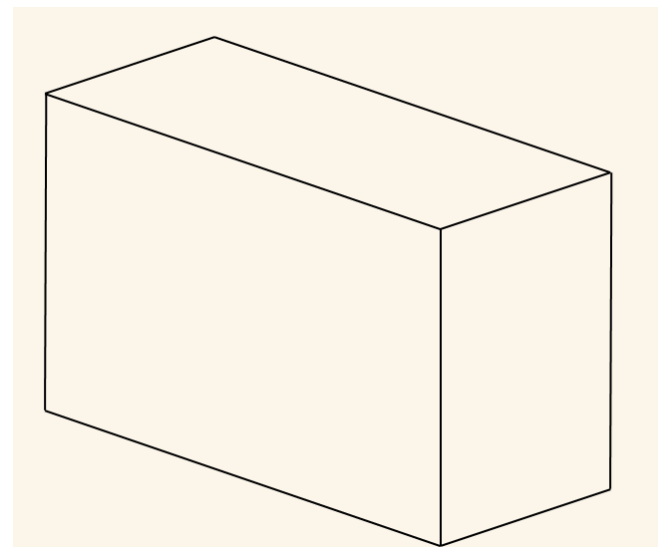
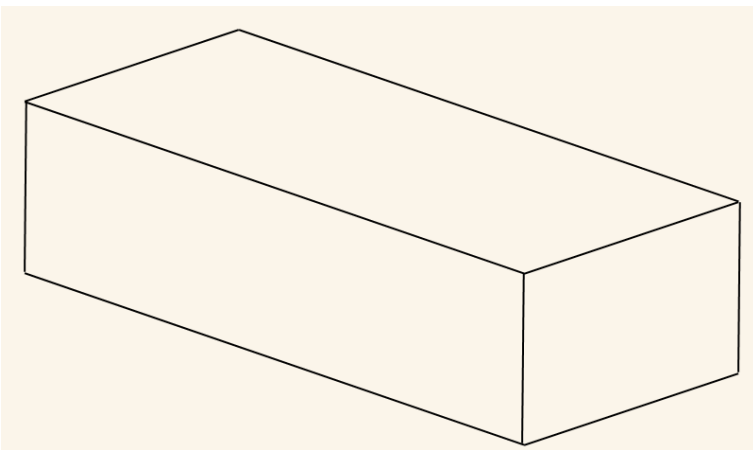
The tempo is **Allegro** (quick, lively, bright), although not marked on the score.

### Brick dimensions

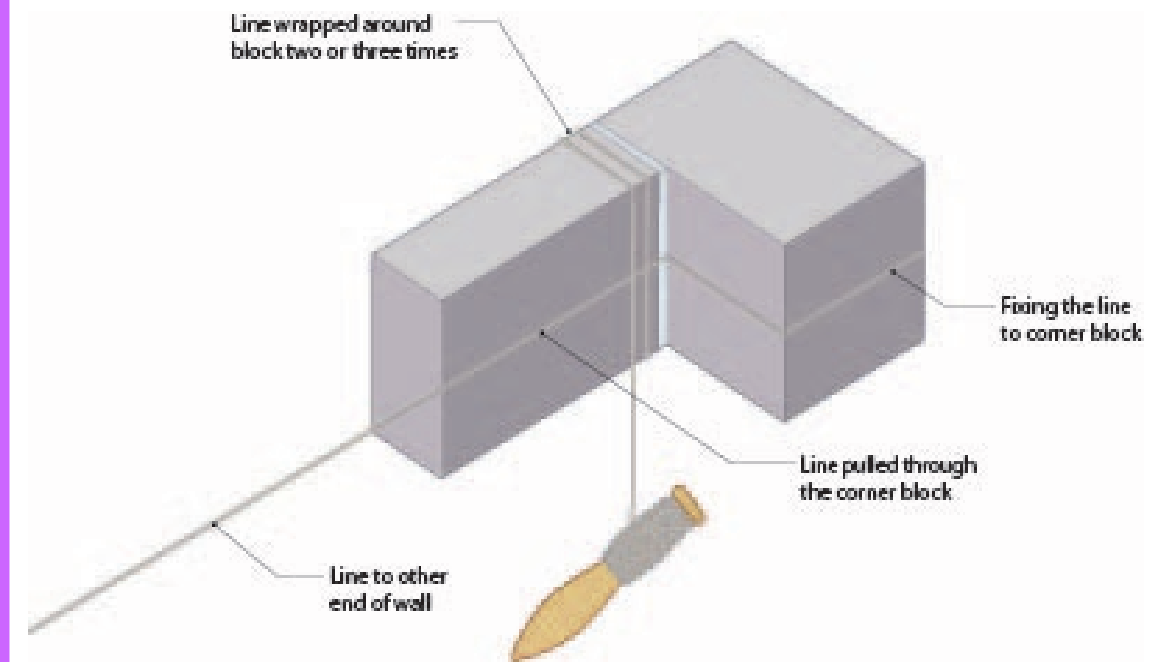
- What is the length of a brick?
- What is the width of a brick?
- What is the depth of a brick?
- How thick is a mortar joint?

### Block dimensions

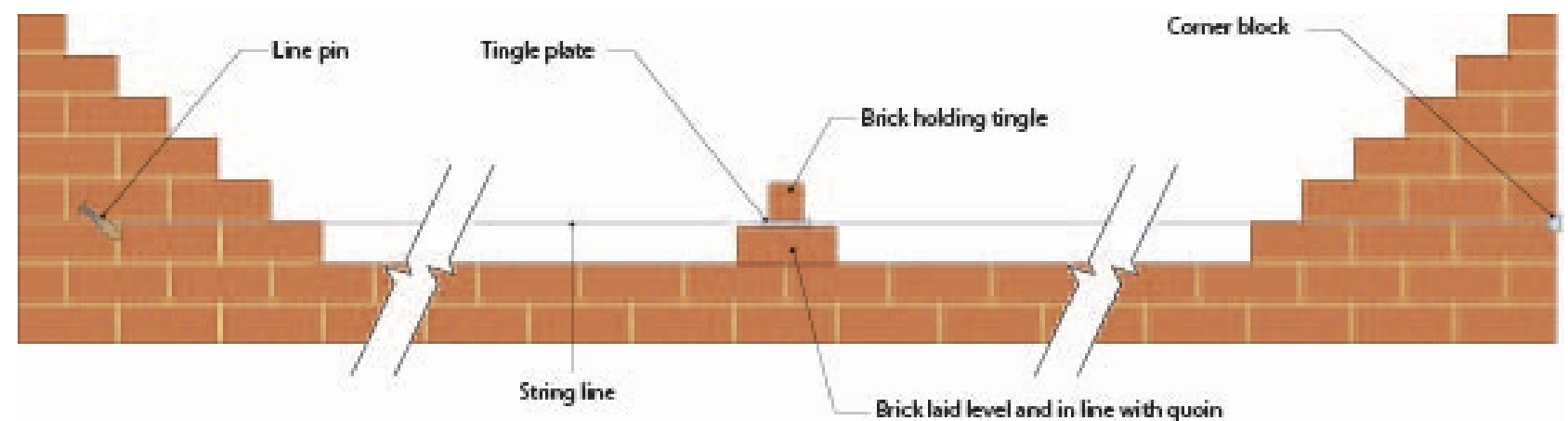
- What is the length of a block?
- What is the width of a block?
- What is the depth of a block?



