Minsthorpe Community College

Knowledge Organiser
Year 10 – Autumn Term 2

Name:

P&A group:

Knowledge Assessment: Thursday 18th December 2025 – Period 3

Vision

Minsthorpe Community College: A place where everyone plays a part in strengthening our learning community through **motivation, commitment** and **care**.

Motivation • Commitment • Care

Look

Look at the information carefully.
Read it three times.
It may help to **say** it as you read it.

Cover

Cover it with your hand or a piece of paper.

Write

Write it out from memory.

Check

Check what you have written matches the information exactly.
Have you got it correct?
If so, tick your work to show it is correct.

Correct

If it **doesn't match exactly,** use **a different coloured pen to correct it.**
Repeat.
When you get it 100% correct, move on to the **next** piece of information.

Subject: English	KPOW: Macbeth	Year 10: Autumn Term 2
Week 1: Act 3 Scene 1	**Week 2:** Act 3 Scene 2	**Week 3:** Act 3 Scene 4
Macbeth's Fears Banquo suspects Macbeth killed King Duncan: **Banquo: "I fear/ Thou played'st most foully for 't."** Macbeth is aware that Banquo is suspicious of him: **"Our fears in Banquo/ Stick deep"** • Fears Banquo will make his speculations public • He also fears that Banquo's descendants will be King, taking the throne from Macbeth, because of the prophecy **"thou shalt get kings"** Macbeth has the crown, but he is not satisfied by it: **"Upon my head they placed a fruitless crown/ And put a barren sceptre in my grip"** • Macbeth believes his position of power is not safe due to the threat from Banquo and his son • Adjectives "fruitless" and "barren" convey infertility, implying that his power is pointless because he feels he cannot hold on to it and pass it on an heir • His reign is illegitimate (unaccepted by God) and therefore futile and unsatisfying because he does not have the Divine Right to Rule Macbeth believes he has sacrificed everything for the crown for "Banquo's issue" (his son, Fleance): **"given mine eternal jewel to the common enemy of man"** • "eternal jewel" metaphorically symbolises his soul which he believes he has corrupted and given to the devil, for nothing • Macbeth arranges the murder of Banquo and Fleance in a quest to settle his anxieties.	Macbeth Shares his Fears Macbeth and Lady Macbeth both show regret, but Lady Macbeth hides hers from Macbeth: When alone on stage, Lady Macbeth says **"nought's had, all's spent. Where our desire is got without content"** • In private, she admits that she is not satisfied with the power she was desperate for • Antithesis of "nought" and "all" shows how much they have sacrificed to gain very little Macbeth speaks to Lady Macbeth about his mental torment: **"We have scorched the snake, not killed it"** • The metaphor of the "snake" which is only "scorched" (wounded) not destroyed means he needs to permanently eliminate the threat posed by Banquo. • Macbeth's mind is becoming more brutal; he is now the orchestrator of the murder of Banquo and Fleance, not his wife. He says to LM **"be innocent of the knowledge dearest chuck"** Macbeth feels his mind is corrupted by guilt and the evil act he has committed: **Oh, full of scorpions is my mind, dear wife!** • "Scorpions" are dangerous and poisonous creature showing how Macbeth's mind has been contaminated by evil, leading him down a further path of evil 	Macbeth's Banquet The First Murderer reports to Macbeth that Banquo is killed, but Fleance has escaped. During his banquet Macbeth's sees Banquo's ghost. **"Never shake/ Thy gory locks at me"** • The hallucination emphasises his deteriorating sanity • The vision is proof to the audience how evil acts will be punished by madness and that the evil deeds will continue to surface to haunt the perpetrator (in this case the Macbeths) Lady Macbeth tells the guests to leave because he is suffering from a life-long illness. Macbeth realises he is past the point of no return, morally: **"It will have blood, they say. Blood will have blood"** • Bloodshed leads to more evil acts, creating a vicious cycle of immorality • He knows he has to spiral into a murderous cycle to try to desperately secure power or be killed **"I am in blood stepped in so far that, should I wade no more, returning were as tedious as go o'er"** • The words "so far" show his realisation that he is so far in the metaphorical river of blood (signifying his evil) that he may as well keep going to protect his power as he is past the point of redemption (forgiveness) 

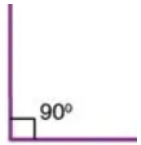
Subject: English	KPOW: Macbeth	Year 10: Autumn Term 2
Week 4: Act 4 Scene 1	**Week 5:** Act 5 Scene 1	**Week 6 & Week 7:** The End
Macbeth revisits the witches Because of his **insecurity**, Macbeth decides to seek advice from the witches. As Macbeth meets the witches, he calls them **"secret, black and midnight hags"** and says **"answer me to what I ask you"** • His imperatives suggest that Macbeth has lost all fear of the witches • He has failed to heed Banquo's advice and trusts the witches will tell him the truth about his future • His trust in the supernatural highlights Macbeth's moral corruption as he now heeds the advice of the witches that were though to conspire (plot) with the devil They give him 3 apparitions that he considers to be predictions about his future: 1. **"beware Macduff, beware the Thane of Fife"** 2. **"none of woman born shall harm Macbeth"** 3. **"Macbeth shall never vanquished be until Great Birnam Wood to high Dunsinane hill shall come against him"** • He believes no human can kill him given that every person has been birthed by a woman, failing to realise that they mean natural born • He naively believes that he is invincible as the witches have cleverly manipulated the predictions to make it seem as if he is invincible • They also tell him he is safe because forests nor castles walk. However, the army physically move the branches of the forest to the castle whilst camouflaging themselves They lead Macbeth to a false sense of security, leaving himself vulnerable as he doesn't think he needs to protect himself	Lady Macbeth Sleepwalks Whilst sleepwalking, Lady Macbeth has **"light by her continually".** • Light is used as a motif to symbolise heaven. This could suggest that she is desperately seeking redemption and God's forgiveness as she is afraid of the darkness of Hell  She says **"Out , damned spot! Out, I say!"** • Having visions of spots of blood on her hands • Blood is symbolic of the guilt she wants to be stripped of - wishes she could undo the murders She says **"Why then 'tis time to do't"** • The pronoun "it" is used as a reference to suicide • She knows that she is condemning herself to Hell as suicide was considered a sin in the Jacobean era • Proves destroying natural order will be unfulfilling She says **"All the perfumes in Arabia will not sweeten this little hand"** • Can never be stripped of the sin nor escape punishment in the afterlife • Ironic as she told Macbeth "a little water clears us of this deed" in Act 2 Scene 2 • "little" suggests that she knows she can never break natural order or escape the Jacobean perception (belief) of women being inferior	Act 5 Scene 5 As Macduff and the English Army march toward his castle, Macbeth is an emotionless vessel who does not seem to fear death: **"I have almost forgot the taste of fears"** • Inhuman and doesn't feel anything anymore as he has destroyed his conscience **"Out, out brief candle, Life's but a walking shadow"** • He has just heard his wife has died and thinks life is futile and pointless • Realises life is temporary and transient (short) and that no amount of power can last forever <u>The End</u> Macbeth comes face to face with Macduff who says, **"Turn hell-hound, turn"** • He is now considered to be synonymous with the devil because he is a sinner • "hound" is a dog - dehumanises Macbeth - his human morality has disintegrated- he is now evil **"I bear a charmed life"** • Feels invincible because of prophecies However, Macbeth is killed by Macduff as Macduff was **"from his mother's womb untimely ripped"** • Macduff was born by caesarean section • Witches manipulated their words as they meant that no man born naturally shall kill Macbeth **"dead butcher and his fiend-like queen"** • Once known for precision and skill on the battlefield, but this is contrasted by the noun "butcher" at the end suggesting he is barbaric Cyclical structure proves all traitors are punished and natural order is restored with the rightful King, Malcolm, being crowned

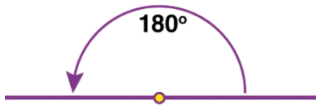
Subject: Maths | KPOW: Geometry | Year 10: Autumn Term 2

Week 1: Angles (F & H)

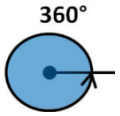
Angle facts

Angles in a right angle are 90°



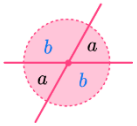


Angles on a straight line add to 180°



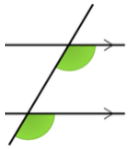
Angles around a point add up to 360°

Angles vertically opposite are equal.

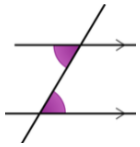


Parallel lines

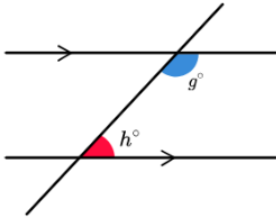
Parallel lines: Lines that are the same distance apart.



Corresponding angles are equal.



Alternate angles are equal.



Co-interior angles add up to 180°

$$g + h = 180°$$

Week 2: Bearings (F & H)

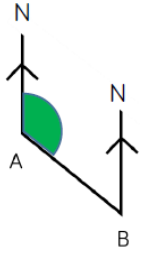
Bearings

Bearings are an angular measurement that describe a direction.

Bearings follow 3 rules:

1. Start from North.
2. Measured in the clockwise direction.
3. State the bearing using 3 digits.

This diagram shows the bearing of B from A.



Scale diagrams

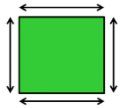
In scale drawings, all lengths are multiplied by the same scale factor so that they remain in the same proportion when the drawing is made smaller or larger.

The scale on a map shows how much bigger a real-life distance is compared to the measurement on the map

The scale can be written as a ratio e.g.
1 : 500 000 on the map mean 1cm is 500 000cm in real life.

