BOURNEMOUTH SCHOOL

Year 9

Knowledge Organiser 6

Summer Term: 2024-25

Name: Master Copy

Registration Form: 9

✓Hard Work ✓Discipline ✓Smart Appearance ✓Respect

Bournemouth School

Knowledge Organiser 6: Year 9 Summer

'Knowledge is power' by Francis Bacon

A knowledge organiser provides you with all the most important knowledge you need for each unit of study this half term. Your aim is to transfer all of this information into your long-term memory so you can use it in your lessons and further expand your understanding of this work.

How to use your knowledge organiser (KO):

1. Ensure you have your KO and Homework Learning journal with you at all times in school and when you need to do your homework at home.
2. In lessons when you have covered information that appears on your KO, your teacher will ask you to put a tick next to that section. This means that is now added to what you must learn for homework.
3. Initially, follow your homework timetable to decide what to revise each evening.
4. There are 4 strategies that you can use to revise. They are progressively more challenging so always start with the first in the list.
    a. **Look Cover Write Check**
        i. Identify the subject and section of your KO that you want to revise. This should be one of the ticked sections.
        ii. LOOK carefully at the subject and section of your KO you want to revise and try to remember as much as you can. Remember this should be a ticked section.
        iii. Now COVER this information so you can't read it.
        iv. WRITE out what you can remember word for word in your Homework Learning Journal.
        v. CHECK what you have written by comparing it to your KO. Tick each correct word in green pen and correct any errors you have made.
        vi. Repeat this process until you are confident you can remember everything you need.

        AIM:

        You should be able to repeat the information by rote
    b. **Self or peer quizzing**
        i. Identify the subject and section of your KO that you want to revise. This should be one of the ticked sections.
        ii. Write out a list of questions you could ask either yourself or a friend about this section of the KO. Write these in your Homework Learning Journal.
        iii. If you are working on your own, cover the KO and write a full answer to each question.
        iv. If you are working with a partner swap books and copy down their questions and have a go at answering them.
        v. Now uncover the KO and with a green pen correct your work.

        AIM:

        You should be able to repeat the information by rote but with a good understanding

c. Playing with words and sentences

i. Identify the subject and section of your KO that you want to revise. This should be one of the ticked sections.
ii. You now want to check how well you have learnt the information in your KO.
iii. Definitions – look at words that are used in this section. Can you write a definition in your own words?
iv. Rephrasing – can you rewrite the sentences or explanations in your own words?
v. Summary – can you summarise the main points of this section of the KO?
vi. Synonyms – can you write synonyms for key words and ideas?
vii. New Sentences – can you write a sentence that includes the key vocabulary or definitions that you have learnt?

AIM

You should be able to use the information in your KO in a flexible and confident way in your writing.

d. Think it, Link it

i. This is a technique to use towards the end of the half term when you are revising all of the KO.
ii. Think of the links or connections between different sections of your KO.
iii. Write these out in your own words in your Homework Learning Journal.
iv. Think about the links between a particular section of your KO and what you have learnt in your lessons. Can you expand on this section by linking it to your wider knowledge?
v. Write this out in your Homework Learning Journal.

AIM

You should be able to link your homework and your lessons to show a confident understanding of the work covered.

Homework Learning Journal

1. Always write the subject and the date when you start your homework.
2. Always write the strategy that you are going to use for your homework.
3. Always use a ruler to underline titles and dates.
4. Use a blue or black pen to complete your homework or a pencil if you need to draw.
5. Use a green pen to complete corrections of your work.
6. **You are expected to complete half a side of your Homework Learning Journal each evening as a minimum.**

Checking:

Your tutor will check your Homework Learning Journal at least once a week. If they are concerned that you aren't doing your homework properly they will offer support and guidance. If you don't respond to this guidance you will be added to the afterschool 'Success club' where a member of staff will help you complete your homework.

DO NOW tasks:

At the start of every lesson you should expect a Do Now task. This is a low stakes retrieval quiz on what you have learnt so far. If you have completed your homework this should be easy. The aim is to get 100% in each of these. If you miss this target occasionally, don't worry. If it happens regularly your teacher will ask your tutor to have a chat and offer you support.

Maths:

Your teacher will set you tasks to complete on Dr Frost Maths. This will be set every week on a Monday and will be collected in and checked on a Friday. If this has not been completed you will be issued a Detention on a Wednesday Lunchtime.

How long should I spend on my homework?

Key Stage 4					
Week 1					
Time	Monday	Tuesday	Wednesday	Thursday	Friday
5 mins	MFL	MFL	Physical Activity	MFL	MFL
10	Maths	English		Maths	English
10	Biology	RS		Chemistry	Physics
10	Option C	Option D		Option A	Option B
55	Reading / Revision	Reading / Revision		Reading / Revision	Reading / Revision
Week 2					
Time	Monday	Tuesday	Wednesday	Thursday	Friday
5 mins	MFL	MFL	Physical Activity	MFL	MFL
10	Maths	English		Maths	English
10	Biology	RS		Chemistry	Physics
10	Option C	Option D		Option A	Option B
55	Reading / Revision	Reading / Revision		Reading / Revision	Reading / Revision

- You should spend about 35 minutes revising your KO each day.
- You should spend 25 minutes either reading or revising each day.
- This timetable is a guide. If you want to spend longer revising one subject that you find more difficult and less time on one you find easy, that is your choice.
- We would like you to spend one evening involved in a physical activity. This might be a sports club, a run, a game of football with friends or just a nice walk with the dog. Ask your PE teacher if you need guidance with this. It doesn't have to be on a Wednesday.
- In the summer term you will complete end of year assessments. Your teacher will give you specific revision activities to complete to guide you in what you need to revise for these tests. This will include all of your KOs for the year but may include some additional resources.

A01 Key elements of an Artist research page

- ❑ A background linked to the artist
- ❑ Title
- ❑ Written analysis using **WHAT WHY HOW USE** format
- ❑ Images of the artists work
- ❑ Transcription/ Pastiche
- ❑ Your opinions- **PLUS MINUS INTERESTING** points

A02 Experimenting and taking creative risks

Term/ Keyword	Definition/ explanation	Tick
Tracing	When tracing use light pressure to create fine lines that are easily hid by drawing or painting on completion of work.	
Graphite transfer	Using a graphite pencil to shade the back of the image you want to transfer, place on top of a clean piece of paper then draw on top of the image to create the transfer.	
Light box	A lightbox is a artist aid to help one tracing more easily.	
Gridding	The grid method is a technique used in art that involves dividing an image into a series of smaller, more manageable sections using a grid.	
Mixed media	Mixed media describes artwork in which more than one medium or material has been employed.	
Graphite powder	Powdered graphite is the same graphite that pencil leads are made of, only ground into fine powder. You can "paint" it on paper with brushes to make watercolour-like "wash" effects, smooth textures, and cloudy backgrounds.	
Indian ink	Indian ink is a simple black or coloured ink once widely used for writing and printing and now more commonly used for drawing and outlining	
Surface textures	Textured surfaces can be created using a multiple of different materials, some may include thick layering of paint, also preparing the surface with poly filler, sand, PVA and tissue paper, newspaper and much more.	
Mount board	Mount board is a thin white, black or coloured card that artwork is placed inside for decorative purposes. Using an art frame mount presents artwork professionally, creating a clean and crisp finish.	
Water colour paper	Watercolour paper is a versatile surface which has a degree of absorbency that allows transparent colour to appear its most luminous. Watercolour paper is not only for use with watercolour paints – it can also be used for acrylics, gouache, pastels, pencils, graphite, charcoal, and it can also be primed for oil.	
Pastiche	Pastiche is an artistic work in a style that imitates that of another work, artist, or period.	

B4b Respiration

Types of respiration		✓
Term	**Definition**	
Respiration	A chemical process in all cells that releases energy from glucose	
Aerobic respiration	Respiration that uses oxygen to release large amounts of energy from glucose, occurs in the mitochondria.	
Anaerobic respiration	Respiration that does not use oxygen and releases less energy from glucose, occurs in the cytoplasm in muscle cells	
Oxygen debt	The amount of extra oxygen the body needs after exercise to react with accumulated lactic acid and remove it from the cells.	

Respiration equations		✓
Aerobic respiration	Glucose + oxygen → carbon dioxide + water $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$	
Anaerobic respiration (muscles – animals)	Glucose → lactic acid	
Anaerobic respiration (plants + yeast)	Glucose →carbon dioxide + ethanol	

Effect of exercise		✓
Effect	**Reason**	
Increased heart rate	To deliver more oxygen and glucose to the cells and to remove waste carbon dioxide	
Increased breathing rate and breath volume	To obtain more oxygen from the air and to remove more waste carbon dioxide	

An increased heart rate provides the body with more **OGRE**

more **O**xygen
more **G**lucose
more **R**espiration
more **E**nergy released

Metabolism is the sum of all the reactions in a cell or body, including:		✓
1	Conversion of glucose to starch, glycogen and cellulose	
2	Formation of lipids from fatty acids and glycerol.	
3	The use of glucose and nitrate ions to form amino acids which are turned into proteins	
4	Respiration	
5	Breakdown of excess proteins to form urea for excretion.	

Methods of motivation		☑
Financial	**Non-Financial**	
Salary	Fringe benefits	
Wage	Management style	
Commission	Training	
Profit sharing	Greater responsibility	

The importance of motivation in the workforce		☑
Staff retention	Good customer service	
High productivity	Higher levels of sales	
Improved recruitment and selection		

Definitions		☑
Motivation	The will to complete a task	
Fringe benefits	Extra benefits that an employee may receive beyond their pay, for example a company car.	
Salary	An annual payment to employees usually paid monthly.	
Wage	Payment to employees calculated by how many hours they work.	
commission	Payment made to an employee based on a sale or goal	
Profit sharing	Where a percentage of the companies profit is divided between employees	
Authoritarian	A management style where managers make decisions alone, without consulting staff	
Democratic	A management style where managers allow the workforce some influence over decision making	
Paternalistic	A management style where managers make decisions but only after consultation with staff	
Laissez-faire	Managers allow workers to perform tasks as they see appropriate.	