There are different methods of holding in place a string line so you can build to it.



- How does the tingle plate work?
- Why is it required?
- When would you use it?



## CORE RE – Relationships and families HT5

### What are Christian attitudes towards human sexuality?

Many Christians see heterosexual relationships as part of God's plan for humans. Genesis says that a man and woman should be united and 'increase in number.' Therefore, some are against sex outside marriage, homosexuality and artificial contraception.

Some Christians are against homosexuality based on Leviticus 18 but some Christians argue about the meaning behind these texts. The Bible does not mention relationships between two women. The Catholic Church teaches that being a homosexual is not a sin, but homosexual sex is. The Church of England welcomes faithful committed homosexual couples but does not marry them in church. Other Christians believe that the Bible passages need to be interpreted in context and would marry homosexual couples, just like heterosexual couples.

### GCSE Theme: Religion, Relationships and Family

#### What are Buddhist Attitudes towards Sex?

Buddhist attitudes vary, depending on the country and culture.

Buddhism teaches that sex is not wrong, and that people have desires and they shouldn't be denied. However, sexual attraction leads to craving which can lead to suffering. Buddhists believe that their sexual behaviour should be guided by kindness, generosity, honesty and not causing harm to oneself or others.

Buddhist monks and nuns take a vow of celibacy. They avoid sexual activity as one aspect of a simple life.

The Buddha did not teach on homosexuality or same-sex relationships. Many Buddhists would say that the five moral precepts apply to all relationships. What matters is consent and respect.



#### What are Christian attitudes to Contraception and Family Planning?

All Christians believe that having children is a gift from God. Christianity also teaches that parents should be responsible and there may be times when bringing children into the world, because of economics or psychological reasons, is not sensible.

Christians disagree about the methods of limiting family size. The Catholic and Orthodox teach that artificial methods (condom) goes against God's purpose of sex which is to express love AND allow the possibility of creating new life. To use contraception is to be selfish and prevent God's plan. Any form of contraception should be natural (rhythm method). Some Catholics disagree with this when considering the modern world.

Many Christians believe that sex is for creating new life OR express love and should make responsible choices about family life. Also contraception may be used to protect the mother's health and to allow a time for the relationship to develop.

Some Christians will only use certain forms of contraception because some allow for the egg and sperm to meet (coil) and they see this as causing an early form of abortion and the ending of life that started at conception.

### SUBJECT TERMINOLOGY

Adultery	a married person having sex with someone other than their marriage partner
Civil partnership	a legal ceremony giving a homosexual couple the same legal rights as a husband and wife.
Cohabitation	living together without being married
Contraception	intentionally preventing pregnancy from happening.
Divorce	Legal ending of a marriage
Extended family	A family which extends beyond the nuclear family to include grandparents and other relatives.
Faithfulness	staying with your marriage partner and having sex only with them.
Family planning	Using contraception to control how many children couples have and when they have them.
Gender equality	The idea that people should be given the same rights and opportunities regardless of whether they are male or female.
Gender prejudice	Unfairly judging someone before the facts are known ; holding biased opinions about an individual or group based on their gender.
Gender discrimination	Acting against someone on the basis of their gender; discrimination is usually seen as wrong and may be against the law
Nuclear family	mother, father and the children living as a unit
Procreate	Produce children
Human sexuality	How people express themselves as sexual beings
Heterosexual	Sexually attracted to members of the opposite sex
Homosexual	Sexually attracted to members of the same sex
Marriage	A legal union between two people as partners in a relationship
Polygamy	The practice or custom of having more than one wife or husband at the same time.
Re-constituted family	where two sets of children become one family when their divorced parents marry each other.
Re-marriage	marrying again after being divorced from a previous marriage.
Sex before marriage	Sex between two single unmarried people
Same sex marriage	Sex between partners of the same sex

#### What are Buddhist Attitudes to Contraception and Family Planning?

Buddhist traditions may differ about contraception because of when it is believed consciousness arises. Some may say at conception, some may say that it is continuous from life to life. Most Buddhists believe that it is acceptable to use a form of contraception that prevents fertilisation, but others would say something like the morning after pill is less acceptable as it may be seen as a form of killing and going against the first moral precept. If having the child might harm the life of the mother, the morning after pill may be seen as the lesser of two harms.

Having children is not a sacred duty in Buddhism and the Buddha did not recommend family life as a path to enlightenment. Buddhists can choose what to do but should be able to bring children up in a happy and safe environment.

#### What are Buddhist teachings on Marriage?

Marriage is a social contract and not a religious duty or sacred act. Marriage is a secular ceremony depending on the country but a Buddhist monk may bless the service.

Having children is not seen as the purpose of marriage and there is no obligation or pressure to have them. Because everything is interconnected a benefit of married couples is that it develops relationships which produce stronger communities.

Most ideas around sex before marriage are cultural but it is not forbidden but must be according to the five moral principles. The same is true of cohabitation. Most Buddhists would see adultery as wrong as it involved dishonesty and does not show kindness towards your partner. Same sex marriages are more likely to be accepted because of culture. Buddhism does not teach against them but teaches that in any relationship respect should be shown.

#### What are Buddhist teachings on Divorce?

Buddhism does not say that a couple cannot be divorced but does say that they should lead a life of implied duty and responsibility to one another so would not encourage it. Often ideas about divorce are also influenced by cultural values. By following the five moral precepts and trying to lead a life developing loving-kindness Buddhists is more skilful and would be encouraged to try and make their marriage work.

Buddhists are also likely to teach that hanging on to a broken relationship produces suffering and should be avoided. Buddhism accepts that divorce may well be a painful process, but every attempt should be made to make it as respectful as possible. Causing hurt will never make a person happy.

Buddhists also do not teach against remarriage as it may be a way to commit to a new relationship and find happiness.

#### What are Buddhist teachings on the nature and purpose of family life?

Buddhism is not a family-centred religion, there is no expectation to have children. The nature of the family, extended or nuclear, usually reflects the customs of the country they live in. The Buddha did not forbid polygamy but did say it may cause suffering for those involved. Same-sex parents are accepted as long as the relationship is respectful, Buddhist values are more important than gender.

Buddhism does not teach about family life apart from the general rules to be loving, caring and to remain faithful to each other. Parents are responsible for raising children and teaching them the faith. Buddhists will often have a shrine in the home and children are shown how to show respect to the Buddha.

In later life, children are expected to support their parents when old age or illness becomes an issue.

#### What are Christian Teachings about Marriage?

Society now recognises same-sex marriages as having the same legal status as non-same sex marriages. Many Christians are against this as they see marriage as being more than a committed relationship and somewhere that new life can be created. The law protects churches from having to marry same sex couples.

For many Christians marriage is seen as part of God's plan to unite couples. Some Christians see it as a sacrament which reflects the commitment made by God to humans. Marriage is a spiritual bond that reflects the love of God. For many Christians the purpose of marriage is to provide a stable, secure environment for family life.

Christians who are opposed to sex before marriage also oppose cohabitation. Many Anglican and protestant Christians believe that marriage is best, but people may live together in a faithful, loving and committed way without being married.