Week 3: 2D Shapes (F & H)

Perimeter



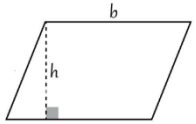
Perimeter is the length around a shape.
The units for perimeter are metres, centimetres, etc.

Area

Area is the space inside a shape.
The units for area are metres^2, centimetres^2 etc.

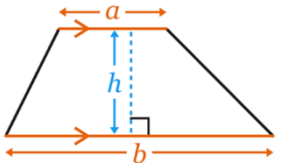
Area of a rectangle = length x width.

Area of a parallelogram = base x height.



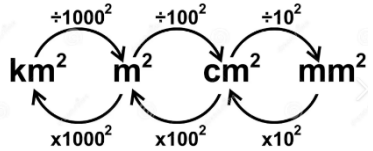
Area of a triangle = $\frac{base \times height}{2}$

Area of a trapezium = $\frac{(a+b) \times height}{2}$



Converting units of area

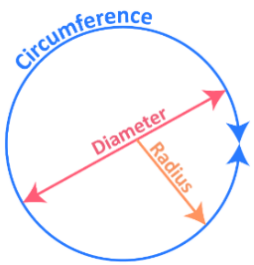
Area conversion = length scale factor^2



Subject: Maths

Week 4: Circles (F & H)

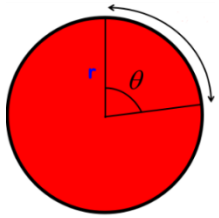
π is the ratio between the diameter and circumference of a circle.
It is approximately 3.14



Circumference

Circumference is the length around the circle.

Circumference = π x diameter.

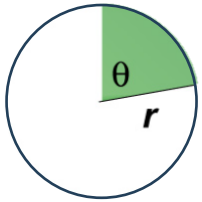


Arc: Part of the circumference.

Arc length = $\frac{\theta}{360} \times \pi \times diameter$

Area

Area of a circle = π x radius^2



Sector: A slice of the circle that is enclosed by two radii.

Area of a sector =

$$\frac{\theta}{360} \times \pi \times radius^2$$

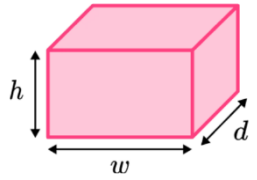
KPOW: Geometry

Week 5: Volume & Surface area (F & H)

Volume

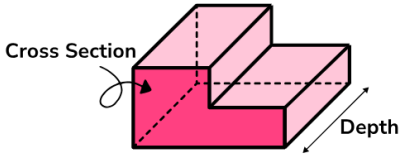
Volume is the space inside a 3D shape.
The units for volume are metres^3, centimetres^3 etc.

Volume of a cuboid =
Width x height x depth.



Prism is a 3D shape that has a congruent cross-section.

Volume of a prism = area of cross-section x depth.



Volume of a cylinder =
area of cross-section x depth.

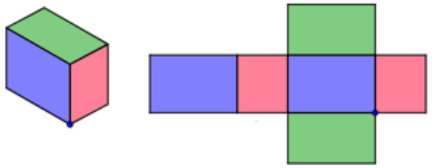
Formulae for the volume of spheres, cones and pyramids will be given in your exam.

Year 10: Autumn Term 2

Week 6 & Week 7: Volume & Surface area (F & H)

Nets

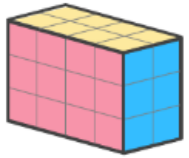
A net is a 2D representation of a 3D shape folded out.

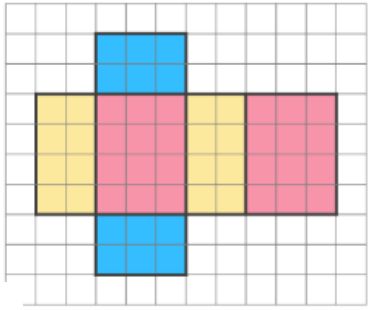


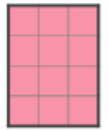
Cuboid

Surface area

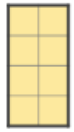
The surface area of a 3D shape is the sum of the areas of its faces.



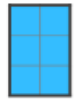




$3 \times 4 = 12$



$2 \times 4 = 8$



$2 \times 3 = 6$

The surface area of this cuboid is:

12 + 12 + 8 + 8 + 6 + 6 = 52 units^2

Subject: Biology

Week 1 & Week 2: Homeostasis & Response

Our body will maintain a constant internal environment in response to external stimuli, so that chemical reactions can work at their optimum.

To ensure that enzymes that control the chemical reactions can work at their optimum and don't denature, the following conditions are kept constant:

- Temperature
- pH

To ensure that cells do not gain or lose too much water by osmosis, the following conditions are kept constant:

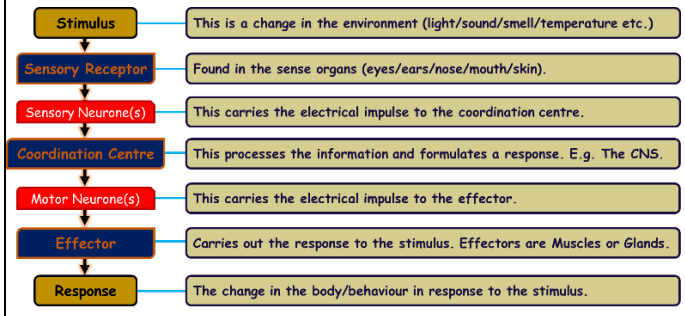
- Blood Glucose Concentration
- Water Concentration
- Ion Concentration

The Nervous System

The Central Nervous System (CNS) is made up of the brain and the spinal cord.

Our nervous system allows us to respond to stimuli (changes in the environment).

Voluntary responses follow this pathway:



KPOW: Reflex Arc

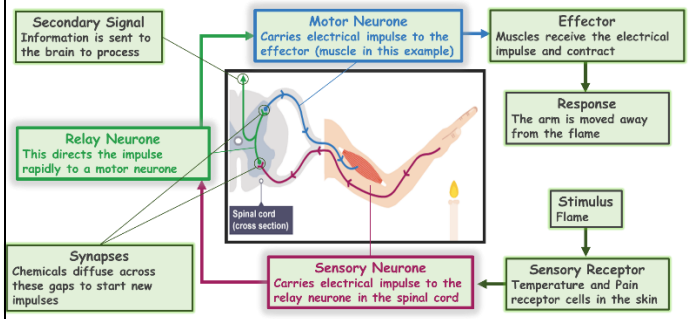
Week 3 & Week 4: Homeostasis & Response

Synapses are **gaps** between neurones, receptors and effectors.

Information travels across these differently compared to the electrical impulses of neurones:

1. Electrical impulse arrives at a synapse & causes the release of chemical transmitters.
2. The chemical transmitters diffuse across the synapse (gap) between the neurones.
3. The chemical transmitter stimulates a new electrical impulse to begin at the next neurone.

Reflex actions are automatic and do not involve conscious thought. **Reflex actions travel through the reflex arc:**



The Endocrine System

The endocrine system is comprised of **glands** which release **hormones** into the **bloodstream**, where they travel and affect **target organs/tissues/cells**, bringing about a response.

The **pituitary gland** is found at the base of the brain. It is known as the "**master gland**" because it stimulates other glands to **release hormones**.

Year 10: Autumn Term 2

Week 5, 6 & 7: Homeostasis & Response

The pancreas detects increases of blood glucose concentration and releases insulin. Insulin is a hormone that is produced in the pancreas and released into the bloodstream. It targets liver and muscle cells to absorb glucose and convert it into glycogen (this is how we store glucose).

(HT Only) When blood glucose concentration is too low, the pancreas detects the change and releases glucagon into the bloodstream. It targets liver and muscle cells to convert glycogen into glucose and release it into the bloodstream. This is an example of negative feedback.

Diabetes is an inability to control blood glucose concentration.

Type 1 Diabetes:

- The pancreas doesn't produce any/enough insulin.
- Insulin is injected before meals to control blood glucose concentration.

Type 2 Diabetes:

- The pancreas works normally. Liver & muscle cells do not respond to the insulin hormone.
- This type cannot be treated, only controlled with exercise and a low carbohydrate diet.

Hormones in Human Reproduction

Hormones control the menstrual cycle to release a mature egg cell every month.

FSH: Causes an egg to mature in the ovary.
Oestrogen: Repairs & thickens the uterus lining.
LH: Causes the release of a mature egg cell on Day 14.
Progesterone: Maintains the uterus lining, ready for implantation of a fertilised egg cell.

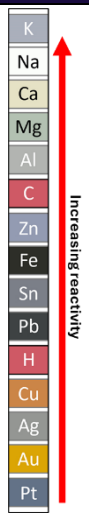
Subject: Chemistry

Week 1 & Week 2: Reactivity of Metals

Vocabulary: **Reactivity** – How easily a metal can form a positive ion.

The reactivity series – A list of metals with the most reactive at the top & least reactive at the bottom.

Knowledge: To determine the order of reactivity for different metals, they are reacted with (i) oxygen, (ii) water and (iii) dilute acids.