Types of training undertaken by businesses				☑
Type	Definition	Advantage	Disadvantage	
On the job	Training given in the workplace where they are shown and can practice the skill. Such as work. shadowing	Cost effective Precise to the business requirements	Provided by colleagues so there is a risk of passing on bad working practices	
Off the job	Training provided away from the place of work.	Learn skills that are not currently held at their workplace	Expensive Risk the newly trained employee will leave	
Induction	Introduction of a new employee to the workplace and will include health and safety and company procedures.	1. New employees will feel confident and achieve early high productivity. 2. New employees will feel valued 3. Effective in their new job role	N/A	

The importance of training the workforce	☑
Increased productivity	
Ability to deal with changes in technology	
Increased motivation	
Staff retention	
Production of high-quality goods	
Good customer services	

Examples businesses and appropriate training methods		☑
Practical skills required such as using technology such as a till.	On the job	
When the skill isn't related to a specific task such as management skills	Off the job	
Any new employee	Induction training	
Qualifications required such as accountancy	Off the job	
Poor financial position	On the job	
Low skill level of existing employees	Off the job	

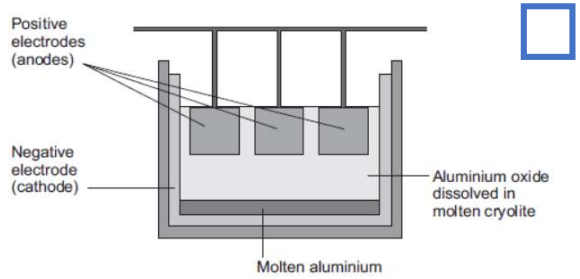
Chapter 4b – Chemical Changes

Keyword	Learn	Tick
Displacement Reaction	A more reactive element displaces a less reactive element from a compound containing the less reactive element.	
Native metal	Unreactive metal found in the Earth's crust as the uncombined element.	
Ore	Rock containing enough of a metal to make it economically worthwhile to extract.	
Oxidation	Gain of oxygen / loss of electrons e.g. $Mg \rightarrow Mg^{2+} + 2e^-$	
Reduction	Loss of oxygen / gain of electrons e.g. $Cu^{2+} + 2e^- \rightarrow Cu$	
Electrolysis	The process of splitting up ionic compounds using electricity.	

Extraction of Aluminium

Carbon electrode needs replacing as it reacts with the oxygen produced to form CO_2.

Aluminium oxide is mixed with molten cryolite to reduce the melting point.



$Al^{3+} + 3e^- \rightarrow Al$ $\quad 2O^{2-} \rightarrow O_2 + 4e^-$

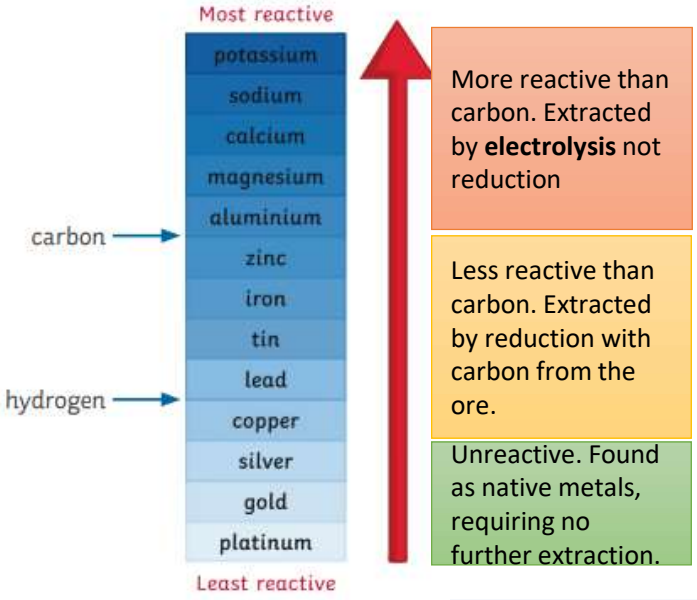
General Reactions of Metals

Metal + oxygen → metal oxide

Metal + water → metal hydroxide + hydrogen

Metal + acid → salt + hydrogen

The Reactivity Series



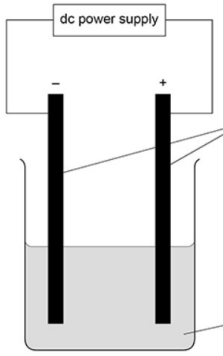
More reactive than carbon. Extracted by **electrolysis** not reduction

Less reactive than carbon. Extracted by reduction with carbon from the ore.

Unreactive. Found as native metals, requiring no further extraction.

Electrolysis

Ionic substances only conduct electricity when molten or in aqueous solution, as the ions are free to move and carry charge.
Positively charged ions are attracted to the negative electrode.
Negatively charged ions are attracted to the positive electrode.
This is because **opposite** charges **attract**.
When **positive** ions reach the negative electrode, they **gain** electrons: **reduction**.
When **negative** ions reach the positive electrode, they **lose** electrons: **oxidation**.

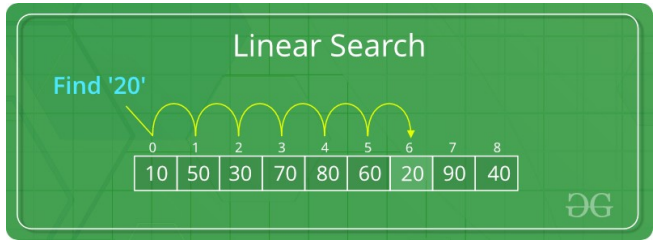


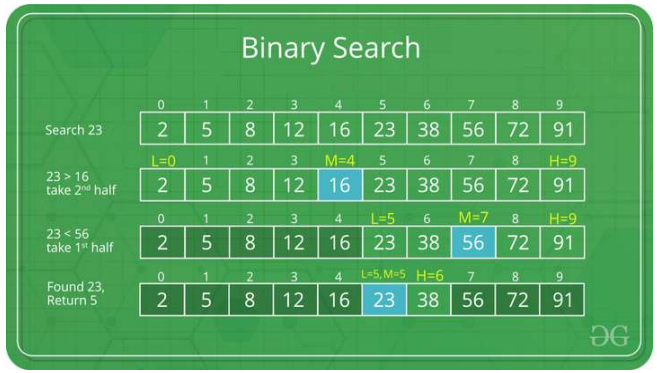
Molten ionic compounds e.g $PbBr_2$ IONS PRESENT = Pb^{2+} Br^-
REDUCTION at negative electrode - metal is discharged e.g $Pb^{2+} + 2e^- \rightarrow Pb$
OXIDATION at positive electrode – halogen gas is discharged e.g $2Br^- \rightarrow Br_2 + 2e^-$

Aqueous ionic compounds e.g NaCl IONS PRESENT = Na^+ Cl^- H^+ OH^-
REDUCTION at negative electrode – metal or hydrogen gas is discharged – whichever is least reactive element e.g $2H^+ + 2e^- \rightarrow H_2$
OXIDATION at positive electrode – halogen gas is discharged or oxygen gas if no halogen present e.g $2Cl^- \rightarrow Cl_2 + 2e^-$

2.1 Algorithms

Keyword	Definition	✓
Search algorithm	A set of instructions for finding a specific item of data within a data set.	
Linear search	An algorithm for finding an element in a list by checking each element in the list sequentially	
Binary Search	A search algorithm that uses a divide-and-conquer strategy.	
Sorting algorithm	A set of instructions to arrange a set of data into a particular order.	
Bubble sort	A sort algorithm that works by comparing and swapping variables.	
Insertion sort	A sort algorithm that splits the list to be sorted into a sorted and an unsorted part.	
Merge sort	A sort algorithm that uses a divide-and-conquer approach to split data up into individual lists and then merge them back together in order.	





2.2 Programming Fundamentals

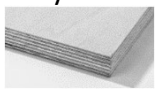
Keyword	Definition / Example	✓
Variable	A label/identifier which is used to identify a memory location used to store a value that *can be changed* while the program is running.	
Constant	A label/identifier which is used to identify a memory location used to store a value that *cannot be changed* while the program is running.	
Array	A data structure that stores a collection of values with the same data type under one name/identifier. Each value is called an element and is accessed by an index position	
Concatenation	The action of joining strings together. print("Hello " + name + "!")	
Data Types	Determines what type of value the variable will hold. *Integer* – Whole number: `age = 12` *Real / float* – Number that *can* have a fractional part: `height = 1.52` *Character* – A single letter, symbol or number: `letter = 'a'` *String* – Multiple characters: `name = "Bart"` *Boolean* – Has two values: true or false: `a = True` `b = False`	
Arithmetic operators	Mathematical functions that take two operands and performs a calculation on them.	

	Python		OCR Ref.
Add	`7 + 2`	`= 9`	`7 + 2`
Subtract	`7 - 2`	`= 5`	`7 - 2`
Multiply	`7 * 2`	`= 14`	`7 * 2`
Divide	`4 / 2`	`= 2`	`4 / 2`
Power	`2 ** 3`	`= 8`	`2 ^ 3`
Integer/floor division	`7 // 2`	`= 3`	`7 DIV 2`
Modulus	`7 % 2`	`= 1`	`7 MOD 2`

For extra coding: https://www.w3schools.com/python/

Type	Description	Uses/ applications	Advantages	Tick
Shape memory alloys (SMAs)	Can be deformed but returns to its' original shape when heat or electricity is applied.	• Glass frames • Tweezers and hooks • Orthodontic wires	• Lengthens the life of the product • Reduced overall size, less complexity	
Nanomaterials	Made of tiny components less than 100 nanometres (a millionth of a mm).	• Sunscreen • Car bumpers • Motorcycle helmets	• Larger relative surface area can improve their strength, elasticity, conductivity properties	
Photochromic glass	Darkens when exposed to light and reverses in the dark.	• Sunglasses • Cockpit windows	• Adapts easily to changing conditions • Can undergo 1000s of cycles without performance change	
Reactive glass	It changes from transparent to opaque when voltage is passed through.	• Welding masks and goggles • Windows • Toilets	• Retains heat so reduces energy bills • Instant privacy without permanent blocking of light	
Conductive inks	Used in a pen – contains pigments which allow a small current to pass through.	• Improvising or repairing circuit boards • Drawing circuits on different materials	• Easy to use • Lighter and more economical than traditional circuit boards • Low waste	
Temperature-responsive polymers	Changes colour when heat is applied to it.	• Baby products i.e. spoons, bath thermometers • Kettles • Biomedical applications	• Safety – wont burn babies • Saves energy – kettles • Can deliver drugs to patients in a controlled way	
Piezoelectric materials	Generates a small electric charge when compressed.	• Sensors: burglar alarms, seatbelt sensors, keypads, keyless car entry • Actuators: for precise position control i.e. digital cameras	• Sustainable • Low maintenance • Compact size • High speed in actuators	