#### What are Christian teachings on Divorce?

Some Roman Catholic Christians believe there can be no divorce because Jesus banned divorce. Also when you marry, you make a covenant with God which cannot be broken without God's consent. Therefore a couple can never be divorced according to God's law. Catholics do have Marriage Tribunals which can decide that a marriage never existed (annulment), but there can be no divorce and Catholics who have state divorces are not allowed to remarry.


Most Protestant Christians believe that if a marriage goes wrong and there is no chance of bringing the couple back together, then there can be a divorce. They believe this because God is always prepared to forgive sins if people are determined to live a new life, and in St Matthew's Gospel Jesus allows divorce for adultery.

#### What are Christian teachings on Family Life?

All Christians believe that children should be brought up in a family with a mother and father (unless one of them has died). Christian marriage services refer to founding a family and bringing children up in a Christian environment as a major purpose of marriage.

Christians see the family as the basis of society. Children are a gift from God and parents are expected to look after them properly (feeding, clothing, educating, etc) and help them to be Christians by having them baptised and taking them to church on Sunday. Christian children are expected to respect their parents (fifth commandment) and care for them when they are old.

Subject **RS** Buddhism: **beliefs** and teachings.

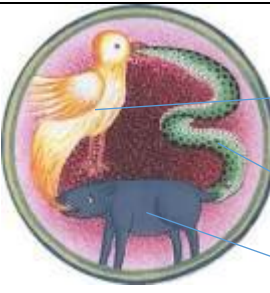
Before enlightenment	
How long ago was Buddhism founded?	Buddhism was founded around 2500 years ago.
Who is the founder of Buddhism?	The founder of Buddhism was Siddhartha Gautama, he was born around 500BCE.
Who were Siddhartha's parents and what did this mean for his lifestyle?	Siddhartha's parents were King Suddhodana and Queen Maya and he had a life of 'material' luxury.
Queen Maya had a dream before Siddhartha was born what was it? What did it mean?	Queen Maya dreamt about a little white elephant who told her that her child would be holy.
After his mother died the King tried to protect his son from all hardships – what were the four sights that changed Siddhartha's life?	The four sights were old age; illness; death and a holy man. 
When he was an ascetic how was Siddhartha trying to understand the problem of suffering?	Siddhartha practiced living in extreme temperatures and places of danger; he slept on thorns and survived on very small amounts of food.
How did the demon Mara try to distract Siddhartha from gaining enlightenment?	Mara tried to distract Siddhartha by sending his daughters to seduce him; attacking him; sending his armies; offering control of his kingdom and questioning Siddhartha.
How long did Siddhartha's enlightenment take?	Siddhartha's enlightenment took place during 3 parts (watches) of the night.



TECHNICAL VOCABULARY	
Buddha	This is a title meaning 'awakened one' or 'enlightened one.'
Jakata	Popular stories about the life of Buddha.
Ascetics	People who live a simple and strict lifestyle with few pleasures or possessions. They are searching for spiritual wisdom.
Meditation	The practice of calming and focussing the mind.
Enlightenment	Spiritual wisdom that comes from understanding the true reality of nature.
Mara	A demon that represents spiritual obstacles and temptation.
Dhamma	The truth Buddha realised when he became enlightened.
The three marks of existence	Dukkha (suffering); Anicca (impermanence) and Anatta (nothing is permanent).
The four noble truths	These are dukkha (suffering); samudaya (cause of suffering); nirodha (suffering can end) and magga (there is a means to end suffering).
Arhat	A perfected person

After Enlightenment: Teachings	
What is the Dhamma?	Dhamma refers to the Buddha's teachings but is also about truth; training and universal 'law'.
What are the three refuges (or jewels) in Buddhism?	The three refuges (jewels) in Buddhism are the Buddha; the Dhamma and the Sangha (the Buddhist community).
What is the idea of dependent arising?	Dependent arising is the idea that everything arises in dependence upon conditions. It is shown as the Wheel of Life.
What does the Tibetan Wheel of Life show?	The Wheel of Life shows dependent arising as applied to birth, death and rebirth (samsara).
What are the three marks of existence?	The three marks of existence are suffering (Dukkha); impermanence (anicca) and having no permanent, fixed self or soul (anatta).
What are the 3 recognised types of suffering?	The three types of suffering are ordinary suffering (dukkha-dukkhata); suffering because of change (viparinama-dukkha) and suffering because of attachment (samkhara-dukkha).
How does anicca (impermanence) affect the world?	Anicca affects the world in the three following groups – living things; non-living things and people's minds.
What does the story of Nagasena and the chariot illustrate?	The story of Nagasena and the chariot illustrates that there is no fixed part to a person.
What are the Four Noble Truths?	The Four Noble Truths are- 1/ dukkha (suffering); 2/ samudaya (causes of suffering); 3/ nirodha (suffering can end) and 4/ magga (there is a way to end suffering).


**Suffering, causes and routes to happiness**




**The 3 poisons**

- Greed/desire shown by a cockerel.
- Hatred/anger shown by a snake.
- Ignorance shown by a pig.

The **threefold way** makes up the sections of the eightfold path. They are ethics; meditation and wisdom.





The Eightfold Path has 8 aspects that Buddhists practice and live by in order to achieve enlightenment. It is split into the threefold way and can be understood as a range of practices that should all be developed. They are: -

- Ethics – right speech; right action; right livelihood.
- Meditation – right effort; right mindfulness; right concentration.
- Wisdom – right understanding; right intention.

**How does a person become an Arhat?**  
 An arhat has overcome the main sources of suffering and has become enlightened so the cycle of rebirth ends and reach nibbana, this means that have followed and fulfilled the Eightfold Path.

# Child Development: Supporting Children to Play, Learn and Develop.

Physical needs that may impact on play, learning and development.	
What is a sensory impairment?	A sensory impairment would include a difficulty in seeing (visual impairment) or hearing (hearing impairment).
What are some possible impacts of visual impairments?	Motor skills can be affected; may not move towards things as they can't see them; won't be able to fully explore so won't develop concepts easily; may struggle to talk as can't copy lip movements of others; not able to make eye contact causes difficulties in social situations; can't see facial expressions clearly; maybe less independent.
What are some possible impacts of hearing impairment?	Discharge from the ears; posture issues; difficulties with reading and maths concepts; difficulty in speech as they cannot hear the sounds required to speak; restricted language can affect social development; can have low self-esteem.