1. Equations for metals reacting with oxygen

General: Metal + Oxygen → Metal oxide

Word: Copper + Oxygen → Copper oxide

Symbol: $2Cu_{(s)} + O_{2(g)} \rightarrow 2CuO_{(s)}$

2. Equations for metals reacting with water

General: Metal + Water → Metal hydroxide + Hydrogen

Word: Sodium + Water → Sodium hydroxide + Hydrogen

Symbol: $2Na_{(s)} + 2H_2O_{(l)} \rightarrow 2NaOH_{(aq)} + H_{2(g)}$

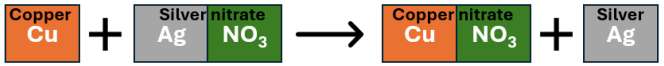
3. Equations for metals reacting with dilute acids

General: Metal + Acid → Salt + Hydrogen

Word: Zinc + Hydrochloric acid → Zinc chloride + hydrogen

Symbol: $2Zn_{(s)} + 2HCl_{(aq)} \rightarrow ZnCl_{2(aq)} + H_{2\,(g)}$

4. Equations showing displacement - a more reactive metal removes a less reactive metal from a compound.



Chemical tests. (i) Hydrogen: Place a light splint into a test tube, you will hear a squeaky pop if hydrogen is present. **(ii) Acids or Hydroxides:** To know if a solution is acid or alkali (like a hydroxide), add a few drops of universal indicator. Red - yellow = **Acid**. Blue - purple = **alkali**.

KPOW: Making salts

Week 3 & Week 4: Neutralisation

Vocabulary: **Neutralisation** – When an acid reacts with an alkali to produce a salt and water.

Knowledge: Acids are substances containing hydrogen ions (H^+), including Hydrochloric (HCl), Sulfuric (H_2SO_4) and Nitric (HNO_3) acids. Alkalis are substances containing hydroxide ions (OH^-) and include sodium hydroxide (NaOH).

General: Acid + Alkali → Salt + Water

Word: Hydrochloric + Sodium → Sodium + water
acid hydroxide chloride

Symbol: $HCl_{(aq)} + NaOH_{(aq)} \rightarrow NaCl_{(aq)} + H_2O_{(aq)}$

Changing the acid, changes the salt produced

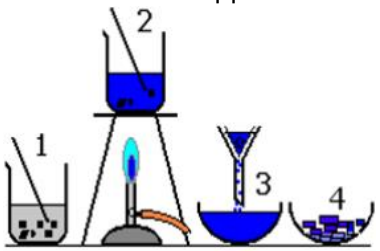
General: Acid + Alkali → Salt + Water

Word: Sulfuric + Sodium → Sodium + water
acid hydroxide sulfate

Nitric + Sodium → Sodium + water
acid hydroxide nitrate

Making copper sulfate crystals by neutralisation. In this reaction, copper oxide is the base (a solid that neutralises an acid) and the acid used is sulfuric acid. The salt produced is copper sulfate along with water.

Sulfuric acid + copper oxide → copper sulfate + water



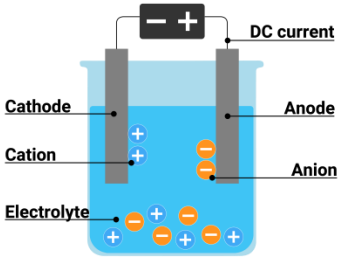
1. Copper oxide is added to sulfuric acid in excess (too much).
2. This is heated to speed up the reaction.
3. Unreacted copper oxide is filtered, and the copper sulfate product is collected. 4. The copper sulfate solution is heated and left to cool, allowing copper sulfate crystals to form.

Year 10: Autumn Term 2

Week 5, 6 & 7: Electrolysis

Vocabulary: **Electrolysis** – The breaking down of an ionic substance using electricity.

Knowledge: Ionic compounds are made from metal and non-metals ions. In a solid, these are held tightly in a lattice structure, the ions cannot move. However, when they are heated to high temperatures or dissolved in water, the ions become free to move. If an electric current is passed through the liquid or solution, charged ions move to the oppositely charged electrode.



Cathode: The negative electrode.
Anode: The positive electrode.
Cation: The positive ion.
Anion: The negative ion.
Electrolyte: A substance that conducts electricity when dissolved in water or molten, due to the presence of ions.

Example: Electrolysis of Molten Lead(II) Bromide ($PbBr_2$). When melted, lead(II) bromide breaks into positive Pb^{2+} ions (cations) and negative Br^- ions (anions). When electrodes are placed into molten $PbBr_2$ and an electric current is applied, the ions are attracted to electrode with the opposite charge.

- The **negative electrode** known as the cathode attracts the positive lead Pb^{2+} ions. Each Pb^{2+} ion gains 2 electrons from the electrode- this is known as reduction.
- The **positive electrode** known as the anode attracts the negative bromide Br^- ions. Each Br^- ion loses 1 electron- this is known as oxidation as electrons are lost.

Subject: Physics

Week 1 & Week 2: Forces

Any quantities we measure are classed as scalars or vectors.

- **Scalars** only have a **magnitude** (an amount of something). Examples include time, temperature, energy, mass, and speed.
- **Vectors** have a **magnitude** too, but applied in a certain **direction**. Examples include force, acceleration, displacement, and momentum.

Types of forces

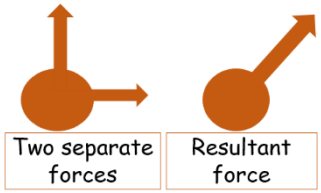
All the forces you will study fall into two categories:

- **Contact** forces, which need objects to be in contact with each other. This includes **friction**, air resistance, tension, and reaction forces.
- **Non-contact** forces, which can be applied whether the two objects are touching or not. This includes weight (**gravity**), the magnetic force, and the electrostatic force.

Resultant forces

When **two** (or more) forces are applied onto an object, the forces are resolved into one **resultant** (**overall**) force.

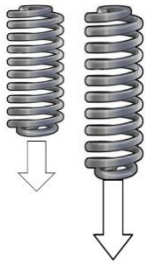
- Two forces going the **same** way would be **added** together.
- Two forces going in **opposite** directions would be **taken away** from each other.



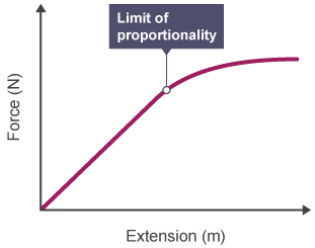
Assessments: Weeks 3/4

Week 3 & Week 4: Forces and Elasticity

Examples of elastic objects include springs, sponges or rubber bands. **Elastic** objects are objects which can be **deformed** (stretched, bent or compressed) by a force, but will **come back** to their **initial** shape when the force is removed.

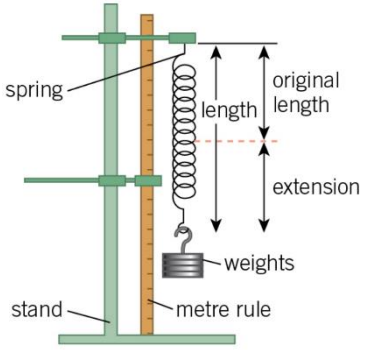


This is called **elastic deformation**. The **bigger** the force applied on the object is, the **more** the object extends (they are **directly proportional**). Once the **limit** of **proportionality** is reached, this relationship stops, and the object extends a lot more. After this point, it will **not come back** to its initial shape – this is called **inelastic deformation**.



Hooke's Law - Practical

To **investigate** how changing the force on a spring affects its extension, we can attach a spring to a **clamp stand** and gradually add more **weights** to it. After every weight, we must **measure** the **length** of the spring with a metre ruler and take away the initial length to calculate **extension**.



Year 10: Autumn Term 2

Weeks 5, 6, & 7: Motion Graphs

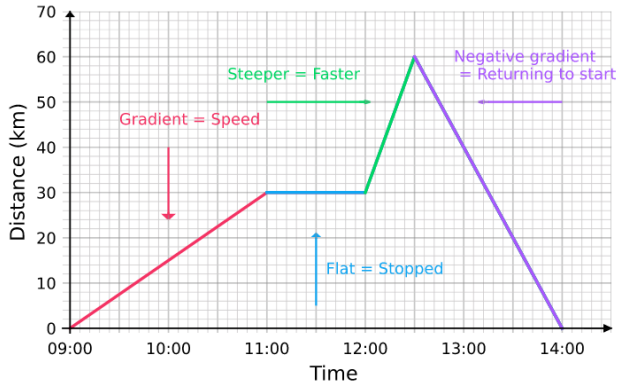
When studying moving objects, we must make the distinction between certain quantities:

- **Distance** (**scalar**) tells us how far an object has travelled, whereas **displacement** (**vector**) is a straight line from start to finish (including direction).
- **Speed** (**scalar**) tells us how fast an object is moving, whereas **velocity** (**vector**) also tells us which direction it is moving in.

You should **remember** the values of these typical speeds: **walking** (**1.5m/s**) / **running** (**3m/s**) / **cycling** (**6m/s**).

Using motion graphs

The graph below is a **distance-time graph**, it can be used to calculate the **speed** (gradient) of an object at different times. When using a **velocity-time graph**, calculating the gradient will give you the **acceleration** (rate of change of velocity over time) of the object.



Subject: Separate Science

Year 10: Autumn Term 2

Week 1 to 7: Biology – The Brain

The brain makes up half of the CNS (Central Nervous System) and is a coordinator in the Nervous System. It is made up of 4 main regions:

1. Cerebrum
   - Responsible for higher-level functions such as conscious thought, personality, language & verbal memory
2. Cerebellum
   - Responsible for muscle coordination, including balance, fluidity of movement and muscular activity.
3. Medulla
   - Responsible for unconscious activities such as heart rate, blood pressure, breathing rate, digestion & respiration rate.
4. Hypothalamus
   - Responsible for regulation, including hormone release from the pituitary gland, maintaining water balance and maintaining body temperature.

The Eye

Accommodation is the process of changing the shape of the lens to focus on near/far objects.