GCSE Design Technology:
CORE 1.04 *part 2* Composite materials

Tick	Type	Uses	Advantages
	Concrete 	• Construction • Park benches • Fence posts • Bins	• Excellent compressive strength • Very durable • Can be moulded into complex shapes • Heat and sound insulator
	Plywood 	• Sheds • Flooring • Furniture	• High strength to weight ratio • High impact resistance • Available in large sheets
	Carbon fibre (CFRP) 	• Sports equipment • F1 cars • Car interior	• Stronger than GRP • Lightweight • Excellent strength to weight ratio
	Glass Reinforced Plastic (GRP)	• Boat hulls • Play park slides • Pond liners	• Good chemical resistance • Lightweight • Very good strength to weight ratio • Corrosion resistance
	Reinforced polymers 	• Engineering components	• Strong • Excellent machining qualities • Good insulator of heat and electricity
	Robotic materials	• Prosthetic limbs • Plane wings	• Can react to surroundings • Can change colour/shape to match surroundings

GCSE Design Technology:
CORE 1.04 *part 3* Technical textiles

Tick	Type	Function	Examples	Advantages
	Agrotextiles	Improves/increases agricultural production.	• Netting • Wind breaks • Thermal insulation • Shading	• Durable • Can be cheap • Reduces the need for pesticides
	Construction textiles	Improves construction appearance and longevity.	**Structures:** • Waterproof membrane • Concrete reinforcement	• Strong • Light • Resistant to degradation by chemicals and sunlight
	Geotextiles	Used in civil engineering to help retain the structure in the ground.	• Non-woven or woven mats for reinforcing banks	• Cheap • Deal well with water • Do not rot
	Domestic textiles	Used domestically within (households).	• Furnishings • Carpets • Cleaning wipes	• Hardwearing • Easy to clean • Absorbent
	Environm-entally friendly textiles	Use organically grown fibres such as wool, cotton or bamboo.	• Agro textiles • Geo textiles • Fashion	• Processed with fewer chemicals • Naturally they are more resistant to mould
	Protective textiles	Provide protection against heat, gases, harmful chemicals and bullets.	• Disposable chemical overalls • Fire retardant clothing	• Improves protection while providing usability • Reduces weight
	Sports textiles	Combine function with comfort for high performance.	• Running shorts • Rugby tops • Swimming suits	• Can improve performance • Improved comfort

Bournemouth School

Year 9 Macbeth Knowledge Organiser

Contextual points	Link to argument – what is Shakespeare trying to say?	✓
Divine right	The idea that monarchs were appointed by God and their authority was absolute. Macbeth's usurpation of the throne and the ensuing chaos reflect concerns about the consequences of challenging royal authority.	
Great Chain of Being	A hierarchical order that encompassed all creation. Macbeth's actions disrupt the natural order, leading to chaos and disorder in the world around him.	
Religion	Macbeth claims life is "a tale told by an idiot...signifying nothing" and a Jacobean audience would have been greatly shocked that he dares to question God. This solidifies his tyrannical ways.	
Patriarchal society	Gender roles are subverted as women give commands, at the time these women were accused of being witches.	
Witchcraft	King James I was obsessed with this. Shakespeare links Lady Macbeth to evil.	
The Gunpowder Plot	King James I would have approved of the play as it punishes regicide, something he was the target of himself.	

Themes	Key quotations 1	✓
Ambition	- "I am in blood Stepped in so far that, should I wade no more, Returning were as tedious as go o'er." (Act 3, Scene 4)	
Good and evil	"If good, why do I yield to that suggestion whose horrid image doth unfix my hair and make my seated heart knock at my ribs, against the use of nature?" (Macbeth)	
Loyalty/ betrayal	- "There's no art To find the mind's construction in the face. He was a gentleman on whom I built An absolute trust." (Act 1, Scene 4)	
Kingship	"Bleed, bleed, poor country! Great tyranny!" (Macduff) "Those he commands move only in command, nothing in love: now does he feel his title hand loose about him, like a giant's robe upon a dwarfish thief." (Angus)	
Violence & Tyranny	- "Blood will have blood." (Act 3, Scene 4)	
Fate vs Freewill	- "For mine own good, All causes shall give way. I am in blood Stepp'd in so far that, should I wade no more, Returning were as tedious as go o'er." (Act 3, Scene 4)	
Supernatural	- "By the pricking of my thumbs, Something wicked this way comes." (Act 4, Scene 1)	

Tragedy in the play	✓
Structure – everyone is affected from the top down. Each time Macbeth's status increases, Scotland suffers more, there is more blood shed. Fall of a nobleman.	
Fatal flaw - ambition and greed	
External pressures – witches, Lady Macbeth,	

Key term	Meaning	✓
Hamartia	Tragic flaw	
Peripeteia	Sudden turn of events/ unexpected reversal	
Catharsis	Relief of emotional tension	
Regicide	The action of killing a king	
Pathos	An experience that evokes pity, sympathy or compassion	
Dramatic irony	Audience knows something characters do not	
Soliloquy	Speaking one's thoughts aloud (character in a play)	

Basic essay plan	✓
Thesis – introduce your argument	
Point 1 – Develop your argument with a focus on the extract, using evidence	
Point 2 – Link to examples in the rest of the play	
Point 3 – Link and develop argument with context	
Conclusion – sum up your findings	

Bournemouth School – Knowledge Organiser – Year 9

ENGLISH

Bournemouth School

Year 9 Macbeth Knowledge organiser

Key Term	Meaning	✓
Tragic hero	A protagonist with a fatal flaw that eventually leads to their downfall. In Macbeth is a tragic hero whose ambition and thirst for power ultimately result in his demise.	
Aside	A brief remark made by a character to the audience or another character on stage, not intended to be heard by all the characters. Asides provide insight into a character's true thoughts or motivations.	
Foreshadowing	The use of hints or clues to suggest future events in a narrative. For instance, the witches' prophecies and Macbeth's reaction to them foreshadow the tragic events that unfold later in the play.	
Ambiguity	The quality of being open to more than one interpretation. Shakespeare often employs ambiguity in Macbeth, leaving certain events or character motivations open to debate.	
Motif	A recurring symbol, image, or theme in a literary work that contributes to its overall meaning. Motifs in Macbeth include blood, darkness, and the supernatural.	
Hubris	Excessive pride or arrogance that leads to a character's downfall. Macbeth's hubris is evident in his ambition and belief in his invincibility, despite the warnings and prophecies against him.	
Supernatural	Beyond the laws of nature; involving forces or beings beyond the realm of scientific understanding. The witches and their prophecies, as well as other supernatural elements, play a significant role in Macbeth.	

Themes	Key quotations 2	✓
Power & Corruption	- "Fair is foul, and foul is fair." (Act 1, Scene 1) - "Stars, hide your fires; Let not light see my black and deep desires." (Act 1, Scene 4)	
Appearance vs Reality	- "Look like th' innocent flower, But be the serpent under't." (Act 1, Scene 5) - "False face must hide what the false heart doth know." (Act 1, Scene 7)	
Violence & Disorder	- "What bloody man is that? He can report, As seemeth by his plight, of the revolt The newest state." (Act 1, Scene 2) - "It will have blood, they say; blood will have blood." (Act 3, Scene 4)	
Power & Corruption	- "Unsex me here, And fill me from the crown to the toe topful Of direst cruelty!" (Act 1, Scene 5)	
Masculinity	- "I dare do all that may become a man; Who dares do more is none." (Act 1, Scene 7)	
Madness	- "Out, out, brief candle! Life's but a walking shadow, a poor player That struts and frets his hour upon the stage And then is heard no more." (Act 5, Scene 5)	
Guilt & Conscience	- "Will all great Neptune's ocean wash this blood Clean from my hand? No, this my hand will rather The multitudinous seas in incarnadine, Making the green one red." (Act 2, Scene 2)	

Contextual point	Link to argument – what is Shakespeare trying to say?	✓
Machiavellian Politics	The character of Macbeth embodies Machiavellian principles of manipulation, deceit, and ruthlessness in pursuit of power. Shakespeare's depiction of political intrigue and ambition reflects Renaissance notions of power and governance.	
Social Hierarchies	Macbeth explores themes of social order and hierarchy, with characters navigating their positions within a rigid social structure. The disruption caused by Macbeth's ascent to power underscores tensions surrounding class, status, and ambition.	
Catholic-Protestant Conflict	England was embroiled in religious tensions between Catholics and Protestants during Shakespeare's era. The play's themes of guilt, redemption, and divine justice may reflect broader religious concerns of the time.	
Renaissance Humanism	Renaissance humanist ideas, such as the belief in human agency and the importance of individual conscience, are reflected in Macbeth's moral struggle and eventual downfall. The play explores themes of free will, fate, and the consequences of one's actions.	
Gender roles	Shakespeare's portrayal of Lady Macbeth as a strong, ambitious woman challenges traditional gender roles of the period. Her desire for power and influence defies societal expectations, highlighting tensions surrounding gender and power.	
Political instability	The political climate in England was marked by intrigue, betrayal, and power struggles. Macbeth's ruthless quest for power and the manipulation of political alliances resonate with the uncertainties of the time.	

Bournemouth School – Knowledge Organiser – Year 9

ENGLISH

Name: Date:

Food science

Functions of ingredients
Ingredients provide a variety of functions in recipes.- Coating, Binding, Glazing, Thickening, Emulsifying, Gelatinising.

Carbohydrate, protein and fat
Carbohydrate, protein and fat all have a range of properties that make them useful in a variety of food products.

Carbohydrates perform different functions in food.
They can:
- help to cause the colour change of bread, toast and bakery products (dextrinisation);
- contribute to the chewiness, colour and sweet flavour of caramel;
- thicken products such as sauces and custards (gelatinisation).