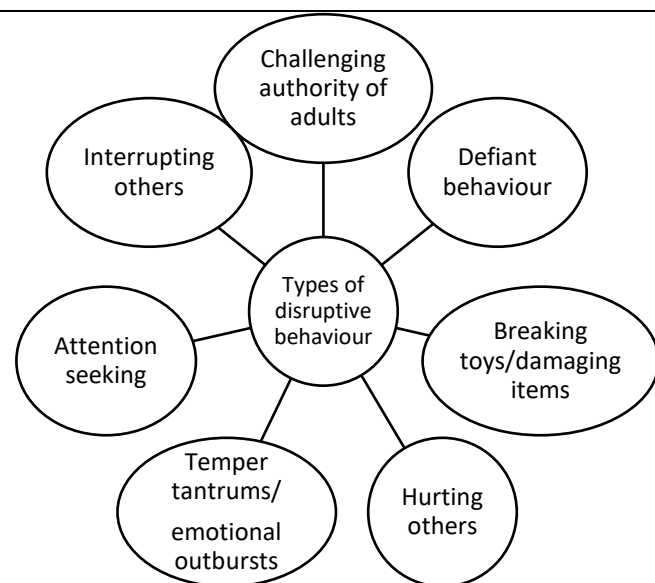
Cognitive and intellectual needs that may impact on play, learning and development.	
What are the possible impacts of poor concentration levels?	Can lead to disruptive behaviour; can talk a lot and interrupt others; can be restless or fidgety; won't persevere with learning skills; lose interest quickly; difficulties in paying attention, following instructions or completing activities.
Why do some children have difficulties remembering instructions?	Developmental disabilities (ADHD; autism; Down's syndrome); concussion or traumatic brain injury; medical conditions like epilepsy.
What are difficulties in problem-solving?	Some children find this difficult as they haven't reached their age milestones for cognitive development. Developmental conditions like Down's syndrome which can mean a lower cognitive ability. Other reasons could be trauma; birth injuries; mothers using drugs/alcohol during pregnancy.
What impact can delayed literacy skills have?	Children who are left-handed can struggle with writing- longer to form letters; learning difficulties; behavioural problems.

Communication and Language needs that may impact on play, learning and development	
What are the benefits of children learning English as an additional language?	Cognitive skills are developed if using more than 1 language; problem-solving and creativity skills; memory improves; can socialise with different people; closer bonds if have a shared language; links between language and culture/religion = self-identity/self-esteem.
What can be the negative impacts of learning English as an additional language?	Children in a setting where they don't understand the language may be frightened, they may feel different to others = low self-esteem. May take longer to settle in as they need time to learn the language; may lose their 'home' language; may have gaps in language or develop a speech delay.
How do we recognise speech delay?	A child may have a speech delay if at 3 years old they are hard to understand; don't ask for things by name; learn words but don't remember them; know fewer words than you'd expect. Delayed language can also come from medical issues; lack of stimulation or no opportunities to interact and learn language.

TECHNICAL VOCABULARY	
Delayed gross motor skills	Large movements of the body are not progressing as quickly as other children of the same age.
Delayed fine motor skills	Small movements of a child's hands and fingers are not progressing as quickly as other children of the same age.
Poor concentration levels	Children find it difficult to focus on what they are doing and/or focus for a long time.
Down's syndrome	A biological disorder which occurs during embryo development when cells are dividing, and an error occurs causing development delays.
Embryo	Stage of pre-birth when the egg has been fertilised.
Delayed literacy skills	A child's reading and writing skills are not progressing to expected milestones of their age and stage of development.
English as an additional language	English is not a child's first language, the first language is the one a child is exposed to from birth.
Positive role model	Someone who sets a good example.
Social norms and values	Attitudes and behaviours that are considered 'normal' in society.
Limited interaction	When a child has limited communication and contact with adults.

Social and emotional needs that may impact on play, learning and development	
What impact can limited interaction with adults have?	Children may have a lack of interest in things; may not learn how to join in and play with others; behave unacceptably to gain attention and do not develop language skills.
What impact can having poor awareness of social norms and values have?	May display inappropriate and unwanted behaviour in social situations and public places; difficulties concentrating or making friends; can be withdrawn and have low self-esteem.
Why do some children have difficulty forming bonds with adults?	Premature birth; Postnatal depression; a child's health or a parent/parents health and abuse. If a child has difficulty forming bonds with adults this impacts on play, learning and development.
What are the impacts on a child if they don't play?	Child will not know what they like or are interested in; find it hard to control emotions; unable to make friends or cooperate; won't learn how to use resources and equipment; won't progress in development; won't be able to adapt; can lead to anxiety and depression.
Why do some children have difficulties forming friendships?	May not have the skills – can't share or take turns; may not have formed bonds with adults making it difficult to trust and understand the needs of others; delayed language skills; English as an additional language; not tolerant of others; domineering; argumentative.

# Child Development: Supporting Children to Play, Learn and Develop.



TECHNICAL VOCABULARY	
Friendships	Relationships between friends.
Disruptive behaviour	Unwanted behaviour that disturbs and interrupts activities.
Transitions	Changes in children's lives.
Care or education providers	Settings that provide formal care/education for children – school for example.
Sibling	Brother or sister.
Significant family member	A close family member – parent, sibling or grandparent.
Family structure	The way in which a family is organised.
Expected milestones	Development that is expected at a particular age.
Initiate play	To start play.
Sustain involvement	Being involved for an extended period without interruption.
Perceived	Interpreting something in a particular way.
Isolate	Cause a person to be alone/apart from others.
Emotional resilience	A person's ability to adapt to stressful situations.

Social and Emotional needs that may impact on play, learning and development: transitions	
What can transitions bring to a child?	A new environment or a new relationship which can have different effects on different children.
How will children feel during transitions?	A range of feelings from excitement to stressed, anxious and nervous.
Why do children prefer things to stay the same?	Things being consistent helps children feel safe and secure- changes are unsettling.
How do children cope starting nursery/school?	Depending on age children may be nervous or excited; could suffer from separation anxiety; may cry; be clingy; ask lots of questions.
How do children cope with a new sibling?	This is a huge adjustment – many children are jealous or start to behave like a baby to gain attention (regression) may be aggressive and may try to hurt the baby or take their things.
How do family structures change?	Births; divorce; separation; death. Children may also move house or spend time at two different houses' Some children go into care and many children find adjusting to changes difficult.

<p><b>Possible impact of not meeting expected milestones: -</b></p> <ul style="list-style-type: none"> <li>- Unable to develop own ideas and make connections.</li> <li>- May not develop language and social skills.</li> <li>- Unable to understand concepts such as shape and colour.</li> <li>- May not learn to control movements.</li> <li>- Will not develop imagination and creativity.</li> <li>- Poor concentration, perseverance and memory skills.</li> </ul>
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<p><b>Possible impact of individual needs on physical learning and development: -</b></p> <ul style="list-style-type: none"> <li>- Unable to access learning activities at varying levels.</li> <li>- May not develop stamina.</li> <li>- May not develop friendships.</li> <li>- Unable to grasp small objects or manipulate materials.</li> <li>- May tire easily and not be able to sustain involvement in activities.</li> <li>- May be unable to navigate play areas and activities.</li> </ul>
<p><b>Possible impact of individual needs on cognitive development: -</b></p> <ul style="list-style-type: none"> <li>- May not understand rules.</li> <li>- Poor awareness of social norms.</li> <li>- May not be able to sustain attention.</li> <li>- May have difficulties taking turns; listening to others; sharing or being respectful.</li> </ul>
<p><b>Possible impact of individual needs on communication and language development: -</b></p> <ul style="list-style-type: none"> <li>- Difficulties with speaking and listening.</li> <li>- May not be able to make sense of information.</li> <li>- Play with others may be limited.</li> <li>- May lack confidence.</li> <li>- May not be able to build friendships.</li> </ul>
<p><b>Possible impact of individual needs on social and emotional development: -</b></p> <ul style="list-style-type: none"> <li>- May find cooperative play difficult.</li> <li>- May have poor emotional resilience.</li> <li>- May isolate themselves or be isolated by others.</li> <li>- May refuse or find it difficult to join in team or group activities.</li> <li>- May have limited expression of thoughts and feelings.</li> <li>- May find building positive relationships difficult.</li> <li>- May find it difficult to cope with change.</li> <li>- May have low self-esteem.</li> </ul>