Near objects:

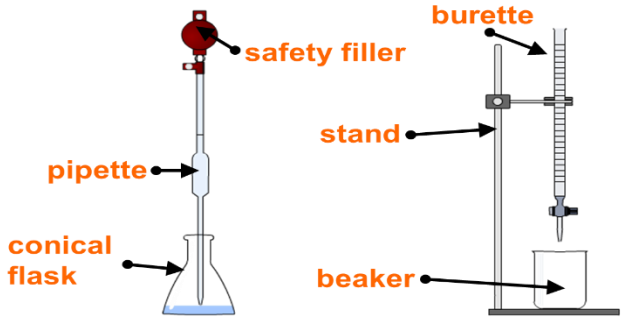
1. Ciliary muscles contract
2. Suspensory ligaments slacken
3. Lens becomes more curved
4. Light is refracted more

Far objects:

1. Ciliary muscles relax
2. Suspensory ligaments pull tight
3. Lens becomes less curved
4. Light is refracted less

Week 1 to 7: Chemistry – Titration

Vocabulary: Titration – a laboratory method used to determine the exact concentration of an unknown acid or alkali by reacting it with a solution of known concentration.



Below are the key pieces of equipment and what they are used for.

Safety filler: To safely fill a pipette with liquid.

Glass pipette: Measure a specific volume of liquid e.g. 25cm^3.

Conical flask: This is where the reaction takes place.

Burette: A graduated glass tube used for delivering known volumes of a liquid.

Method

1. **Rinse** burette with acid, pipette with alkali.
2. **Fill burette** with acid and record starting volume.
3. **Use pipette** to add 25 cm³ of alkali to conical flask.
4. **Add indicator** (e.g. phenolphthalein).
5. **Place flask on white tile** and slowly add acid from burette while swirling.
6. **Stop when colour changes** (end point).
7. **Record final volume** of acid used.
8. **Repeat** until you get concordant results (within 0.10 cm³).
9. **Calculate average volume** of acid used.

Week 1 to 7: Physics - Moments

A **moment** is the **turning action** of a force, measured in **Newton-metres** (Nm). A moment is created when a force is applied on a **pivot** (for example, a door hinge or a seesaw).

The size of the moment depends on **two** things:

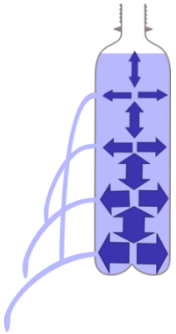
- What is the **size** of the force applied?
- How **far** from the pivot is the force applied?

This relationship is described by the following **equation**:

Moment = Force x Distance

Pressure in fluids

In a column of **fluid** (**liquid** or **gas**), the pressure **increases** with **depth**. This is because the further down you go, the more particles are pressing down onto you due to **gravity**, and a larger force causes **more pressure**.



The pressure also depends on the **density** of the liquid (a liquid that is **denser** will lead to a **higher pressure** – such as syrup compared to water).

This also leads to **upthrust** – the **upwards** force exerted by a liquid on a floating object.

Subject: French Foundation & Higher	KPOW: Media & Technology Writing	Year 10: Autumn Term 2
Week 1: Adjectives	**Week 2:** Feminine Nouns	**Week 3:** Masculine Nouns
cher (expensive) dangereux (dangerous) disponible (available) facile (easy) gratuit (free (of charge) inquiétant (worrying, disturbing) jeune (young) moderne (modern) populaire (popular) rapide (fast, quick) social (social) sûr (safe, sure)	L'application / l'appli (application, app) La clé (key) La communication (communication) La conversation (conversation) L'émission (TV programme) La génération (generation) L'influence (influence) L'informatique (computer science, computing) La jeunesse (youth) La ligne (line) La lumière (light) La santé (health) La sécurité security, safety) La technologie (technology) La télévision / la télé (television/TV) La vidéo (video)	L'adolescent / ado (teenager, adolescent) L'appareil (apparatus, device) Le blog (blog) Le danger (danger) Le dialogue (dialogue) L'écran (screen) L'expert (expert) Le film (film) L'influenceur (influencer) L'internet (internet) Le jeu (game) Le mail / un e-mail (e-mail) Le message (message) Le mot (word)
Week 4 : Masculine & Plural Nouns	**Week 5:** Infinitive Verbs	**Week 6 & 7:** Additional Verbs
L'ordinateur (computer) L'outil (tool) Le portable (mobile phone, laptop) Le réseau (network) Le selfie (selfie) Le shopping (shopping) Le site (site) Le SMS (SMS) Le streaming (streaming) Le téléphone (telephone) Le texte (text) Les médias (media)	acheter (to buy) chatter / tchatter (to chat) communiquer (to communicate) découvrir (to discover) diminuer (to lower, decrease) écouter (to listen to) enregistrer (to record, save) envoyer (to send) fabriquer (to manufacture, produce, make) jouer à/de + noun (to play + noun) marcher (to walk, work) partager (to share) poster (to post) protéger (to protect) regarder (to watch, look at) télécharger (to download) traduire (to translate)	utiliser (to use) voler / voler à … (to fly / steal from someone) recevoir (to receive) reçu (received) je / tu reçois (I / you receive) il / elle reçoit (he / she receives) on reçoit (we receive) suivre (to follow) suivi (followed) je / tu suis (I / you follow) il / elle suit (he / she follows) on suit (we follow)

Subject: French Higher	KPOW: Media & Technology Writing	Year 10: Autumn Term 2
Week 1: Adjectives	**Week 2: Feminine Nouns**	**Week 3: Feminine Nouns Countinued**
direct (direct) numérique (digital) puissant (powerful) technique (technical) directement (directly)	L'attaque (attack) La communauté (community) L'évolution (evolution) L'image (picture, image) La marque (brand, mark) La protection (protection)	La publicité / la pub (advert) La puissance (power) La réception (reception) La série (series) L'utilisation (use) La victime (victim)
Week 4 : Masculine Nouns	**Week 5: Verbs**	**Week 6 & 7: Verbs continued**
L'achat (purchase) L'appel (call) Le commentaire (comment, remark) Le consommateur (consumer, customer) Le contenu (contents) Le débat (debate) Le risque (risk)	allumer (to turn on) attaquer (to attack) casser (to break) se casser (to break a body part) cliquer (to click) diffuser (to diffuse, broadcast) harceler (to bully, harass)	inscrire (to write down) s'inscrire à + noun (to join / enrol in + noun) réagir (to react) recharger (to charge an appliance) renvoyer (to send back, resend) souffrir (to suffer) unir (to unite, join)

Subject: Geography

Week 1-3: Urbanisation & NEE City

Urbanisation is the **increase in the proportion** of people living in towns and cities.

Rio de Janeiro, southeast coast of Brazil (NEE)

Growth of Rio Rapid urbanisation is happening in many LICs/NEEs (it's much slower in HICs) due to:

- **Rapid rural-urban migration.**
- **High natural increase** (more births than deaths).

Rio is experiencing these along with some international migration.

Rio's Importance

Regional	National	International
Iconic sites like Christ the Redeemer and Sugarloaf Mountain = **jobs** in tourism.	Rio's **oil and gas sector** is a big part of Brazil's economy = **income & development.**	Rio hosted the Olympics, the FIFA World Cup = **income** from tourism.

Rio's Opportunities & Challenges

Opportunities	Challenges
• 97.1% literacy rate. • **Good healthcare system.** •Nearly 99% of residents have electricity. •**Tourism fuels economy.** •Oil is biggest export.	• Favelas (poor areas). • **Unemployment.** • Low education levels. • **Air pollution.** • Traffic congestion. • **Water pollution.** • Waste management.

Favela (slum) Improvement – Favela Bairro Project Success - A **site and service** scheme where the local authority provides land and services for residents to build homes. **Pacifying units** have reduced crime, and water, health and education facilities have been set up.

Failure – **Budget did not cover every favela**.

KPOW: Urban Issues & Challenges

Week 4-6: UK City - London Opportunities

London, southeast UK (HIC)

Growth of London.

- Roman times it was a good place for a port.
- After WWII, **migrants arrived from the Commonwealth** to help with rebuilding.
- EU expansion = economic **migrants from eastern Europe** arriving.
- Young people aged 20-30 arrive and start families.

London's Importance

National	International
• UK's capital city. • **Produced ¼ of UK's GNI in 2018.** • Excellent higher education (universities).	• One of the world's most important financial centres. • **Headquarters of many global companies**.

London's Opportunities

Social	Economic
• Diverse **cultural mix** – food, music, fashion. • **Recreation** – many parks. • Entertainment - **theatres**, clubs, museums, sports.	• Increased **employment opportunities** in finance, legal and other services.

Regeneration of London Docklands, east London

One of the main reasons for **decline** of the Docklands is that **container ships are too large** to get up the Thames – docks shut by 1980.

Regeneration began in 1981. **Canary Wharf**, a large financial centre, was created along with many new homes. The Docklands was also connected to the rest of London by train, including Crossrail in 2022.

Year 10: Autumn 2

Week 7: UK Challenges & Sustainable Living

London's Challenges

1) **Urban Sprawl** - the **city growing larger** into the countryside due to **housing shortages**. Has led to the growth of commuter settlements, where people live, but travel into the city for work.
Solution – develop housing on **brownfield sites.**

2) **Air pollution** – high volumes of road traffic, dense road networks and many high-rise buildings that trap the air **increase nitrogen dioxide** pollution.
Solution – public transport (TfL services, Crossrail) and promote cycling (**Super Cycle Highway**).

3) **Waste management** – More people = more waste. Around **¼ of London's waste goes to landfill**.
Solution – increase recycling rates to achieve the target of sending **zero waste to landfills** by 2030.

4) **Social deprivation** (inequalities) - although London has experienced economic growth, **housing, education, health, and employment** disparities are still found in many areas.
Solution – Local authorities continue to try and improve the **access to services for all.**

Sustainable Urban Living.