Maillard reaction
Foods which are baked, grilled or roasted undergo colour, odour and flavour changes. This is primarily due to a group of reactions involving amino acids (from protein) and reducing sugars.

Dextrinisation
When foods containing starch are heated they can also produce brown compounds due to dextrinisation. Dextrinisation occurs when the heat breaks the large starch polysaccharides into smaller molecules known as dextrins which produce a brown colour.

Caramelisation
When sucrose (table sugar) is heated above its melting point it undergoes physical and chemical changes to produce caramel.

Gelatinisation
When starch is mixed with water and heated, the starch granules swell and eventually rupture, absorbing liquid, which thickens the mixture. On cooling, if enough starch is used, a gel forms.

Proteins perform different functions in food products.
They:
- aerate foods, e.g. whisking egg whites;
- thicken sauces, e.g. egg custard;
- bind ingredients together, e.g. fishcakes;
- form structures, e.g. gluten formation in bread;
- gel, e.g. lime jelly.

Gluten formation
Two proteins, gliadin and glutenin, found in wheat flour, form gluten when mixed with water. Gluten is strong, elastic and forms a 3D network in dough. In the production of bread, kneading helps untangle the gluten strands and align them. Gluten helps give structure to the bread and keeps in the gases that expand during cooking.

Gelation
Gelatine is a protein which is extracted from collagen, present in animal connective tissue. When it is mixed with warm water, the gelatine protein molecules start to unwind. On cooling, a stable, solid network is formed, trapping the liquid.

Denaturation
Denaturation is the change in structure of protein molecules. The process results in the unfolding of the protein's structure. Factors which contribute to denaturation are heat, salts, pH and mechanical action.

Coagulation
Coagulation follows denaturation. For example, when egg white is cooked it changes colour and becomes firmer (sets). The heat causes egg proteins to unfold from their coiled state and form a solid, stable network.

Aeration
Products such as creamed cakes need air incorporated into the mixture in order to give a well-risen texture. This is achieved by creaming a fat, such as butter or baking spread, with sugar. Small bubbles of air are incorporated and form a stable foam. When egg whites are Whisked the protein in them Albumin is stretched and traps air, for example when eggs are whisked to make meringues.

Fats performs different functions in food.
They help to:
- add 'shortness' or 'flakiness' to foods, e.g. shortbread, pastry;
- provide a range of textures and cooking mediums;
- glaze foods, e.g. butter on carrots;
- aerate mixtures, e.g. a creamed cake mix;
- add a range of flavours.

Plasticity
Fats do not melt at fixed temperatures, but over a range. This property is called plasticity.

Raising agents
Raising agents include anything that causes rising within foods, and are usually used in baked goods. Raising agents can be:
- biological, e.g. yeast;
- chemical, e.g. baking powder; Bicarbonate of Soda
- mechanical, e.g. adding air through beating or folding.

Functional ingredients
These are ingredients that are specifically included in food for additional health benefits. They include:
- probiotics – 'good' bacteria that may have a positive impact on human health;
- prebiotics – food ingredients that promote the growth of beneficial microorganisms in the gut;
- sterols/stanols – compounds that can lower cholesterol;
- healthy fats (e.g. omega-3);
- added vitamins and minerals (more than in the original food).

Colloidal systems
Colloidal systems give structure, texture and mouthfeel to many different products.

System	Disperse phase	Continuous phase	Food
Sol	Solid	Liquid	Unset jelly
Gel	Liquid	Solid	Jelly
Emulsion	Liquid	Liquid	Mayonnaise
Solid emulsion	Liquid	Solid	Butter
Foam	Gas	Liquid	Whipped cream
Solid foam	Gas	Solid	Meringue

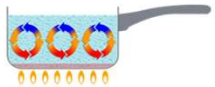
Why is food prepared and cooked?
Food is prepared and cooked t
- make the food more palatable – improves flavour, texture and appearance;
- reduce the bulk of the food;
- provide variety and interest to meals.

. Have hot food on cold days.

Methods of cooking food
The methods of cooking are divided up into groups. These are based on the cooking medium used.
They are:
- moist/liquid methods, e.g. boiling;
- dry methods, e.g. grilling;
- fat-based, e.g. frying.

Selecting the most appropriate way of preparing and cooking certain foods is important to maintain or enhance their nutritional value.
- Vitamins can be lost due to oxidation during preparation or leaching into the cooking liquid.
- Fat-based methods of cooking increase the energy (calories) of the food.
- The use of different cooking methods affects the sensory qualities of the food.

There are three ways that heat is transferred to food.
- Conduction – the exchange of heat by direct contact with foods on a surface.
- Radiation – energy in the form of rays.
- Convection – currents of hot air or hot liquid transfer the heat energy to the food.



Key terms
Conduction: The exchange of heat by direct contact with foods on a surface.
Convection: Currents of hot air or hot liquid transfer the heat energy to the food.
Functional ingredients: Included in food for additional health benefits.
Heat transfer: Transference of heat energy between objects.
Radiation: Energy in the form of rays.

Tenderisation
- Mechanical tenderisation – a meat cleaver or meat hammer may be used to beat the meat. Cutting into small cubes or mincing can also help.
- Chemical tenderisation (marinating) –the addition of any liquid to flavour or soften meat before cooking.

Shortening- When fat is used in making rubbed in mixtures such as pastry, biscuits, scones and cakes, it coats the grains of flour this gives it a waterproof coating and prevents the gluten in it from developing. This means the finished product will have a short crumbly texture.

Emulsions- An emulsion is formed when oil and liquid are mixed together, such as in a salad dressing. Often when oil and salad are mixed together they will separate when left to stand- this happens with salad dressings. An emulsifier is sometimes added to these ingredients to prevent them from separating, for example, egg yolk which contains Lecithin is used in some dressings, mayonnaise and low-fat spreads.

Enzymic Browning / Oxidisation- Reaction between a food product and oxygen resulting in a brown colour for example potatoes or apples going brown once peeled., it can be prevented by using acid (lemon juice) or blanching in boiling water or by cooking foods as soon as they have been prepared. Handle delicate foods with care so they do not bruise.

Bournemouth School – Knowledge Organiser – Year 9

FPAN

Picture description phrases		
sur la photo	*On the photo*	
je peux voir	*I can see*	
on peut voir	*We/you can see*	
à gauche/	*On the left*	
à droite	*On the right*	
au centre	*In the centre*	
à l'arrière plan	*In the background*	
au gros plan	*In the foreground*	
la photo a été prise	*The photo was taken*	
la photo montre	*the photo shows*	
j'imagine que	*I imagine that*	
je trouve que	*I find that*	
il y a	*There is/there are*	
un homme	*A man*	
une femme	*A woman*	
un garçon	*A boy*	
une fille	*A girl*	
un enfant	*A child*	

Famille Family		
décris les personnes	*describe the people*	
il/elle est	*he/she is*	
mes parents sont	*my parents are*	
grand (e) (s)/petit (e) (s)	*tall/short*	
de taille moyenne	*average height*	
il/elle a le visage long	*he/she has a long face*	
ils/elles ont les cheveux	*they have…hair*	
blancs/blonds	*white/blonde*	
bruns/châtains	*brown/chesnut*	
gris/noir/roux	*grey/black/red*	
longs/courts	*long/short*	
un joli sourire	*a pretty smile*	
il/elle porte des lunettes (de soleil)	*he/she wears (sun) glasses*	
un châpeau	*a hat*	

l'amitié est la clé du bonheur- friendship is the key to happiness		
tu t'endends bien avec tes amis?	*do you get on well with your friends?*	
pourquoi/pourquoi pas?	*why/why not?*	
la pluplart du temps	*most of the time*	
je (ne) m'entends (pas) (assez/très) bien avec mes amis	*i (don't) get on (quite/very) well with my friends*	
il/elle est ils/elles sont	*he/she is* *they are*	
tout le temps/toujours	*always/all the time*	
actif(s)/active(s)	*active*	
fidèle (s)	*loyal*	
fier(s)/fière (s) de moi	*proud of me*	
independent (e) (s)	*independent*	
patient (e) (s)	*patient*	
sympa	*nice*	
travailleur (s)/travailleuse (s)	*hard-working*	
on s'ennuie/on s'amuse (bien) (ensemble)	*we are bored/we get on well (together)*	
on s'excuse rarement/ de temps en temps	*we apologise rarely/from time to time*	
d'habitude	*usually*	

La place des idoles – The place of idols		
je le/la suis	*I follow him/her*	
il/elle est connu (e) pour…	*he/she is known for*	
c'est une personne qui…	*it's a person who*	
il/elle lutte pour/contre…	*he/she fights for/against*	
un bon modèle est quelq'un qui…	*a good role model is someone who*	
aide les gens	*helps people*	
se comporte bien	*behaves well*	
inspire les autres	*inspires others*	
il/elle a gagné sa popularité	*he/she won his/her popularity*	
grâce à…sa créativité/son courage/sa personnalité	*thanks to his/her creativity/courage/personality*	

l'amitié -friendship		
c'est quoi, l'amitié pour toi?	*what is friendship for you?*	
pour moi/à mon avis..	*for me/in my opinion*	
il est important d'avoir..	*it's important to have*	
un ami proche	*a close friend*	
un groupe d'amis sympa	*a group of nice friends*	
beaucoup d'amis amusants	*lots of fun friends*	
un bon ami est quelq'un qui..	*a good friend is someone who..*	
apprécie les mêmes choses que moi	*appreciates the same things as me*	
partage quelques intérêts avec moi	*shares some interests with me*	
n'aime pas les mêmes activités que moi	*doesn't like the same activities as me*	
J'ai besoin	*I need*	
d'amis dans le monde réel	*friends in the real world*	
de groupes d'amis séparés	*separate groups of friends*	
de beaucoup d'amis en ligne	*lots of friends online*	
quand je suis triste,	*when I'm sad, my*	
mon meilleur ami	*best friends*	
écoute mes problèmes	*listens to my problems*	
offre de l'aide	*offers help*	
me fait rire	*makes me laugh*	
c'est agaçant quand mes amis:	*it's annoying when my friends*	
ne sont pas là pour moi	*are not there for me*	
sont en colère	*are angry*	
sont trop sérieux	*are too serious*	

Adjectives must agree with the person or noun they are describing. Most adjectives work like this:

masculine	feminine	masc plural	fem plural
–	add –**e**	add –**s**	add –**es**
patient	*patient**e***	*patient**s***	*patient**es***

Some adjectives follow different patterns:

stupide/stupide — *actif/activ**e***

*travaill**eur**/travaill**euse*** — *gentil/gentil**le***

Others are irregular:

*vi**eux**/vi**eille*** — *b**eau**/b**elle***

Some adjectives, such as ***sympa***, never change.