# Sociology: Research methods.



Types of data
<p><b>Quantitative</b> – Statistical data that is in numbers and can be presented in tables and graphs.</p> <p><b>Qualitative</b> – Data that is in words and has lots of detail, helping to give context.</p> <p><b>Primary</b> – research information that sociologists have collected themselves – the researcher has more control over the data collected and can tailor it to exactly what they want but can be expensive and time consuming.</p> <p><b>Secondary</b> – information that has been collected by someone else for another purpose – cheaper/easier as it’s already available, but might not be exactly what is wanted and is often out of date.</p> <p><b>Official statistics</b> – from police, courts, hospitals or UK Census.</p> <p><b>Unofficial</b> – from charities or private companies (can be biased to suit purpose).</p>

TECHNICAL VOCABULARY	
Sampling	Choosing a small group of people from a larger population to take part in research.
Content analysis	A research method where texts, images, videos, or media are analysed to find patterns or themes.
Questionnaires	A set of written questions used to collect information from lots of people.
Interviews	A research method where a researcher asks questions face-to-face (or online/phone) to gain detailed answers.
Observation	Watching and recording people’s behaviour to see how they act in real situations.
Hypothesis	A testable prediction.
Mixed methods	Research that uses quantitative and qualitative methods together.
Quantitative	Research that uses numbers, statistics and data.
Qualitative	Research that uses opinions, feelings and experiences.
Pilot studies	Small trials carried out before the main research.

Pilot Studies
<p>A pre-test for the research so that you can practice the methods, to secure funding for research and to work out practical issues (time/cost). Less common with qualitative research, but essential to quantitative research to check questions.</p> <p>Potential issues with questionnaires:</p> <ul style="list-style-type: none"> <li>• Replies given were not what the researcher was hoping for.</li> <li>• Respondents didn’t feel comfortable answering sensitive questions straight away.</li> <li>• Questions may be misunderstood (unclear/ambiguous), or include unfamiliar terminology.</li> </ul>

Sampling
<p><b>Target population:</b> Group of people researcher wants to study.</p> <p><b>Sample:</b> Small section of the population selected for research purposes.</p> <p><b>Sampling frame:</b> List of potential participants e.g electoral role.</p> <p><b>Random sample:</b> Where everyone in the sample has the same chance of being studied.</p> <p><b>Systematic sample:</b> follows a specific rule to get an unbiased sample i.e. every 10<sup>th</sup> person on a register.</p> <p><b>Stratified sample:</b> divides sample frame into smaller groups – age, social class and then draws at random from these groups to increase representativeness.</p> <p><b>Opportunistic sample:</b> using the people who are available at the time.</p> <p><b>Quota sample:</b> including a certain number of people from certain groups to increase representativeness e.g 25% of sample must be under 30.</p> <p><b>Snowballing sample:</b> used for smaller groups who are difficult to access – the research uses one contact to introduce them to a second and so on.</p> <p><b>Unrepresentative sample:</b> only uses a specific group of people so can not be generalised to others outside of the study.</p>

Need to consider
<p><b>Reliability:</b> Can the research be repeated with different participants and gain a similar result? *Questionnaires tend to have highest reliability.</p> <p><b>Validity:</b> how accurate is the data that has been collected – how deep an insight does it provide? *Participant observation unstructured interview tends to have the highest validity.</p> <p><b>Representativeness:</b> Does the sample include a wide range of characteristics that are seen in the general population? If not, the results will be too generalised and therefore won’t answer hypothesis properly.</p> <p><b>Ethics:</b> the rules to follow so that a piece of research or the way it is conducted is morally right e.g. anonymity, confidentiality, informed content, protection from harm.</p>

**Content Analysis** – quantitative method used to analyse mass media, i.e. tally chart to measure the number and type of gender roles on TV adverts. Useful for measuring key themes show in the media e.g. media bias of reporting global events.



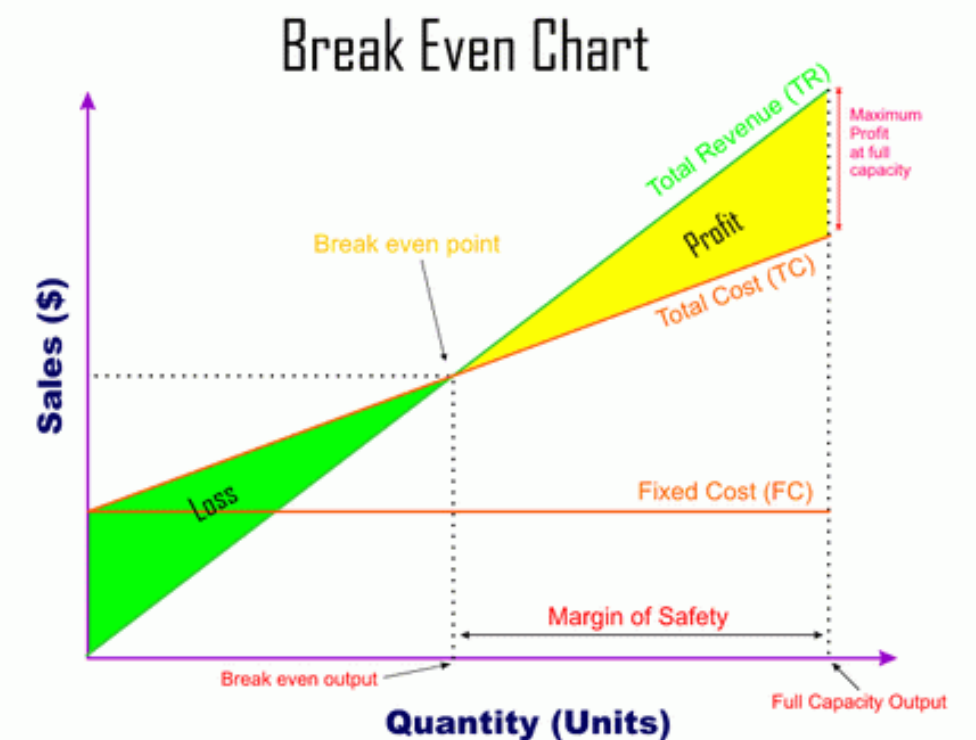
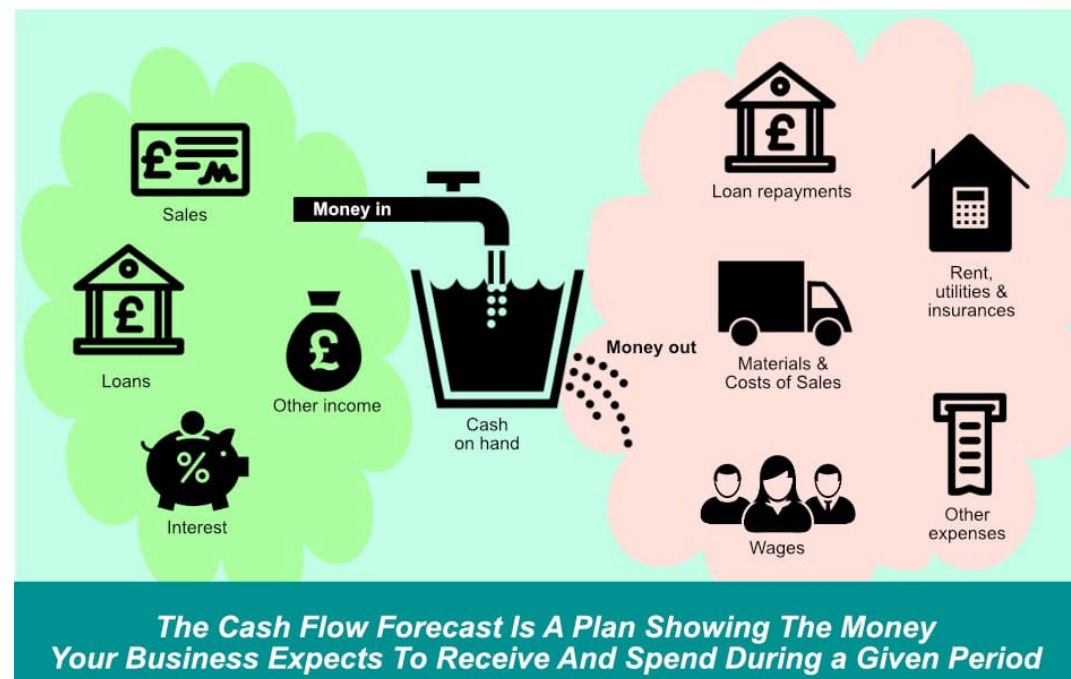
Questionnaires	Interviews	Observation
<p>Series of questions used to find out about an issue- most widely used research method.</p> <p><b>Closed questions:</b> one word answers or categories to tick.</p> <p><b>Open questions:</b> So respondents can develop their ideas.</p> <p><b>Advantages:</b> Generate large amounts of data; quick and cheap; respondents usually complete them independently no need for a team of interviewers.</p> <p><b>Disadvantages:</b> Questions can be interpreted in different ways or lack detail; can have a low response rate (particularly postage surveys).</p>	<p>Conversation between researcher and respondent.</p> <p><b>Structured interviews:</b> Prepared list of questions, which are standardised so all interviews are the same.</p> <p><b>Unstructured interviews:</b> no preplanned questions so can gain detail (high validity)- more difficult to repeat so less reliable.</p> <p><b>Semi-structured interviews:</b> Some pre-planned questions but also flexibility to adapt questions if needing to probe further.</p> <p><b>Trust rapport:</b> Build up of trust between researcher and respondent – important when talking to vulnerable people.</p> <p><b>BUT</b> time consuming and costly, interviewers need training.</p>	<p>Where the researcher observes the behaviour of a group.</p> <p><b>Overt:</b> Participants are aware that they are being observed.</p> <p><b>Covert:</b> Participants are unaware they are being observed- most sociologists prefer this as observations are likely to be more truthful.</p> <p><b>Participant:</b> Researcher interacts with the group being observed – but can become too involved/influence the group.</p> <p><b>Non-Participant:</b> Researcher observes from a distance BUT, studies are difficult to repeat, sample size is usually too small to be representative.</p>