Features for creating a sustainable city include:

- ☑ Urban greening.
- ☑ Sustainable water supplies.
- ☑ Sustainable energy supplies.
- ☑ Sustainable transport systems.

BedZED, south London, is a sustainable housing community that incorporated all of the above features. For example, water recycling, waste recycling, car sharing, solar panels, allotments to name a few.

Subject: History	KPOW: Full USA Exam paper	Year 10: Term Autumn 2
Weeks 1 & 2: Popular Culture and Civil Rights	**Weeks 3 & 4:** President's Programmes/Feminism	**Weeks 5 & 6 & 7: The Origins of the Cold War**
The American Dream – the idea that anyone could succeed through hard work. After WW2, there was a huge rise in consumerism, encouraged through the building of shopping malls and 'buy now, pay later' schemes. **Popular Culture** – After WW2, parents wanted a better life for their children. Teenagers, young people with few responsibilities, had money for leisure activities. Adverts were aimed at them, but some believed the new rock and roll music was having a negative effect. **McCarthyism**- Republican senator, Joseph McCarthy, claimed there were over 200 communists working in the US government. He also accused Hollywood stars, including Charlie Chaplin. This was during the Cold War, so many Americans believed him. He lost support when he accused 45 army officers, without evidence. **Civil Rights Movement** – During the 1950s and 1960s. African Americans campaigned for Civil Rights – equal treatment for all. Led by individuals including Martin Luther King and Malcom X. Protests included: **Montgomery Bus Boycott -1955:** NAACP secretary Rosa Parkes was arrested for refusing to give up her seat. The NAACP then organised a boycott of the bus service, lasting nearly a year. This led to the Supreme Court banning segregation on buses. **Sit ins and Freedom Rides:** Students organised sit ins at cafes. African Americans would sit in the 'white only' sections and refuse to move. King and his followers also rode the buses, sitting in the 'white only' sections in states that refused to desegregate.Other campaigns targeted segregation in schools in the southern states. **In August 1963**, King spoke to 200,000 people in Washington with his **'I have a dream speech'.**	**The New Frontier:** Introduced by John F Kennedy. JFK wanted to make America a better, fairer place, by eliminating poverty and inequality, improving education and fighting unemployment. Introduced the CEEO – ensured people in federal jobs had equal employment opportunities. Increased the minimum wage from $1 to $1.25 and provided Social Security benefits for the elderly and unemployed. However, the minimum wage only helped those in work, he failed to increase funding for schools and by 1963, 4.5 million people were still unemployed. **The Great Society:** Introduced by Lyndon B Johnson. He continued JFK's work. He manged to pass the Civil Rights Act, increased the minimum wage from $1.25 to $1.40, provided major funding for schools and created Medicare to fund healthcare for the elderly and low-income families. However, many still lived in poverty, particularly African Americans. **The Feminist Movement:** Took inspiration from the Civil Rights Movement. The 1960 Status Commission identified women earned 60 percent less than men and 95 percent of managers were men! The Feminist Movement was inspired by a book by Betty Friedan called '*The Feminist Mystique*' . The National Organization for Women (NOW) fought to demand completely equal rights for women with some success: 1965: All married couples allowed contraceptives. 1969: California adopts a 'no fault' divorce law. 1972: Educational Amendment Act bans sexual discrimination in education. 1973: Roe v Wade – right to safe and legal abortion.	The Cold War was the conflict between the USA and the USSR after WW2. It is called a 'cold' war as the two sides never actually fought. One key issue was a difference in ideology: Communism vs. Capitalism **Communism = USSR.** Businesses are state owned; there are no elections and the government controls prices. **Capitalism = USA.** Businesses were privately owned; democratic elections are held regularly and there is a free market economy. **The Yalta Conference: February 1945** When Stalin (USSR), Roosevelt (USA) and Churchill (Britain) met, victory over Germany was inevitable. The focus was what would happen next. Despite their different ideologies, they managed to come to some agreements, such as Germany and Berlin would be divided into four zones, one for each of the Allied powers. (The Big Three, plus France). **The Potsdam Conference: July 1945** Hitler was defeated and the war in Europe was over, but the Grand Alliance was beginning to weaken. Roosevelt had died and been replaced by Truman. He had little experience with foreign affairs and was strongly anti-communist. He did not trust Stalin and did not tell him about the USA having an atomic bomb. Churchill had been replaced by Attlee, who wanted to focus more on Britain's recovery. Some areas of agreement, such as the division of Germany, remained, but there were disagreements on what should happen to parts of Eastern Europe, including Poland.

Subject: Hospitality and Catering	KPOW: Theory	Year 10: Autumn Term 2
Week 1 & Week 2: Unit 1.1	**Week 3 & Week 4:** Unit 1.1	**Week 5, Week 6 & Week 7:** Unit 1.2
Unit 1.1 Environmental factors 6Rs- Reduce/Reuse/Refuse/Recycle/Repair and Rethink= reducing the amount of high fat, salt and sugar on the menu, rethinking health, refusing to use anything but local seasonal produce and recycling and separating waste products Energy saving costs=such as cooking methods to use less electricity, washing laundry at a lower temperature. Compost heap in gardens for free fertilizer= re-using food waste to create a product to help new plants grow. Technology and media The hospitality industry uses technology in many ways- online bookings, contactless payments, menus and virtual tours, key card systems in hotels and climate control panels in rooms. Media can be used in many ways, some of these are positive or negative. There are 4 main types of media: Printed media= leaflets, newspapers Broadcast media= TV adverts, radio, podcasts Internet media=social media such as X, Instagram, Facebook or Snapchat Competitive media= direct competition from a similar trader i.e. two fast food places on the same street	Unit 1.2 Back of house layout Office kitchen- the head chef would use this for completing important documentation. Flight dishwashing system- a dishwashing unit where it is a conveyor belt system that takes the dirty pots in washes, dries and sends them out the other side. 2 sets of double doors- there are 2 sets of doors to a kitchen so waiters can go in one and out the other to avoid clashes and accidents. Dry store- a dry store needs to be free from moisture and usually contains dry goods such as pasta, rice, tins and biscuits. Fridge temperature- 0 to 5 degrees Celsius Freezer temperature- minus 18 to minus 24 degrees Celsius Hot holding area- this is the area of the kitchen where the food gets plated up by the chef and left under heat lamps for the waiters to collect and take out. Hot holding must be 63 degrees or above and not left for more than 2 hours- food then needs discarding. Chef's PPE- a chef must wear certain items of PPE (personal protective equipment) to keep themself protected and safe. These include- chefs hat, hair net and beard net, chef's whites- jacket, baggy loose trousers and non-slip shoes. Stock control and FIFO- stock control is calculating how much stock (food/drink) that has been sold and what needs re-ordering. FIFO- first in, first out- this means whatever items go in a fridge first must be the ones to be used up first.	Unit 1.2 Types of equipment in a kitchen:- Large scale- walk in fridges and freezers. Mechanical- anything that needs electricity to be powered like an electric whisk or blender. Small equipment- cutlery, mixing spoons, utensils. Cleaning and safety equipment- chemicals for cleaning the kitchen and wet floor signs. Customer service Good customer service makes people go back which leads to repeat business and a good business being able to grow. Factors that make a service good include:- - Respectful, polite staff - Knowledgeable staff i.e. they understand the menu and allergens and info on the dishes - Welcoming and warming - Approachable and friendly Front of house dress code -Typically black and white -Shirt and tie -Name badge -Trouser or skirt suit -Smart in general appearance -Men- clean shaven -Women- not too much make up -Hair: neat and tidy

Subject: Product Design | KPOW: Natural and Manufactured Timber | Year 10: Autumn Term 2

Week 1 & Week 2: Material Selection

Finishing Timbers, Defects and Sustainability.

Physical properties of timbers can be changed, such as **colour** and **texture**, by applying a **surface finish** to the wood. The way a timber looks can be altered through several methods: **Staining**, **varnishing**, **oiling**, **waxing**, **painting**, **laminating.**

Defects in Timber

Timbers can have natural defects that can alter the look and appearance of the wood.

Shrinkage - Occurs due to the timber losing moisture.

Splits - Occurs when wood shrinks and becomes dry.

Shakes - Cracks found in timber.

Knots - Broken off or cut branches that reveal exposed wood.

Fungal attack - Plant organisms known as fungi live on and attack the timber causing it to rot or decay.

Social and ecological issues

The term used to describe ecological and social implications of using timber is **'deforestation'**. Deforestation is when a clearing is made by chopping down trees.

It is possible to manage deforestation through **responsible** management of the forests. If more trees are planted than are cut, it is possible to minimise the impact.

Week 3 & Week 4: Life Cycle Analysis

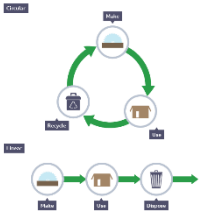
Cycle Analysis

In order to reduce **environmental** impact, an analysis is carried out to review different stages of the material or product's life cycle.

There are two different cycles:

Linear - ending with disposal, adding waste to landfill.

Circular - continuous and incorporate recycling to ensure materials and products are used repeatedly.



Life cycle analysis needs to be considered by the **designer**, the **manufacturer** and the **consumer** to reduce negative impact on the environment.

Timber Selection

It is important to know which material is suitable when designing and making a product. Designers and manufactures need to consider the following when choosing the correct timber.