A **direct object pronoun** replaces a noun that is the object in a sentence. It comes directly before the verb.

masculine ('he'/'it')	**le**	*Je suis Yannis.* → *Je **le** suis.* I follow Yannis. → I follow **him**.
feminine ('she'/'it')	**la**	*Je suis Léna.* → *Je **la** suis.* I follow Léna. → I follow **her**.
plural ('them')	**les**	*Je suis Aïssa et Magaajyia.* → *Je **les** suis.* I follow Aissa and Magaajyia. → I follow **them**.

In front of a verb that begins with a vowel, **le** and **la** change to **l'**.

Famille, amour, gâteau – Family, love, cake		
normalement, qu'est-ce que tu fais pour fêter ton anniversaire?	*what do you normally do to celebrate your birthday?*	
l'année dernière, comment est-ce que tu as fêté ton anniversaire?	*last year, how did you celebrate your birthday?*	
l'année prochaine, qu'est-ce que tu vas faire?	*next year, what are you going to do?*	
fêter	*to celebrate*	
la naissance de	*the birth of*	
l'anniversaire de (mon frère)	*my (brother's) birthday*	
avec toute la famille	*with the whole family*	
on va	*we go*	
on est allé	*we went*	
on va aller	*we are going to go*	
chez mon voisin/lui/nous/eux	*to my neighbour's/his/our/their house*	
on mange/a mangé/va manger	*we eat/ate/are going to eat*	
un grand repas	*a big meal*	
un gâteau	*a cake*	
je reçois/j'ai reçu/je vais recevoir	*I receive/received/am going to receive*	
des cartes	*cards*	
beaucoup de cadeaux	*lots of presents*	
j'ai invité mes amis	*I have invited my friends*	
j'ai préparé des plats	*Ihave prepared the food*	
j'ai loué un restaurant	*hired a restaurant*	
la semaine prochaine/samedi prochain, je vais...	*next week/next Saturday*	
porter des vêtements spéciaux	*wear special clothes*	
prendre des photos	*take photos*	

UW: Mumbai Case Study

3.5 The Megacity of Mumbai is growing rapidly.

Mumbai grew substantially between 1888 and 2015. Today, Mumbai is experiencing **hyper-urbanisation** – about 1000 new migrants arrive every day. Mumbai has grown for two reasons:

1. **Natural increase** – The birth rate (20.1 per 1000) in Mumbai is higher than the death rate (6.0 per 1000). There is therefore a large natural increase in Mumbai of 14.1 per 1,000.
2. **Rural-urban migration** – The boom in Mumbai's population growth from the 1970s onwards was fuelled by rural-urban migration from the region around Mumbai
3. **Investment** has grown, increasing the amount of jobs rapidly. Investment has been greatest in…
   1. Services (e.g. banking, finance, IT and call centres)
   2. Manufacturing (textiles, food processing and engineering).
   3. Construction (housing, factories and offices).
   4. Entertainment and leisure (Bollywood, hotels and restaurants).

- Population growth has created new **suburbs**, such as **Navi Mumbai**, caused by the migration of the middle classes from the city.
- **Informal settlements** continue to sprawl as new migrants arrive. Here population density is very high but they are close to where people can work and accommodation is very cheap. Often, informal settlements can be right next to expensive accommodation.
- Rapid growth is putting pressure on land therefore **prices are rising.** Some industries are moving out as a result.

3.6 Rapid population growth creates opportunities and challenges for people living in Mumbai.

- Urban growth has improved healthcare access, with major hospitals expanding.
- Free, compulsory education has raised literacy rates to 89.7%, even in informal settlements.
- World-class universities provide advanced education opportunities.
- Informal settlements are gaining access to water, but sanitation remains a challenge.
- Projects are improving sanitation, with more community toilet blocks built.
- Initiatives are expanding safe electricity connections to informal settlements.
- Mumbai's financial status drives economic growth, creating jobs in various sectors.

Challenges facing Mumbai include:

- not enough income from **tax** to improve infrastructure as a result of a large informal economy within informal settlements.
- a weak **local government**
- **housing shortages** and informal settlement development as a result of rapid population growth
  - Dharavi is Mumbai's and India's biggest informal settlement, with a population of approximately 1.2 million people crowded into one square mile.
- **water pollution** from untreated industrial waste and sewage
- **air pollution** and traffic **congestion**
- 90% travel by **rail** rather than by car, which has put a huge strain on the railway system as every day around 8 million people travel on suburban lines.

3.7 Quality of life in Mumbai can be improved by different strategies for achieving sustainability.

In 1987, the UN defined sustainability as *'development that meets the needs of the present without compromising the ability of future generations to meet their own needs.'*

Top-down development – '**Vision Mumbai**' is a plan to improve the city and quality of life by providing **cheap housing, restoring 'green' spaces, building toilets, and improving the rail system.**

Advantages:

- **new flats** have replaced 45,000 informal settlements with piped water and sewage
- 300 extra public **toilets**
- In 2020, 350 new trains were added to Mumbai's rail network.

Disadvantages:

- apartment blocks have **split up communities**
- rents costs are **unaffordable**
- small workshops (recycling industry) have had to **move**
- water quality is worsening because of **sewage discharge**

Bottom-up development – LSS health charity was set up to control **leprosy** in Dharavi. It delivers education about health and carries out health-related and community work.

Advantages:

- **28 000** people have been treated in the last 30 years
- **educates communities** about the importance of boiling water and waste disposal.
- Screened 2300 patients at its mobile health clinic for symptoms of Covid-19.

Disadvantage:

- can't reach everyone and relies on **charity funding**.

Familienmitglieder – family members	
In meiner Familie gibt es … (+acc)	*In my family, there is/are …*
Das ist … / Das sind ...	*This is/are …*
die Geschwister	*siblings*
der Bruder (die Brüder)	*brother(s)*
die Schwester(n)	*sister(s)*
der Stief(bruder)	*step(brother)*
die Halb(schwester)	*half(sister)*
der Zwilling	*twin*
die Eltern	*parents*
der Vater (die Väter)	*father(s)*
die Mutter (die Mütter)	*mother(s)*
die Großeltern	*grandparents*
die Großmutter	*grandmother*
der Großvater	*grandfather*
die Verwandten	*relatives*
die Tante/der Onkel	*aunt/uncle*
der Sohn/die Tochter	*son/daughter*
die Frau	*woman, wife*
der Mann	*man, husband*

Familienmitglieder – family members	
Mein (Bruder), der … heißt	*My (brother) who is called*
Mein (Bruder), der immer böse ist	*My (brother) who is always grumpy*
Meine (Schwester), die … heißt	*My (sister) who is called*
Mein (Kaninchen), das … heißt	*My (rabbit) who is called*
Meine (Fische), die … heißen	*My (fishes) who are called*
Meine (Eltern) die nie geheiratet haben	*My parents, who have never married*
Er/Sie trägt (k)eine Brille	*He/she (doesn't) wear glasses.*

Beschreibungen - descriptions	
Er/Sie hat/ Sie haben	*He/She has/ They have*
lange/kurze Haare	*long/short hair*
braune/blonde/rote schwarze/weiße Haare	*brown/blond/red/ black/white hair*
blaue/grüne/graue Augen	*blue/green/grey eyes*
Er/Sie ist/Sie sind	*He/She is/They are*
klein/groß	*small/tall*
ab und zu	*now and then*
manchmal/oft	*sometimes/often*
immer/nie	*always/never*
sehr/total/ganz	*very/totally/fully*
ziemlich/nicht	*quite/not*
lustig/glücklich	*funny/happy*
nett/freundlich	*nice/friendly*
böse/traurig/süß	*grumpy/sad/sweet*
locker/modern	*casual/modern*
typisch	*typical*
anders/ unterschiedlich	*different/diverse*
zusammen	*together*

Zeitangaben – Time phrases	
normalerweise	*usually*
am Wochenende	*on the weekend*
nächstes Wochenende	*next weekend*
letztes Wochenende	*last weekend*
jede/diese Woche	*every/this week*
nächste/letzte Woche	*next/last week*
jeden/diesen Monat	*every/this month*
nächstes/letztes Jahr	*next/last year*
am Tag	*on/during the day*
neulich/vor kurzem	*recently*
morgen/gestern	*tomorrow/ yesterday*
danach	*afterwards*

Beziehungen – relationships	
Ich habe eine gute Beziehung zu … *(+dat)*	*I have a good relationship with*
Ich verstehe mich (gut) mit *(+dat)*	*I get on (well) with*
ihm/ihr/ihnen *(dative case)*	*him/her/them*
ein bisschen	*a little*
so/wirklich/zu	*so/really/too*
laut/gestresst	*loud/stressed*
ernst/streng	*serious/strict*
fleißig/faul	*hardworking/lazy*
aktiv/sportlich	*active/sporty*
unabhängig/ehrlich	*independent/ honest*
komisch	*funny/strange*
der Freund/die Freundin	*friend*
das Kind (die Kinder)	*child(ren)*
das Mädchen/ der Junge	*girl/boy*
die Leute/die Jugendlichen	*people/young people*

Partyzeit! – Party time	
der Anfang	*start, beginning*
der Kuchen	*cake*
die Ferien	*holidays*
der Spaß	*fun*
Normalerweise feiere ich	*Normally, I celebrate*
Letztes Jahr haben wir … gefeiert	*Last year, we celebrated*
Nächstes Jahr werde ich … feiern	*Next year, I will celebrate*
Ich finde/Meiner Meinung nach	*I find/in my opinion*
das gefällt mir (nicht) gut	*I (don't) like it*
es macht mir (keinen) Spaß	*It's (not) fun for me*
es gibt (zu) viele/eine Menge Leute	*There are (too) many/a lot of people*