Topic Formula	
Revenue	Number of Sales x Price
Total costs	Total Fixed Costs + Total Variable Costs
Gross Profit	Sales revenue – Cost of sales
Net profit	Gross profit – Other expenses
Interest	$\frac{\text{Total repayment – borrowed amount}}{\text{Borrowed amount}} \times 100$
Break-even Point in units	$\frac{\text{Fixed Costs}}{\text{Sales price – variable cost}}$

TECHNICAL VOCABULARY	
Medium	How an enterprise chooses to communicate with and advertise to its market
Promotional mix	The range of techniques used to communicate with current and potential customers. Advertising, public relations, direct marketing, personal selling and sales promotions.
Push Strategies	Push goods and services directly to the customer at the point of purchase. Making them aware of the brand.
Budget	Is the amount of money designated for a specific activity or period of time.
Assets	Items an enterprise owns. Includes property, machinery and cash.
Capital	Is the money, buildings and equipment that an enterprise uses in order to trade.
Start-up costs	The amount of money spent setting up a business before it starts trading.
Running costs	Are the fixed and variable costs that have to be paid to keep the business trading.
Cost of sales	Is the cost of producing the product.
Retained profit	Is profit earned and accumulated from previous trading reinvested back into the enterprise.
Net current assets	Are the difference between current assets and current liabilities. They show the value of the enterprise.
Liquidity	The ability of an enterprise to pay its debts
Trade Credit	Allows a customer to 'buy' things from a business without paying for them at the time. The money is paid back later in instalments.

Profit and loss Account
Sales revenue minus
Cost of Sales (raw materials, packaging, direct wages) ↓ Equals
Gross Profit ↓ minus
Operating Costs (salaries, rent, insurance, advertising) ↓ Equals
Net profit

Cash flow forecast



Y11 BTEC Sport HT5

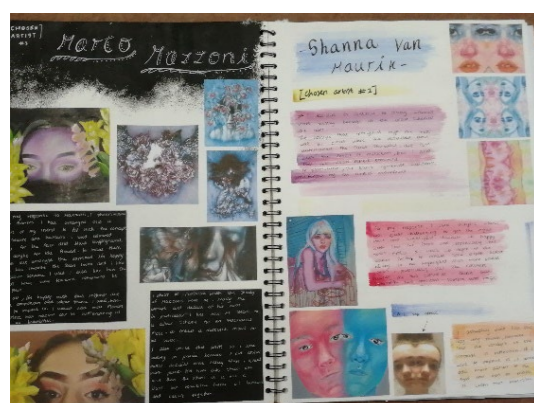
Examples of Fitness Tests	
Aerobic endurance	Multistage Fitness Test Yo-Yo Test Harvard Step Test 12 Minute Cooper Run
Muscular endurance	One-minute Sit-Up Test One-minute Press-Up Test Timed Plank Test
Muscular strength	Grip Dynamometer One Rep Max Test
Speed	30m Sprint Test
Flexibility	Sit and Reach Test Shoulder Flexibility Test
Body composition	Body Mass Index Bioelectrical Impedance Analysis Waist to Hip Ratio
Power	Vertical Jump Test Standing Broad Jump
Agility	Illinois Agility Test T-Test
Reaction time	Ruler Drop Test
Balance	Standing Stork Test Y Balance Test
Coordination	Wall Toss Test Stick Flip Test

Y11 BTEC Sport HT5

Methods of Training	
Aerobic endurance	Continuous Fartlek Interval Circuit
Muscular endurance	Free Weights (low weight, high reps) Resistance Machines (low weight, high reps) Circuit (low weight, high reps)
Muscular strength	Free Weights (high weight, low reps) Resistance Machines (high weight, low reps) Circuit (high weight, low reps)
Speed	Acceleration Sprints Interval Resistance Drills
Flexibility	Static stretching Dynamic stretching PNF
Power	Plyometric
Agility	SAQ
Reaction time	Sport specific reaction drills (reacting to starting gun or movement of an object)
Balance	Balancing
Coordination	Sport specific coordination drills (throwing/kicking/catching)