- How it looks
- What it can be used for
- How it can be manufactured
- How it performs
- What properties make that the correct timber for the job.
- Environmental factors, (tree's absorb CO_2), wildlife habitats.
- Ethical responsibilities (high/low wages/working conditions)
- Cost factors

Week 5 & Week 6 & Week 7: Forces and Stresses

Reinforcing and stiffening

Forces act on materials all the time - even if a material appears stationary, it still has a force acting on it. There are five terms used to describe what type of force can act on a material:

Force	Meaning
Tension	Pulling force exerted by each end of an object such as a string or rope.
Compression	Being squashed.
Bending	A bending force is applied at an angle causing a material to be in compression and tension at the same time.
Torsion	A twisting force.
Shear	A force across a material, e.g. scissors cut by applying a shear force.

Timber has good **tensile strength** and **compressive strength** because of its **fibrous structure**. The strength of natural timber is dependent upon the wood type, the cross-sectional area and the length of the section. Timber, if untreated, does not have good bending qualities and often snaps when bent. If a piece of timber has to be bent to shape, there are a few options to help prevent it from snapping.

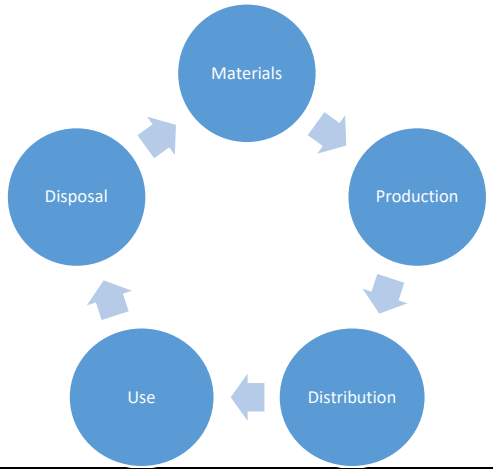
Tensile Strength – Resist pulling forces.

Subject: Textiles

Week 1 & Week 2

Titles: Environmental impact of textiles

Fast fashion: The rapid production of cheap, low-quality clothing that's designed to mimic current trends and be sold quickly, often at low prices.
Wet processes: The bleaching and dying of material during production.
Contaminated water: Polluted water from wet processes is often discharged into rivers.
Up cycled: Item is re-purposed (given a new job) and increases in value. (Both aesthetically and in money.
Changing society's views on waste:
Purchase quality products that last longer, don't follow fast fashion, upcycle rather than buy new, recycle unwanted items.
Life cycle analysis: Working out the total impact a product has on the environment by looking at each stage of its "life".



KPOW: End of topic test

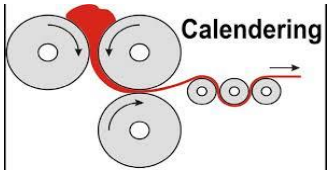
Week 3 & Week 4

Titles: Types of finishes applied to fabric

How finishes are applied to fabric=Mechanical (by machine). Chemical (adding chemicals or resins).

Reasons why finishes are applied to fabric= To improve aesthetics, to make it more comfortable, to improve function/performance.

Types of finishes



Calendaring: Fabric is passed under heated rollers at pressure to make it smooth and improve its lustre (glow).
Embossing: Fabric is passed through heated rollers with a pattern engraved on- the pattern becomes "stamped onto the fabric.
Mercerising: Swelling the cell wall of the cotton fibre which causes an increase in the surface area and gives the fabric more strength (functional) and lustre (aesthetic).
Brushing: The fabrics pass through rollers with wire brushes that lift the fibres & make them fluffy.
Stain resistance: A coating is applied to fabric to stop the absorption of water or dirt.
Waterproofing: Adding a silicone finish to prevent water from passing through the material.

Year 10: Autumn term 2

Week 5 & Week 6 & Week 7

Titles: Designer responsibility & forces/stress to material

Responsibility of designer/manufacturer

- To consider the environment when designing/making products.
- To consider the working conditions of people making products.

The impact of force & stress to material.

Fabrics are subjected to many forces when used in products.

Types of forces & stress that a material may have to withstand:

Force	Meaning	Product
Tension	Stretch a material and pull it apart.	Rope
Compression	Forces are directed towards one another.	Sofa
Shear	A force that acts in opposite directions (tearing).	Jeans
Flexibility	A force that bends without breaking.	Sports

Subject: GCSE PE	KPOW: Key topics	Year 10: Autumn Term 2
Week 1 & Week 2: Aerobic Respiration	Week 3 & Week 4: Anaerobic Respiration	Week 5, 6 & 7: Short term effects of exercise
Aerobic Respiration- When is it used in physical activity and sport? • Long duration. • Moderate pace, rather than intense pace. • When working at between 60% and 80% of your maximum heart rate. This is known as your aerobic training threshold. The process: Food from the foods that you eat that contain carbohydrates and fats are broken down into glucose. This glucose is then transported to the working muscles in the plasma of the blood. Oxygen from the air that we breathe in diffuses from the alveoli into the blood capillaries. It binds with the haemoglobin in the red blood cells and is transported to the working muscles. At the working muscles, the glucose and oxygen combine together. There is a chemical reaction and energy is formed. As well as energy, a waste product of carbon dioxide is created. This is then transported away in the plasma of the blood. Heat and water are also products of energy. Aerobic respiration equation- Oxygen + Glucose à Energy + CO2 + Water 	Anaerobic Respiration- When is it used in physical activity and sport? • Very short duration. • High Intensity. • When working at between 80% and 90% of your maximum heart rate. This is known as your anaerobic training threshold. The process Oxygen is not used in anaerobic respiration. Food from the foods that you eat that contain carbohydrates are broken down into glucose and stored in the muscles as glycogen. Fats cannot be stored in the muscles as glycogen. When anaerobic respiration is called upon, the glycogen breaks itself down to produce energy. The energy stored in the muscles is referred to as myoglobin. A waste product called lactic acid is also produced. This waste product is toxic and causes muscles to fatigue quickly and then cramp up. For this reason, this type of energy can only be used for short periods of time. After vigorous exercise, an athlete will breathe heavily. This is because oxygen is required by the muscles to break down the lactic acid into carbon dioxide and water so that it can be transported away in the plasma of the blood. This process is known as oxygen debt. Aerobic respiration equation- Glucose à Energy + Lactic Acid	Short term effects of exercise 1. Increased blood supply to the muscles. How this effect enables your body to meet the increased demands of exercise- More oxygen is transported in the red blood cells, more glucose is transported in the plasma, more carbon dioxide is transported away in the plasma. 2. Muscles become warmer. How this effect enables your body to meet the increased demands of exercise They produce more energy. 3. Muscle fatigue / cramp and Oxygen Debt. How this effect enables your body to meet the increased demands of exercise- Due to a build-up of lactic acid (muscle fatigue/ cramp), the breaking down of lactic acid after exercise into carbon dioxide and water occurs, so it can be transported away in the plasma (oxygen debt). 

Subject: GCSE PE

Week 1 & Week 2: Aerobic Respiration

When is it used in physical activity and sport

- Long duration.
- Moderate pace, rather than intense pace.
- When working at between 60% and 80% of your maximum heart rate. This is known as your aerobic training threshold.

The process

Food from the foods that you eat that contain carbohydrates and fats are broken down into glucose. This glucose is then transported to the working muscles in the plasma of the blood.

Oxygen from the air that we breathe in diffuses from the alveoli into the blood capillaries. It binds with the haemoglobin in the red blood cells and is transported to the working muscles.

At the working muscles, the glucose and oxygen combine together. There is a chemical reaction and energy is formed.

As well as energy, a waste product of carbon dioxide is created. This is then transported away in the plasma of the blood. Heat and water are also products of energy.

Aerobic respiration equation-

Oxygen + Glucose → Energy + CO_2 + Water

KPOW: Key topics

Week 3 & Week 4: Anaerobic Respiration

When is it used in physical activity and sport

- Very short duration.
- High Intensity.
- When working at between 80% and 90% of your maximum heart rate. This is known as your anaerobic training threshold.

The process

Oxygen is not used in anaerobic respiration.

Food from the foods that you eat that contain carbohydrates are broken down into glucose and stored in the muscles as glycogen. Fats can not be stored in the muscles as glycogen.

When anaerobic respiration is called upon the glycogen breaks itself down to produce energy. The energy stored in the muscles is referred to as **myoglobin**.

A waste product called lactic acid is also produced. This waste product is toxic and causes muscles to fatigue quickly and then cramp up. For this reason, this type of energy can only be used for short periods of time.

After vigorous exercise, an athlete will breathe heavily. This is because oxygen is required by the muscles to break down the lactic acid into carbon dioxide and water so that it can be transported away in the plasma of the blood. This process is known as oxygen debt.

Aerobic respiration equation-

Glucose → Energy + Lactic Acid

Year 10: Autumn Term 2

Week 5, 6 & 7: Diffusion and Gaseous Exchange

Diffusion

Gas moving from an area of high concentration to an area of low concentration.

If we have an area that is full of oxygen, the oxygen will move out of that area, into an area with less oxygen.

If we have an area that is full of carbon dioxide, the carbon dioxide will move out of that area, into an area with less carbon dioxide.

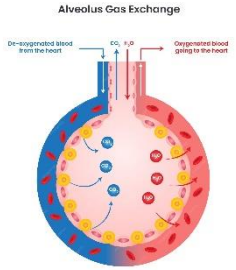
Gaseous Exchange

The movement of oxygen and carbon dioxide between the alveoli and the capillaries in the lungs.

Each alveoli is surrounded with blood capillaries.

Movement of Oxygen

1. When the alveoli is full of oxygen, from the air we have breathed in, it will diffuse into the blood capillaries.
2. It will then be taken off to the muscles and used for energy. It is carried in the red blood cells.