Was wirst du am Wochenende machen? What will you do at the weekend?	
Ich werde/Er wird …	*I will/He will …*
Rad fahren	*cycle*
ins Freibad gehen	*go to the outdoor pool*
soziale Netzwerke surfen	*browse social networks*
Hausaufgaben machen	*do homework*
in die Kirche gehen	*go to church*
Zeit mit Familie/ Freunden verbringen	*spend time with family/friends*
grillen	*have a BBQ*
Musik hören	*listen to music*
einen Film gucken	*watch a film*
fernsehen	*watch tv*
bestimmt	*surely*
wahrscheinlich	*probably*
vielleicht	*maybe*

The future tense is formed by using the correct part of "werden" with an infinitive at the end. NB The future tense translates to I will play or I am going to play

To talk about actions in the past use the perfect tense. You need a form of haben or sein (for movement verbs) plus a past participle (ge+verb stem+t)	
Ich habe/er, sie, es hat/ wir haben: gelacht/getanzt/ gehabt/gefeiert/ kennengelernt/ Ich habe Spaß gehabt.	*I/he, she, it/ we (have) laughed/danced/ had/celebrated/ got to know I had fun.*
some past participles are irregular	
gegessen/getrunken/ gesehen/gesungen/ besucht/organisiert/ stattgefunden	*ate/drank/ saw/ sang/ visited/organised/ took place*
Ich bin/er, sie ist/wir sind gefahren/gegangen	*I/he, she/we travelled/went*

Nützliche Verben – useful verbs	
sich interessieren für	*to be interested in*
essen/trinken	*to eat/to drink*
feiern/singen	*to celebrate/to sing*
tanzen/lachen	*to dance/to laugh*
organisieren/planen	*to organise/to plan*
stattfinden	*to take place*
akzeptieren/ respektieren	*to accept/ to respect*
erleben	*to experience*
sich verstehen mit + *dative*	*to get on with*

Picture description	
Im Bild/Im Foto	*On the photo*
Ich/Man kann … sehen	*I can see/You can see*
Im Bild gibt es	*In the picture there is*
Auf der linken/ rechten Seite	*On the left/on the right*
Im Hintergrund (V2)	*In the background*
Im Vordergrund (V2)	*In the foreground*
Sie spielen, essen , tragen	*They are playing, eating, wearing*

Use present tense to say what people are doing "NO IS-ING" "AM-ING" OR "ARE-ING"

Three key verbs are often used in the imperfect to DESCRIBE things in the past	
Ich/es war	*I/it was*
Ich/es hatte	*I/it had*
Es gab	*There was*
Es war spitze/klasse! - *It was amazing.* **Ich war fix und fertig! –** *I was exhausted.* **Sie hatte nicht alle Tassen im Schrank. –** *She was crazy.*	

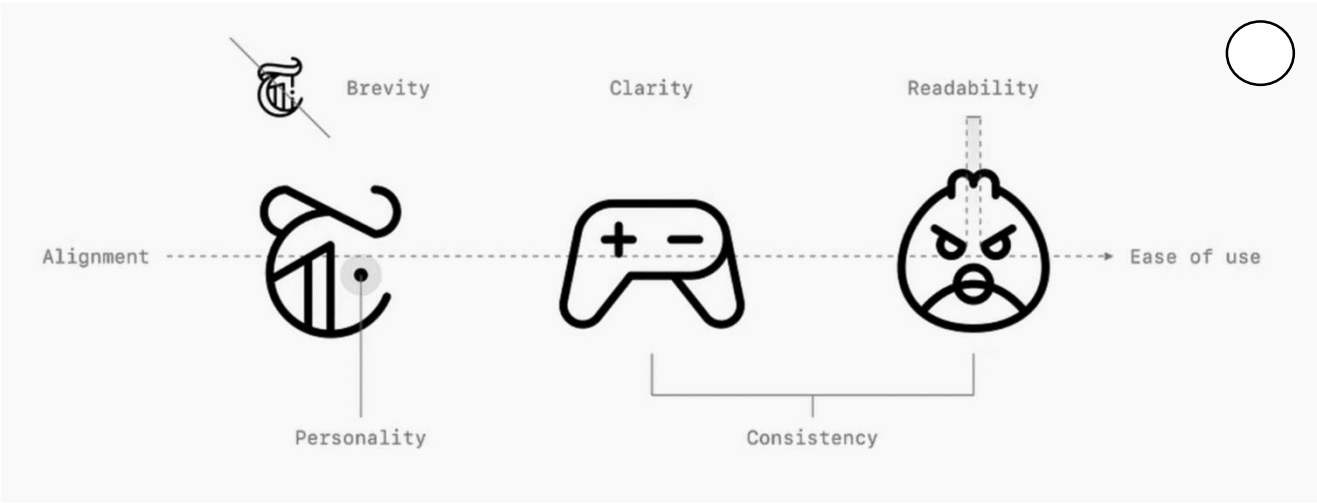
Some opinion phrases are also often used in the imperfect	
Ich fand es …	*I found it*
Es gefiel mir	*I liked it*
Ich mochte/ich hasste	*I liked/I hated*

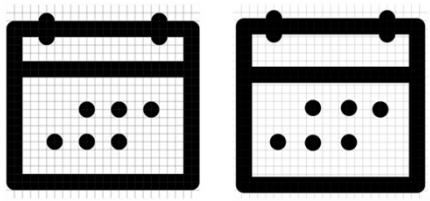
Wir haben gefeiert – We celebrated	
Hast du neulich ein Fest besucht?	*Have you recently visited a festival?*
Wann hat es stattgefunden?	*When did it take place?*
Mit wem bist du gegangen?	*Who did you go with?*
Was hast du gemacht?	*What did you do?*
Was hast du gesehen?	*What did you see?*
Wie war es?	*How was it?*
eine Party/eine Feier/ ein Fest	*a party/a celebration/ a festival*
zu Hause/in der Stadt	*at home/in town*
mit Freunden/mit meiner Familie	*with friends/with my family*
mit dem Bus/mit dem Zug/ zu Fuß	*by bus/by train/on foot*
ins Kino/nach Berlin	*to the cinema/to Berlin*
an Neujahr/an Silvester	*on New Year's Day/on New Year's Eve*
zum Geburtstag/ zu Weihnachten	*on my birthday/ on Christmas*

Ein gutes Vorbild – A good role model.	
Er/sie ist ein gutes Vorbild, weil …….	*He/she is a good role model because*
der Unterschied	*the difference*
der Rassismus/Sexismus	*racism/sexism*
der Politiker	*politician*
die Homophobie/ die Transphobie	*homophobia/ transphobia*
die Diskriminierung/ das Mobbing	*discrimination/bullying*
die Minderheit	*minority*
die Ausbildung	*training/education*
die Arbeitslosigkeit	*unemployment*
die Gesellschaft	*society*
das Gesicht	*face*
kämpfen/unterstützen	*to fight/support*
nicht binär	*non-binary*
rassistisch/ausländisch	*racist/foreign*
schwul/lesbisch	*gay/lesbian*
sich wohlfühlen	*to be comfortable*

Icon Design Best Practices

1.Determine what purpose your icons will serve. ...
2.Use a grid. ...
3.Keep your icons simple. ...
4.Make your icons recognisable. ...
5.Aim for visual coherence. ...
6.Add personality. ...
7.Test your icons.





Grids – left aligned – right not aligned

Perspective – top flat – bottom perspective

Colour – black or 2 colours max

- **Icons** are a crucial part of any design system or product experience. Icons help us quickly navigate. They are language-independent.
- **Clarity** - The first golden rule of icon design is **clarity**. When a user encounters an icon, they should be able to easily deduce what the icon means. As such, it's important to design your icons with your target users in mind.
- **Size -** Consistency is key with icons, and all your icons should be the same size when you build them.
- **Colour** - For product icons, use 1 color: black. Anything more than that and your components are going to become too complex and difficult for other designers to leverage. For marketing icons, you might want to use 2 colours if it is a crucial part of your brand.
- **Grid** - The **pixel grid** is the fundamental grid that uses the smallest increment: a pixel. When building icons, you always want to align objects to the pixel grid, especially straight lines.
- **Strokes & fills** - Typically, filled icons have higher recognisability. Stroked icons give you great ability to create tiny details. When choosing which style is more appropriate, you should also consider your overall brand.
- **Perspective** - Using perspective in icons is tricky - their size makes it difficult since drawing with perspective takes up extra space. If you do want to use perspective, either use it widely and make it a key part of your system or use it sparingly when it helps increase legibility and clarity.
- **Alignment and balance** - Icon design should be a precise and meticulous art, so make sure you strive for alignment and balance. Essentially, this means positioning each element of your icon so that it 'looks right' to the naked eye. Sometimes this requires central alignment and even spacing, but often it's a case of using your own judgement to achieve the right balance.