Assessment Taxonomy					
LIMITED	BASIC	EMERGING COMPETENT	COMPETENT & CONSISTENT	CONFIDENT & ASSURED	EXCEPTIONAL
Unstructured Clumsy Disjointed Minimal Elementary	Deliberate Methodical Superficial Unrefined Simplistic Tentative	Reflective Predictable Growing Control Broadening Endeavour Safe	Informed Purposeful Secure Engaged Skilful Thoughtful Cohesive	Advanced Convincing Comprehensive Focused Perceptive Refined Resolved Risk-taking	Accomplished Inspired Intuitive Insightful Powerful Extraordinary Unexpected Outstanding
1-12 marks	16-24marks	28-36 marks	40-48 marks	52-60 marks	64-72 marks

TECHNICAL VOCABULARY	
Response	A reaction (to the work of an artist)
Develop	To evolve, grow and improve
Experiment	To test (with different art media)
Annotate	Explanatory notes
Review	Evaluate
Refine	Improve
Primary source	Observed first hand
Composition	How objects, shapes and patterns are arranged
Analyse	To examine in detail
Resource	An aid to help develop ideas



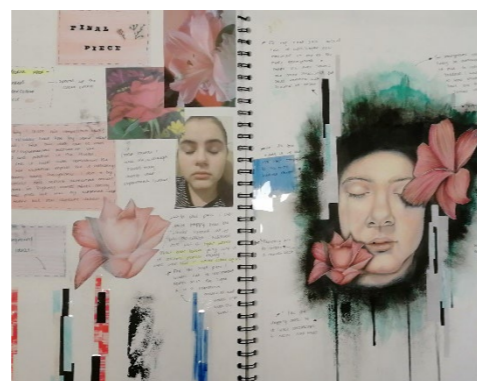
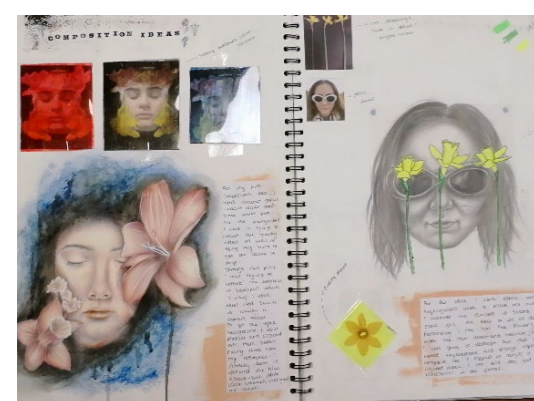
Week 6+7  
Artist responses



Week 8+9  
Use your own photos for lots of responses and composition ideas and then select the best to draw



Week 10,11+12  
Experiment with different media and colour choices.



Week 13/14  
Final choices and exam

It will be very important to keep up to date with the schedule and meet deadlines as once the timed exam piece starts you can no longer work in your exam book.

Your exam is worth 40% of your final mark and should be the best work you have done so far.

Week	Exam Sketchpad layout
1	Title page+ Spider diagram Initial Research
2	Initial research
3,4+5	Artist copies
6+7	Artist responses
8	Primary sources + compositions
9	Compositions
10,11 + 12	Experiment
12+13	Final choices

# Energy, materials, systems and devices– Knowledge organiser

<u>What</u>	<u>Definition</u>	<u>What</u>	<u>Definition</u>
<b><u>Turbines and generators</u></b>	Electricity we use mainly involves a rotating turbine which turns a generator. 1. Fossil fuels are burned to create heat which intern superheats water. 2. The steam is used to rotate the turbines which are linked to a generator. 3. Provide us with a supply of electricity.	<b><u>Solar energy</u></b>	
<b><u>Fossil fuels</u></b>	Most of the heat that we generate electricity in the uk comes from burring fossil fuels such as coal, gas and oil. These are <b>FINITE resources</b> as they formed over many millions of years and cannot be replaced as they will eventually be run out!	<b><u>Nuclear</u></b>	The process harnesses a nuclear reaction that takes place in a vessel. Control rods are moved in or out of the core to regulate the power. The reaction generates heat which superheats water and then generates power by driving turbines and generators.
<b><u>Shale Gas</u></b>	Shale gas is a natural gas that is trapped within areas of shale in the earth crust. Shale is a sedimentary rock that can be a rich source of petroleum and natural gas. <u>Fracking</u> is the controversial process of extracting this shale gas.	Energy storage	There are a number of ways to store mechanical power. In most mechanical products, it uses tension or compression.
<b><u>Renewable energy sources</u></b>	This is energy that comes from the planets non-finite resources is considered to be renewable. This includes wind, wave and tidal, hydroelectricity, geothermal and biomass and Solar energy.	<b><u>Pneumatics</u></b>	Form of compression is used to store gas or air under pressure – controlled via valves and pistons.
<b><u>Wind turbines</u></b>	1. Produce more power in the winter. 2. Do not produce power when it is not windy. 3. Can harm wildlife especially birds. 4. Some consider it to be an eye sore. 5. Has a term 'Nimbyism' – not in my back yard.	<b><u>Hydraulics</u></b>	The gas or air in a pneumatic system can be swapped for a liquid, the most common is oil. Used in breaking systems and lifting mechanisms.
<b><u>Solar energy</u></b>	The solar cell technology captures the sun's rays and converts them into electric energy. The cells only produce energy during the daytime and production is less in the winter months owing to the shorter daytime length.	<b><u>Kinetic energy</u></b>	Kinetic is energy involve in motion. Any object in motion in kinetic energy. Throwing a ball or a person walking in kinetic energy.
<b><u>Tidal energy</u></b>	Tidal is more reliable than solar and wind and more predictable. The difficulty is the environment/ where it can be located. This means distance from land, repair work and is it in a conservation area. It is also very expensive to build.	<b><u>Batteries</u></b>	Electronic power can be stored in batteries. Batteries contain electro chemicals that react with each other to produce electricity. They come in many different sizes and provide different voltages and power levels. Batteries contain cells. Each cell providing 1.5 volts.
<b><u>Hydro electric Power</u></b>	Hydro electric power (HEP) generation is a very reliable source of renewable energy. It has high initial set up due to the machinery and the land needs to be flooded to create a reservoir.	<b><u>Alkaline cells</u></b>	Alkaline batteries have a higher capacity for their size than traditional acid based batteries. Alkaline batteries tend to hold their charge well.
<b><u>Biofuel</u></b>	Production of Biofuel is becoming a way of producing energy for transporting and heating needs. Oil- and starch – producing crops are grown, harvested and refined into a number of products. This is biomass energy production. Biomass can also include wood chips and farm waste	<b><u>Rechargeable batteries</u></b>	These are available in different forms and is used in cordless products, phones, power tools portable speakers, laptops and tablets. These can be charged hundreds of times. These are more expensive than traditional batteries but they can be used, better on the environment and save you money down the long run.