Movement of Carbon dioxide

1. When the blood capillaries are full of carbon dioxide, the waste product that has come from the muscle will diffuse into the alveoli.
2. It will then be breathed out

Subject: Computer Science

Week 1 & Week 2

CPU Architecture

Purpose:
Executes instructions and processes data.

Components:
ALU (Arithmetic Logic Unit): Performs calculations and logical operations.
CU (Control Unit): Directs operations of the processor.
Registers: Small, fast memory for storing instructions/data.

Von Neumann Architecture:
Instructions and data are stored in the same memory. Instructions are fetched, decoded, and executed.

Arithmetic Operators:

Addition	+
Subtraction	-
Multiplication	*
Division	/
Modulus (remainder)	%

Comparison Operators:

Equal to	==
Not equal to	!=
Greater than	>
Less than	<
Greater than or equal to	>=
Less than or equal to	<=

Selection

Definition: Choosing between different paths based on a condition. In programming, we use an IF Statement.

```
score = 77
if score > 75:
    print("Pass")
else:
    print("Fail")
```

KPOW: Topic 2

Week 3 & Week 4

CPU Performance

- Clock Speed: The number of instructions executed per second (measured in Hz).
- Cache Size: Cache stores frequently used instructions and data. It has a much faster access speed than RAM, but too much cache capacity can make it redundant.
- Number of Cores: Each core completes its own Fetch-Decode-Execute cycle. More cores mean more FDE cycles per second.

Embedded Systems

- A small computer system built into a larger device.
- They perform a single dedicated task or have limited functions.
- Low power, small in size, cost-effective.
- Examples are washing machine, microwave, vending machine, sat nav.

For Loops in Python

A for loop is a type of iteration. This means it repeats instructions a set number of times.

```
for i in range(5):
    print(i)
```

```
Python Interpreter
0
1
2
3
4
>>>
```

- The following code prints the numbers 0-4. i is a variable that increments by 1 every time around the loop. The first time around the loop i = 0 so that is what is printed. It continues to loop until it has done this 5 times (this was the range set up).

Year 10: Autumn Term 2

Week 5, Week 6 & Week 7

Operating Systems

An OS is software that helps to manage the resources of a computer system and provide the interface between the user and the computer.

The 5 main functions of the OS are:

- Provide user interface (GUI/CLI)
- Memory management
- File management
- User management
- Peripheral management

Utility Software

These are dedicated programs used to maintain and organise a computer system (also known as housekeeping).

- Compression – Software designed to make file sizes smaller. This can free up storage space or allow files to be transferred quicker. Lossy and lossless are both types of compression.
- Defragmentation – Over time, a hard drive can become fragmented. This means parts of a file have been split up and scattered around the hard drive. Defragmentation brings the parts of the files back together to allow quicker access to files and bring free space together, so new files are not split up.
- Encryption – Scrambles data into a format that cannot be understood unless you have the correct key.

Subject: Creative iMedia

Week 1 & Week 2

Primary research: Gathering data yourself from original and reliable sources.

Media companies who make products need to know what their users think of it. One way to gather this information is using **primary research.**

Research method	What is it?
Focus group	A small group gives opinions on the product.
Interviews	One person gives detailed feedback in a conversation.
Online surveys and questionnaires	People answer questions online to share their views.

Secondary research involves finding and using previously collected and published data about media products.

Source	What is it?
Books & journals	Written information from experts or past studies about similar products.
Internet sites	Online articles, blogs or reviews about media products.
Magazines & newspapers	Published opinions, reviews or trends in media.
TV programmes & online videos	Shows or videos that give insights into audience reactions or trends.

KPOW: Topic 2

Week 3 & Week 4

Graphics: Visuals like logos, icons, and backgrounds used to grab attention and support the product's style.

- **Icons** – used in apps to represent common functionality such as close, save or refresh.

- **Shapes** – used to create meaning, e.g triangles for warnings.

Typography: The design of text including font, size, and layout to match the product's tone and genre.

- **Bold** – helps text to stand out.
- *Italics* – draws attention to a word.
- Underline – highlights important words.
- UPPERCASE – suggest strength, also means shouting.
- SERIF – has a flick on the line of each letter.

SAN SERIF – doesn't have flicks on the letters.

Camera Techniques: How the camera is used to tell a story or create emotion.

Camera transitions are used to move from one scene to the other.

Camera shot types			
Long/wide	Close up	POV	Establishing
Medium	Full	Extreme close up	
Camera angles			
Low	High	Eye level	Over the shoulder
Hip level	Knee level	Dutch	Ground level
Camera movements			
Zoom	Track	Pan	Tilt
Transitions			
Dissolve	Cut	Fade	Wipe

Year 10: Autumn Term 2

Week 5, Week 6 & Week 7

Audio or sound is an important part of most adverts, films, tv programmes and computer games.

- **Dialogue** – speech between different characters.
- **Vocal intonation** – using different tones and pitches.
- **Music** – soundtracks in films, background music.
- Sound effects – breaking glass, galloping horses.

Animations are used across a range of media products such as films, computers games or tv programmes. They can be 2D or 3D.

Interactive products allow a user to get involved and directly engage in the product. Examples of interactive products include apps, touch screens, fast food kiosks and self-service checkouts.

Mind Maps: A quick way to plan ideas. They show how different parts of a media product connect, like themes, audience, and content.

Main parts of a mind map			
Central theme	Branches	Nodes	Sub nodes

Mood boards: A collection of images, colours, textures, and fonts that show the style or feel of a media product.

Main parts of a mood board			
Images/ graphics / photos	Colours	Typography / font styles	Textures / materials

Subject: Music

Week 1 & Week 2: Blues Music

Began in the **late 1800s** in the **USA**. It was created by **African American** people. It grew from **work songs** sung by enslaved people. It expresses **deep emotions, sadness & pain.** The word **"blues"** comes from the idea of **"feeling blue"**- meaning feeling sad. It was a powerful way for people to **tell personal stories** & **cope with pain, injustice and hardship**.

Slave Trade: Enslaved Africans were taken on ships carrying up to **600 people** for a **six-week journey** across the **Atlantic**. Conditions were **dirty, crammed & millions died** on the way. Survivors were **sold at auctions** & forced to work on **cotton & tobacco plantations** in the **Southern USA.**

Music became a way to **cope** with **suffering.**

Blues Sound

Improvisation: Artists used notes of the Blues scale to make up melodies on the spot.

Walking Basslines: A steady "walking" pattern that moves smoothly between notes.

Call and Response: Where the singer sings a phrase, and an instrument (response) answers back. This back-and-forth creates interaction and expression.

12-Bar Structure: Songs follow the 12-bar blues chord sequence (CCCC FFCC GFCC).

Instruments

Harmonica: Played with bends & slides to imitate vocals.

Guitar: Provides rhythm & melody.

Slide Guitar (Bottleneck): Guitarist uses glass/metal slide to create sliding notes that mimic vocals.

Piano: Adds rhythm and harmony.

Vocals: Soulful, expressive, and often improvised; singers bend and stretch notes to show emotion.

KPOW: Component 1

Week 3 & Week 4: Blues and Film

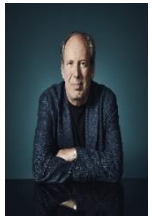
Robert Johnson

Born in Mississippi, 1911.
Known as the "King of the Delta Blues" and one of the most influential early blues musicians.
His style: emotional vocals, guitar with bottleneck slide, and use of the 12-bar blues.

Muddy Waters

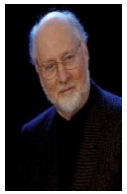
Born in Mississippi, 1913, later moved to Chicago. Known as the "Father of Chicago Blues" for electrifying the Delta Blues sound. His style: electric guitar, strong rhythms, and powerful vocals.

Hans Zimmer



Born in Frankfurt, Germany, 1957. One of the most famous modern film composers.
Famous for scores such as *Inception*, *The Dark Knight Trilogy*, *Gladiator*, and *Interstellar*.
His style: blends traditional orchestras with electronic sounds, creating huge emotional impact.

John Williams



Born in New York, USA, 1932.
Widely regarded as the greatest film composer of all time. Famous for scores such as *Star Wars*, *Indiana Jones*, *Jurassic Park*, *Harry Potter*, and *Jaws.*
His style: large orchestral sound, memorable themes, and use of leitmotifs (musical ideas linked to characters).

Year 10: Autumn Term 2

Week 5, 6 & 7: Film Music (1900s–Present)

Music which is composed to accompany a Film. Emerged in the early **20th century.** Designed to enhance emotion, atmosphere & storytelling. Famous composers include John Williams & Hans Zimmer.

Leitmotifs: Recurring themes linked to **characters, places, or ideas** (eg Darth Vader's theme in *Star Wars*).

Film Genres: Categories of films.

Music has **genres** (such as **Punk, Britpop & Blues** like you have studied). Films have **genres** which depict a category that share similar themes, styles & story elements.

Examples of Film Genres

Action – fast-paced, exciting music.
Horror – tense, creepy sounds to build fear.
Comedy – playful music to match funny scenes.
Romance – soft, emotional music for love stories.
Sci-Fi – futuristic sounds, electronic or orchestral.

Film Music Key Terms

Diegetic Music: Music that comes from within the film (e.g., a band playing in a scene or a song on the radio).

Non-Diegetic Music: Music added over the top that only the audience hears, not the characters (e.g., dramatic orchestral score in an action scene).

Pastiche: Music written in the style of another time, genre, or composer to create a certain atmosphere or reference (e.g., writing a piece that sounds like Mozart in a period drama).

Stinger: A sudden, sharp musical sound used to shock or surprise the audience (often in horror films).

Mickey Mousing: When music directly copies or exaggerates the action on screen, almost like sound effects (e.g., violins going up the scale as a character climbs the stairs).