Bournemouth School: History Department: Knowledge Organiser: Summer 1: Year 9: Paper 2 Origins of Cold War 1941-58

Timeline of key events:

1941: Grand Alliance set up
November 1943: Tehran Conference
February 1945: Yalta conference
April 1945: Roosevelt, President of the US died.
July 1945: Potsdam Conference
16th July 1945: US successfully tested an atomic bomb
1946: Churchill delivered his 'Iron Curtain' speech in Missouri, USA
1946: Long Telegram sent by George Kennan
1946: Novikov Telegram sent
1947: Truman Doctrine that included the policy of Containment
1947: Marshall Plan outlined, officially called the European Recovery Plan
1947: Cominform set up
1948: The communists in Czechoslovakia, seized control
1948: Marshall Aid accepted by Congress
1948-49: Berlin Blockade
March 1949: Soviet representatives walk out of the Allied Control Commission
April 1949: Allied zones in Germany included in the Marshall Plan
1949: Comecon set up
May 1949: western Allies announced their former occupation zones including west Berlin would join together to form the FRG
June 1949: Western powers announce plans to create the Deutschmark
24 June 1948-12 May 1948: Stalin blockades West Berlin
October 1949: The Soviet zone of Germany became the GDR.
April 1949: NATO set up

✓

Key terms/definitions

Term	Definition	✓
Arsenal	Collection of military equipment and weapons	
Bolshevik Revolution	Took place in Russia in October/November 1917 when the Bolsheviks seized power and set up a communist state	
Comecon	Association of Soviet-oriented communist countries set up in 1949 to co-ordinate economic development	
Cominform	Communist Information Bureau established in 1947 to exchange information among 9 Eastern European countries and coordinate their activities	
Containment	Using US influence and military resources to prevent the expansion of communism into non-communist countries	
H-bomb (hydrogen bomb)	An explosive weapon of enormous destructive power	
Interwar years	The period between the two world wars: 1919-1939	
MAD (Mutually Assured Destruction)	The belief that nuclear weapons made each side more secure and less likely to attack. The enemy would not dare to attack first, because if it did, the other would strike back before its bombs had landed and it too would be destroyed.	
Marshall Aid	US programme of financial and economic aid given to Europe after the end of WW2.	
Marshall Plan	A special system of loans from the USA to European countries implemented at the end of the Second World War which allowed for reconstruction and economic regeneration. General George Marshall was the senior US army officer who devised the plan.	
Congress	US parliament consisting of the Senate and House of Representatives	
NATO (North Atlantic Treaty Organisation)	Created in 1949 following the Berlin Crisis of 1948-1949, its 12 founding members included the USA and Canada, Britain and France. NATO exists to protect the freedom and security of its members using both political and military means. Today, it has 28 member countries.	
Nuclear weapon	Highly destructive explosive device that gets its power from nuclear reactions.	
Red Army	The Soviet army	
Reparations	Compensation to other countries to be paid by Germany as the defeated country after WW2	
Satellite states	Countries under the domination of a foreign power: in this context, the USSR	
Sphere of influence	Region of the world in which one state is dominant	
Soviet bloc	Countries in Eastern Europe controlled by the Soviet Union	
Superpower	A country or state that has great power and influence globally	
Truman Doctrine	Truman's idea that it was the USA's duty to contain the spread of communism. To do this he was prepared to engage the US in military enterprises all over the world.	
Warsaw Pact	A military treaty and association consisting of the Soviet Union and its European satellite states	
Deutschmark	New currency introduced for West Germany and Berlin	
Ostmark	Soviet currency introduced into East Germany and Berlin as retaliation for Deutschmark	
Blockade	An act of sealing off a place to prevent goods or people from entering or leaving.	

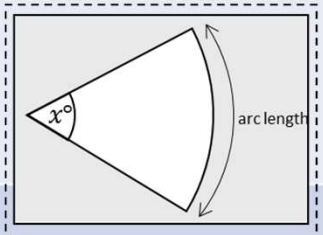
Bournemouth School: History Department: Knowledge Organiser: Year 10: Paper 2 Cold War 1958 - 1970

Timeline of key events:

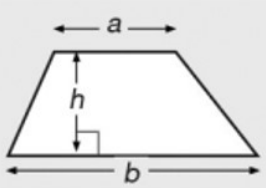
1949-61: 4m East Germans fled West
1949: First 'A' Bomb made in USSR
1949: NATO created
1953:USA & USSR had 'H' bombs
1955: Warsaw Pact established
1957: Soviets launced Sputnik
1957: Creation of EEC
1958: Khrushchev's Berlin Ultimatum
1959: Cuban Revolution: Fidel Castro replaced US - backed General Batista
Late 1959: Khrushchev sending weapons to Cuba
5th May 1960: American U2 spy plane shot down over USSR airspace
14th May 1960: date for Paris summit meeting (that was cancelled by Khrushchev)
Jan 1961: up to 20,000 refugees going through East Berlin to the West
April 1961: Bay of Pigs failed invasion
June 1961: Vienna summit meeting
July 1961: both US and USSR announce an increase in defence spending
13th August: Khrushchev closed the border between East and West Berlin
October 1961: Stand-off at Checkpoint Charlie in Berlin
14 – 28th October 1962: 13 days of the Cuban Missile Crisis
June 1963: Kennedy visits Berlin
1963: Hot Line set up
August 1963: Limited Test Ban Treaty
1968: Outer Space Treaty and Nuclear non - Proliferation Treaty signed

Key terms/definitions

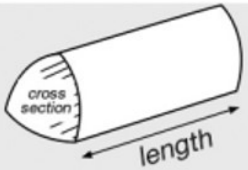
Term	Definition	✓
AVH	Secret police that operated in Hungary; used to frighten government opponents & critics	
Berlin Ultimatum	Khrushchev's accusation that the Allies had broken the Potsdam Agreement of 1945	
Blockade	A naval quarantine around Cuba to prevent soviet ships delivering military materials	
Boundary	The dividing line in East Berlin marking where the barrier was created to encircle West Berlin from East Berlin and the GDR, where the Berlin Wall was then built.	
Brain-drain	The term to describe the large numbers of professional and skilled people leaving through East Berlin for a new life in the West	
Brinkmanship	A term used to describe pursuing a dangerous policy to the limits of safety; associated with the 13 days of the Cuban Missile Crisis	
Checkpoint Charlie	The best-known Berlin Wall crossing point between East Berlin and West Berlin. The scene of a famous stand-off between the superpowers.	
CIA	Central Intelligence Agency: used by USA to gather/analyse intelligence for national security	
Cuban exiles	Pro-American Cubans who fled to the USA after the Cuban Revolution; 'La Brigada 2506'	
Cuban Revolution	The overthrow of General Batista by Fidel Castro	
De-Stalinisation	The elimination of the influence of Stalin, led by Nikita Khrushchev after the death of Stalin	
Defectors	A person who abandons their country for another country with an opposing ideology	
Defence spending	The amount both the USA and the USSR were spending on military hardware	
Detente	A French term meaning a 'relaxation of tension' between the USA and the USSR	
EEC	The European Economic Community: aimed to foster economic integration & created in 1957	
Espionage	Spying on each other: a main feature of the Cold War, increasing rivalry and mistrust	
H Bomb	Hydrogen bomb; type of nuclear weapon of enormous destructive power	
Hot Line	A direct line of communication set up between Washington and Moscow	
Jupiter missiles	US nuclear warheads stationed in Italy and Turkey as a forward strike capability	
NATO	North Atlantic Treaty Organisation formed to provide 'collective security' against the USSR	
Non-Proliferation Treaty	Signed by major nuclear and non-nuclear powers pledging their cooperation to stop the spread of nuclear weapons and to stop developing them	
Polaris Submarine	Submarines armed with up to16 Polaris A-3 nuclear missiles	
Outer-Space Treaty	A promise made by the superpowers and also Britain, to use outer space for peaceful purposes and not place nuclear weapons in orbit	
Peaceful co-existence	A belief originating from Khrushchev that despite ideological differences the superpowers could exist peacefully together	
Potsdam 1945	The last wartime conference led by Truman, Attlee and Stalin in July 1945	
Sputnik	A satellite that could orbit the earth in 90 mins; launched by USSR in 1957	
Thermonuclear	A military conflict deploying nuclear weapons, likely to lead to MAD	
Warsaw Pact	A military treaty including the USSR and the European satellite states	

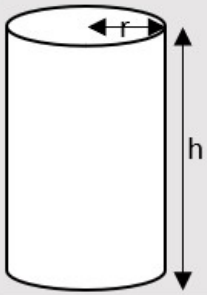
Keyword		Definition	Example
Hectare		The area of a square 100m by 100m. $1\ ha = 100 \times 100 = 10\,000\ m^2$	A 200m by 300m field. $Area = 60{,}000m^2 = 6ha$
Upper bound		The upper bound is the largest number that would round down to a given value at a given degree of accuracy.	Upper bound of 250, rounded to the nearest 5, is 252.5
Lower bound		The lower bound is the smallest number that would round up to a given value at a given degree of accuracy.	Lower bound of 3.87, rounded to 3 significant figures, is 3.865
Error interval		The error interval for a rounded value is $lower\ bound \leq x < upper\ bound$	The error interval for 9.3, rounded to 1 decimal place, is $9.25 \leq x < 9.35$
Truncate		To truncate a number to a given place value, you remove the following digits *without* rounding. If necessary, add 0's to maintain place value.	5361 truncated to 2sf = 5300 0.382 truncated to 2dp = 0.38
Surface Area		The total area of all its faces.	The surface area of a cube of length 3cm $SA = 6 \times 3^2 = 54cm^2$
Prism		A 3D solid that has the same cross section all through its length, where the front and back faces are joined by rectangles	A cuboid, A triangular prism (Toblerone). A cylinder is not a prism
Capacity		The amount of liquid a 3D object can hold. Measured in ml or litres.	$1l = 1000cm^3$ $1ml = 1cm^3$
Circumference		The perimeter of a circle. $C = 2\pi r = \pi d$	
Arc		Part of the circumference of a circle. $Arc = \frac{\theta}{360} \times 2\pi r$	 For a sector with angle $x°$ of a circle with radius r Arc length $= \frac{x}{360} \times 2\pi r$ Area of sector $= \frac{x}{360} \times \pi r^2$
Sector		A slice of a circle between an arc and two radii. $Area = \frac{\theta}{360} \times \pi r^2$	

Area of a trapezium $= \frac{1}{2}(a+b)h$



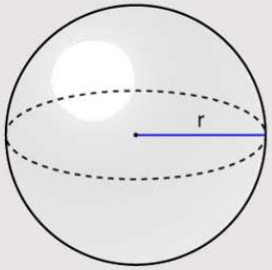
Volume of a prism
= area of cross section × length





The volume of a cylinder is
$V = \pi r^2 h$

The total surface area of a cylinder is
$A = 2\pi r^2 + 2\pi rh$

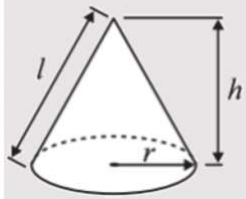


The volume of a sphere is
$V = \frac{4}{3}\pi r^3$

The surface area of a sphere is
$A = 4\pi r^2$

The volume of a pyramid is
$V = \frac{1}{3} \times area\ of\ base \times vertical\ height$

The volume of a cone is $V = \frac{1}{3}\pi r^2 h$



Curved surface area of cone
$A = \pi rl$
Total surface area of a cone
$A = \pi rl + \pi r^2$

Year 9 – Maths – Summer 2 – Unit 8

Keyword	Definition
Plan	The view from above a solid
Front elevation	The view of the front of the solid.
Side elevation	The view of the side of the solid.
Transformation	Process that moves a shape to a different position or changes its size. Reflections, rotations, translations and enlargements are types of transformation
Image	The resulting shape after an object is transformed
Enlargement	A transformation where all the side lengths of a shape are multiplied by the same scale factor.
Resultant vector	The vector that moves the original shape to its final position after a series of translations or other transformations that do not change the shape or orientation.
Invariant point	An invariant point on a line or a shape is a point that does not vary (move) under a single or combined transformations
Bearing	An angle in degrees, clockwise from north and always written using three digits, e.g. 090 or 127
Construct	To draw accurately using a ruler and compasses
Perpendicular bisector	A line that cuts another line in half at right angles.
Equidistant	'at equal distance'.
Angle bisector	A line that cuts an angle exactly in half.
Locus	The set of all points that obey a certain rule. Often the locus is a continuous path

To fully describe a **single transformation**
- involving reflection, you must state it is a reflection and give the equation of the line of reflection
- involving a rotation, you must state it is a rotation and give the angle, direction and centre of rotation (no direction is needed for a rotation of $180°$)
- involving an enlargement, you must state it is an enlargement and give the scale factor and the coordinates of the centre of enlargement.
- Involving translation, you must state it is a translation and give the translation vector

Only name one transformation when describing a <u>single</u> transformation.