# Energy, materials, systems and devices– Knowledge organiser

<b><u>What</u></b>	<b><u>Definition</u></b>	<b><u>What</u></b>	<b><u>Definition</u></b>
<b><u>Disposable Batteries</u></b>	These are the acid based and alkaline batteries. They need to be disposed of properly and not put in normal waste as they can poison the ground when berried – the acid will get into the water stream.	<b><u>Smart materials</u></b>	A smart material is material that can change depending upon the environment its in! Different situations/ causes
<b><u>Modern Materials</u></b>	Technology is constantly changing in ideas, size and material as well as manufacturing processes.	<b><u>Thermographic pigments</u></b>	Inks and dies react to heat by changing colour at different temperatures – for example a product will turn red when becomes to hot. These are used in thermometers, spray paints and children's toys.
<b><u>Corn starch</u></b>	Corn starch is biodegradable whilst the plastic we use aren't. The soil can break down the starch polymers and they are non toxic to the environment.	<b><u>Photochromic pigments</u></b>	Inks and dies react to levels of light by changing colour. UV light effect the changes in the pigment, the longer its exposed to UV the darker it becomes.
<b><u>Flexible MDF</u></b>	Made from wood pulp fibres – same way as MDF. It has grooves across the width of the board leaving 2mm in tact. This allows the board to flex. Very popular in architects models and organic/ curved furniture.	<b><u>Photochromic particles</u></b>	Mainly used in sun glasses. The particles enable the lens to darken when in sunlight. Classes will appear normal when indoors.
<b><u>Titanium</u></b>	Titanium is a versatile metal and alloyed with other materials to enhance properties. Pure titanium does not react with the body so it is used extensively for the medical industry for artificial joints, implants and surgical tools. Titanium has a high strength to weight ratio.	<b><u>Shape memory alloy</u></b>	They can remember their pre-set shape, they can deform and then return back to their normal shape. To do this they need heat or electricity.
<b><u>Fibre optics</u></b>	Allows digital information to travel at high speeds – pulses of light. Much more than copper wires. Inner glass core is slightly thicker than a hair. Used in telephone, internet and TV signals.	<b><u>Nitinol</u></b>	Nitinol is an alloy of nickel and titanium. To programme its shape it has to be heated to 540 degrees then allowed to cool. When it is heated to 70 degrees it will spring back to its normal shape
<b><u>Graphene</u></b>	This is a two – dimensional material is the thinnest discovered. A million times thinner than a human hair. It is transparent, flexible and stretchable and very conductive.	<b><u>Polymorph</u></b>	Polymorph is a non toxic and biodegradable polymer. Comes in granules. When heated to above 62 degrees it can be remoulded. Used for prototyping.
<b><u>LCD</u></b>	Used in electrical appliances. Low cost and low powered. There is monochrome and coloured variety. Monochrome use a single backlit which is just black. Coloured LCDs uses a variety of colours and each colour require different voltages.	<b><u>Quantum tunnelling Composite</u></b>	Designed to be a conductor or insulator. Designed to work when pressure is applied. The more pressure = less resistance. Less pressure = more resistance.
<b><u>Nanomaterials</u></b>	They are between 1 and 100 nanometres but could be up to 1000. These materials exist on an atomic molecular scale and is great for electronics and science.	<b><u>Piezoelectric material</u></b>	Material that produces an electric voltage when squeezed or put under pressure. Used in gas lighters.
<b><u>Metal Foams</u></b>	These are porous metals structure made from aluminium. Made from 25% mass of their comparative size. Light weight but still have the same strength properties and can be recycled. Created by injecting gas into the liquid metal.	<b><u>Litmus paper</u></b>	Paper that changes colour depending on PH levels.

Options for hospitality and catering provision(5.1)	
Advantages	Disadvantages
<b>Restaurant/bistros</b> <ul style="list-style-type: none"> <li>Can attract a wide range of customer</li> <li>Very successful in the right location, with competitive prices</li> </ul>	<ul style="list-style-type: none"> <li>A lot of competition</li> <li>Poor location can be detrimental to a business</li> <li>Rent and business tax can impact profit</li> </ul>
<b>Cafes and coffee shops</b> <ul style="list-style-type: none"> <li>Can be very lucrative if in a tourist area</li> </ul>	<ul style="list-style-type: none"> <li>A lot of competition</li> <li>Poor location can be detrimental to a business</li> <li>Rent and business tax can impact profit</li> </ul>
<b>Mobile roadside vans</b> <ul style="list-style-type: none"> <li>Many potential customers if in a busy location, can move location</li> <li>Low rent and costs</li> <li>A fast turnover of profit</li> </ul>	<ul style="list-style-type: none"> <li>Limited food preparation space and power</li> <li>Beholden to the weather</li> <li>Equipment needs to be moved and store everyday</li> </ul>
<b>Pubs and bars</b> <ul style="list-style-type: none"> <li>Long opening hours means more potential customers</li> <li>A good location with parking can attract customers from a wider area</li> </ul>	<ul style="list-style-type: none"> <li>Location and premises size may limit customer numbers</li> <li>Facilities may limit the range of food served</li> </ul>

Unit 1 LO5  
AC5.1-5.2

TECHNICAL VOCABULARY	
Material Costs	Food, drink, napkins, equipment etc..
Labour Costs	Staff wages, everyone connected to the business
Overhead Costs	Not connected to materials or labour- Rent, Water, rates
Variable costs	Changing prices of ingredients, seasonal differences in demand
Fixed Costs	Costs that always stay the same, rent and energy use
Gross Profit (PROFIT)	Money made when costs of food and drink have been deducted
Net profit	The amount of money made when all costs have been deducted
VAT	A tax added to goods and services, standard rate 20%
Demographics	Statistical info regarding population, age, gender, income
Trend	The general direction in which something is changing
Sustainable	Doing something in a way that maintains/ improves the environment

Considerations for starting up a catering provision(5.2)
<b>USP-</b> A brief explanation of how your establishment will be better than the competitors What features will make it stand out and attract customers
<b>Current trends-</b> <ul style="list-style-type: none"> <li>Healthy eating becoming more popular</li> <li>Vegans and vegetarians on the rise</li> <li>T.V chefs and cooking programs increasing the number of people who are cooking at home</li> <li>Popular ingredients and cultural food trends</li> </ul>
<b>Potential customer's-</b> Local surveys, market research, local businesses
<b>Promotion-</b> Advertising, website, online booking facility, opening party, promotional deals
<b>Financial plan-</b> How much the business will cost to set up and run. <ul style="list-style-type: none"> <li>Restaurant furniture, purchasing supplies, uniforms, kitchen equipment, website and IT equipment</li> <li>Staff wages, ingredients, insurance, advertising, training</li> <li>Business tax, rent</li> </ul>

Different Customer Needs (2.3)	
<b>Dietary Requirements</b> <ul style="list-style-type: none"> <li>Nutritional information is on the menu</li> <li>Nutritional information available on line.</li> <li>Choices for vegetarians and vegans</li> <li>Special dietary requirements, lactose and gluten intolerance</li> <li>Children's menu choices</li> </ul>	<b>Leisure requirements</b> <ul style="list-style-type: none"> <li><b>Sports Activities-</b> <ul style="list-style-type: none"> <li>Golf courses</li> <li>Walking</li> </ul> </li> <li><b>Outdoor pursuits-</b> <ul style="list-style-type: none"> <li>water park</li> <li>Theme Park</li> <li>Zip wire</li> <li>Climbing</li> </ul> </li> <li><b>Tourism-</b> <ul style="list-style-type: none"> <li>Stately homes</li> <li>Historical sites</li> <li>Areas of outstanding beauty</li> </ul> </li> <li><b>Facilitate</b> <ul style="list-style-type: none"> <li>Families- Accommodation to suite</li> <li>Children- A wide age range /offer kids clubs</li> <li>Individuals- single travellers</li> <li>Groups- hen and stag does</li> </ul> </li> </ul>