Subject: Art

Year 10: Autumn Term 2

Week 1 & 2:

Keywords

Consumerism – The social and economic belief that the continuous acquisition of goods and services is essential for wellbeing. Pop Art engages with the idea of consumerism.

Observational – In Art, this refers to drawing something you can see.

Perspective – The technique used to represent three-dimensional objects and spatial relationships on a two-dimensional surface, such as a painting or drawing, to create a realistic illusion of depth and distance.

Collage – (from the French word for "to glue") is both a technique and a resulting artwork where different materials—such as paper, photographs, fabric, and other found objects—are arranged and adhered to a flat surface.

Week 3 & 4:

Secondary drawing

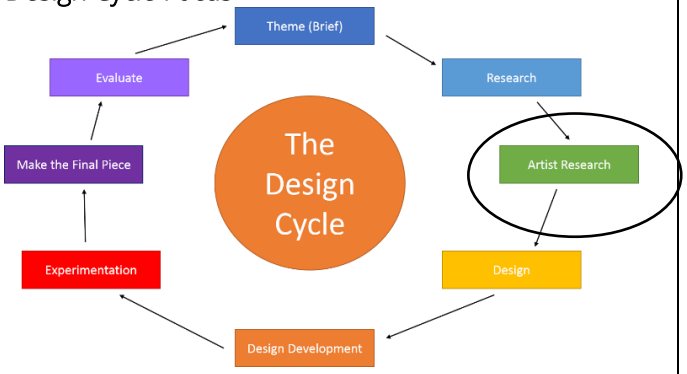
Secondary source – created by someone else.

A secondary drawing is created with the use of a secondary source, such as a photograph, image, or a work of art created by someone else, as the subject for a new drawing. This contrasts with a "primary drawing," where the artist draws directly from real-life objects, locations, or their own direct experiences.

•

Week 5, 6 & 7:

Design Cycle Focus



Artist Research

Artist research is crucial to develop your own creative ideas, techniques, and artistic understanding by investigating how other artists work, their methods, and the inspiration behind their pieces. The purpose is to gain knowledge that directly influences and helps refine your personal project, leading to a more informed, unique, and meaningful final response that demonstrates critical understanding and personal style. We can also use companies and cultures as a contextual reference for our research too.

Subject: Performing Arts – Acting	KPOW: Production Roles	Year 10: Autumn Term 2
Week 1:	**Week 2:**	**Week 3:**
The role of the Actor Is to portray a character in a performance, whether it's on stage, in a film, television, or in a radio production.  • Audition for roles • Learn Lines • Good communication and listening skills • Punctuality and reliability • The ability to interpret and analyse roles • The capacity to work well in teams • Network • Versatile skill set	The role of the Director In theatre, a director is the creative visionary who shapes and guides the entire production.  • Analyse a script • Develop a vision by deciding on the overall style, tone and mood of the play • Cast Actors • Plan and facilitate rehearsals • Collaborate with the production team • 'Block' the performance by determining where Actors will move and stand on stage	The role of the Costume Designer Is responsible for creating the visual appearance of characters in film, television, theatre, by designing costumes.  • Work with the production team to understand costume requirements • Research costume styles, materials, location and time period • Produce designs by hand or using design software • Create costumes and accessories • Hire costumes and fit, alter and repair outfits
Week 4:	**Week 5:**	**Week 6 and Week 7:**
The role of the Set Designer They design and oversee the construction of sets, backdrops, and props.  • Work well in a team • Problem solving • Work well under pressure • Excellent verbal communication • Computer skills • Maths and budgeting skills	Rehearsal Process A structured series of practices where actors, directors, and other production staff work together to refine a performance before opening night.  • Audition • Casting process • Hiring production staff • Read through script • Rehearsal schedule • Blocking • Technical and dress rehearsals • Performance	Types of Stage Proscenium Stage: A traditional sage featuring a large, rectangular stage framed by a proscenium arch, separating the audience from the performance space. Thrust Stage: The stage extends into the audience on three sides.  Black Box Stage: A minimalist space, typically a large square or rectangular room with black walls and floor. In-the-Round Stage: In this configuration, the audience sits on all sides of the stage,

Subject: Religious Education

Year 10: Term Autumn 2

Week 1 & Week 2: Key Words

Please learn the definitions of the following 12 words:

Monogamy	Marriage to one person only.
Sacrament	An outward ceremony through which God's grace is given.
Procreation	To create new life.
Cohabitation	To live together as a couple without being married.
Homosexuality	Being attracted to the same sex.
Family Planning	Controlling the number of children you have and the intervals between their births by using contraception.
Promiscuity	Sex with lots of people with no commitment to any of them.
Pre-marital sex	Sex before marriage.
Nuclear family	Mum, dad and children living as a unit.
Extended family	When 3 generations of the same family live in the same house or in close proximity, and have frequent contact.
Blended family	When step-brothers and sisters become one family when their divorced parents marry.
Divorce	To legally end a marriage.

Week 3 & Week 4: Sexual Relationships

Please read and learn what the phrase 'sexual relationships' could refer to:

Christianity teaches that sex is a gift from God to be enjoyed between one man and one woman who are married to each other. Sex was given to humans by God for pleasure, joy and the bonding of a married couple.

Types of sexual relationships:

Adultery	This is when a married person has sex with someone other than who they are married to.	
		Jesus condemns adultery in all 4 Gospels, meaning adultery is seen as a sin.

Pre-marital sex	This is when two people who are not married have sex.	
		The Bible teaches that pre-marital sex, referred to as 'fornication,' is sinful.

Homosexuality	An attraction to the same sex	
		It is written in the Bible, 'You shall not lie with a male as with a woman, it is an abomination.' Some interpret this to mean that homosexuality is wrong.

Weeks 5-7: Gender Equality in the Family

Please learn these key facts below:

There are different Christian views of the equality of women within the family.

Roman Catholic Views:	
	They teach that men and women should have completely equal roles in life and the family: St Paul taught that husbands should love their wives as Christ loved the church' (Ephesians).

Liberal Protestant Views:	
	They have the same view as Roman Catholics because: In the Bible, it describes how Jesus treated women as his equal e.g. he preached in the court of women in Jerusalem.

Traditional Protestant Views:	
	They believe men and women have separate and different roles, men lead the family in religion, women raise the children: This is because in Genesis 2, Adam was created before Eve, suggesting different roles.

Subject: Health and Social Care	KPOW: RO35 Coursework	Year 10: Autumn Term 2
Week 1: Health promotion campaign	**Week 2:** Health Promotion campaign	**Week 3**: Health Promotion Campaign
Planning campaign materials: **Planning:** What is the key information from Autumn 1's learning that will promote smoking cessation (stopping smoking)?  **Communication:** **Verbal**: Clarity, pace, volume, pronunciation & appropriate language. **Non-verbal**: Body language, facial expressions, positioning & space, gestures. **Written communication**; SPAG, professional language & use of key terms.	Delivery of health promotion campaigns **Safety:** Minimising risks, sensitivity to the audience and protecting the rights of individuals. **Communication:** Verbal and non-verbal communication **Methods to engage target audience**: Activity, film, quiz and/or demonstrations. Feedback methods: Asking questions, questionnaires and witness testimonies.	Evaluation using self-reflection, peer and teacher feedback **Strengths and weaknesses in**: 1. Planning 2. Communication 3. Engaging others **Suggested improvements to;** 1. Increase understanding 2. Increase engagement
Week 4: Introduction to RO32 – Settings	**Week 5**: Rights of service users	**Week 6 and Week 7**: Benefits of maintain rights
Health Care **Purpose:** 1. Provides medical care 2. Preventative screening 3. Treatment **Settings:** Walk-in centre, dentist, GP/Doctor, Health Centre, Hospital, Nursing home, Pharmacy, Optician Social Care **Purpose:** 1. Provides care in people's homes 2. Support services 3. Practical help with daily living **Settings:** Homeless shelter, Food Bank, Day Centre, Community Centre, Support Group, Retirement/Residential Home, Social Services.	Mnemonic – "Careful Choices Consistently Protects Everyone" **Choice –** service providers must include service users in **decisions** about their care, e.g. choosing what activity, what meal or what treatment they want. **Confidentiality –** keeping personal information **safe and secure**, in a locked cabinet or password protected. Conversations should take place in **private**. **Consultation –** service users must be **involved** in decisions made. Information should be shared so the service user can make an **informed decision**. **Protection from abuse and harm –** includes **protecting** service users so they are not harmed from other people as well as health and safety issues, e.g. fire evacuation or food hygiene. **Equal and Fair Treatment –** ensuring **everyone has equal opportunities;** it is not about treating them the same, but **meet the individual needs** of the person.	Mnemonic – "Everyone Has a Nice Time" **Empowerment –** relates to the **control** a service user feels they have over their life. It should make them feel like they have more **independence** and are more able to **make choices.** **High self-esteem –** having confidence in yourself. Service users will feel more valued and more respected leading to positive mental health and improved self-esteem. **Service users' needs are met –** maintaining rights leads to better information sharing which can improve the quality of care; if needs are met then the service users should get improvements in their physical and mental health. **Trust –** trust is developed between service users and service providers if their rights are supported; it will keep them reassured that they will be safe from harm and have more confidence in their care.

Home Learning Schedule

Week A Day	Subject to Learn	Week B Day	Subject to Learn
Monday	English	Monday	Maths
Tuesday	Science	Tuesday	Science
Wednesday	Option Subject A	Wednesday	Option Subject B
Thursday	Option Subject C	Thursday	Option Subject E
Friday		Friday	

Home Learning is set every **Monday** and will be submitted in **P&A Time** every **Monday.**

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