- To find the centre of enlargement, join corresponding points of the object and the image, extend and see where the lines cross.
- A negative scale factor takes the image to the opposite side of the centre of enlargement and also rotates the shape by 180°
- When a shape is enlarged the area increases by $(scale\ factor)^2$

- In a translation, all the points on the shape move the same distance in the same direction.
- You can describe a translation by using a column vector.
- The top number gives the movement parallel to the x-axis.
- The bottom number gives the movement parallel to the y-axis.

- In reflections, rotations and translations, the object and the image are congruent, as the lengths of the sides and the angles do not change.
- In an enlargement, the object and the image are similar.

- To find the centre of rotation, join corresponding vertices of the object and its image, and then construct perpendicular bisectors. Where they intersect will be the centre of rotation.

- The shortest path from a point to a line is perpendicular to the line
- A circle is the locus of a point that moves so that it is always a fixed distance from a fixed point.
- Points equidistant from two points lie on the perpendicular bisector of the line joining the two points.
- Points equidistant from two lines lie on the angle bisector.

Bournemouth School music department

Year 9 Summer Term 2

AoS 2 Vocal Music

Queen—Killer Queen

Background

Stadium Rock - rock music intended for larger venues

Glam Rock— style of rock known for its over the top and glamorous dress sense

Anthem—song with a strong memorable melody with rousing and uplifting characteristics.

Rhythm

Compound metre—a metre in which the beat subdivides into three

Swing rhythm—often in jazz—rhythm where the first of a pair of quavers is played longer than the second.

Texture

Homophonic a texture comprising of a melody and an accompaniment

Vamp—a short repeated accompanying phrase

Structure

Intro—opening section of the song before the main parts

Verse—section in which the lyrics change but the music remains broadly the same each time it is heard

Chorus—section in which the lyrics and the music remains the same. Often catchy and memorable, with a lift in mood from the verse. Alternates with the verse

Solo—an extended often improvised melodic line played by an instrument. Usually in the middle of the song.

Outro—final ending section, like a coda in classical music

Melody

Word Painting—making the music sound like the meaning of the words

Syllabic—when lyrics are sung with one note per syllable

Tessitura—the range of the instrument/ voice in which the melody is set

Instrumentation

Distortion—an effect that increases the volume and sustain on an electric guitar, making the timbre more gritty or smoother, depending on settings

Effects—electronic devices used to enhance or alter the basic quality of the sound

EQ stands for equalization, a production technique that adjusts the volume of specific frequencies in a sound

Flanger—and effect with a swirling sound

Hi Hat—pair of cymbals mounted on a stand so that they can be struck together using a foot pedal

Kick drum or bass drum—biggest drum on a kit, played with a foot pedal

Mix—the relative volume of different tracks in a recording and their place in the stereo field.

Multitracking – separate recordings are made of each sound source and then mixed to give a final recording

Panning - giving sounds different levels in the left and right speakers to give the impression they are coming from different places.

Overdubbing—recording a part over previously recorded music

Pull Offs—when a note is sounded on the guitar by pulling the finger off the fret to alter the note. Makes the pitch lower

Ride—type of cymbal which often has a counter-rhythm to the main beat

Snare - a drum with a series of loose metal wires in contact with the lower skin giving a distinctive buzz or rattle to the sound

Snare roll—a rapid succession of notes on the snare

Stereo Field—how the sounds are positioned in the left and right speakers

Vibrato—technique used to cause rapid variations in the pitch of a note.

Harmony

Added notes—notes that are added to the basic triad

Circle of 5ths – chords with their root a 5th apart

This QR code will take you to a Spotify playlist with audio examples of many of the concepts covered on this sheet and in lessons. You will find it helpful to listen to these as you learn.

Characteristics of a successful entrepreneur

1. Curiosity
The drive to continuously ask questions and challenge the status quo.

2. Willingness to Experiment

3. Adaptability
The ability to evaluate situations and remain flexible to ensure success, no matter what unexpected changes occur.

4. Decisiveness
To be successful, an entrepreneur has to make difficult decisions and stand by them.

5. Self-Awareness
An awareness of one's own strengths and weaknesses.

6. Risk Tolerance
Successful entrepreneurs are comfortable with some level of risk to reap the rewards of their efforts.

7. Comfort with Failure
Entrepreneurs must prepare themselves for, and be comfortable with, failure.

8. Persistence
Entrepreneurs see failure as an opportunity to learn and grow.

9. Innovative Thinking
Innovation often goes hand-in-hand with entrepreneurship.

10. Long-Term Focus
Entrepreneurship is a long-term endeavour, and entrepreneurs must focus on the process from beginning to end to ensure long-term success.

Relationship advice:

- **Be respectful** at all times
- **Communicate clearly,** share your thoughts and seek the thoughts of others without judgement
- **Safety,** keep each other safe
- **Consent,** it is the person seeking consent who is responsible for ensuring that these conditions are met. Ask, do not assume.

Remember - the law is there to protect young people. Naked images of under 18s are illegal, but you will not be in trouble with the police if someone has made you share an image of yourself. The law was created to protect young people, not get them into trouble. NOTE: You will be trouble if you share naked images of others who are under 18; with or without their consent.

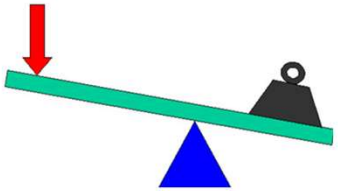
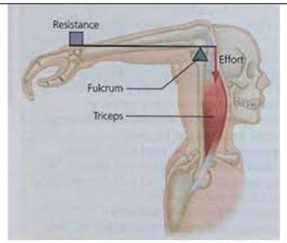
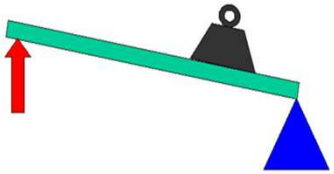
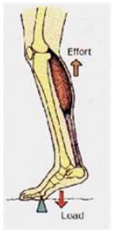
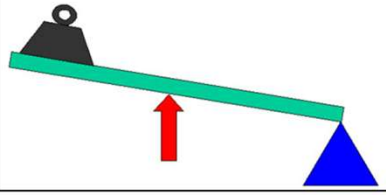
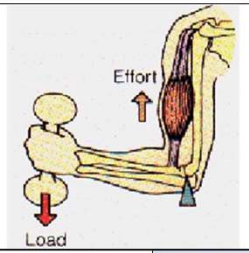
Useful websites:

https://www.childline.org.uk/ 0800 1111
Brook: www.brook.org.uk/help-advice
For advice on where to get help after a sexual assault, www.nhs.uk/live-well/sexual-health/help-after-rape-and-sexual-assault
You can contact Victim Support if you feel you, or someone you know, may have been a victim of a sexual offence: www.victimsupport.org.uk

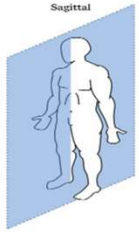
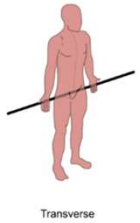
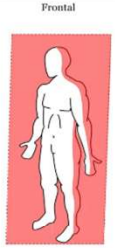
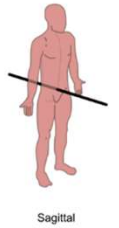
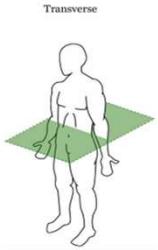
3.1.2.1 Lever systems, examples of their use in activity and the mechanical advantage they provide in movement KO 1 of 2

Classification of Levers

Movement in the body occurs through the application of levers – to cause movement at a joint (fulcrum) the muscle (effort) pulls on a bone (load)

Fulcrum: The joint where the lever arm pivots. It's shown as a triangle. 	Load: The resistance against the pull of the muscles on the lever arm e.g. your body weight and/or something being lifted. A square is used to represent the load. 	Effort: The force applied by the muscles to the lever arm. Shown by an arrow pointing in the direction of the force. 
1,2,3 = FLE	We use this ditto to remember which is the middle component of the lever system!	
1st Class Lever System – The Fulcrum is the middle component	**2nd Class Lever System – The Load is the middle component**	**3rd Class Lever System – The Effort is the middle component**
1st class lever: The load and effort are at opposite ends of the lever. The fulcrum is in the middle. E.g. tricep extension during a football throw in.	2nd class lever: the fulcrum and effort are at opposite ends of the lever. The load is in the middle. E.g. standing on tiptoes for a free throw in basketball.	3rd class lever: the fulcrum and load are at opposite ends of the lever. The effort is in the middle. E.g. bicep curl, at the elbow joint.
 	 	 
Mechanical Advantage of Levers		
1st class = neutral MA. Can be high or low.	2nd class = high mechanical advantage. Short load arm allows a heavier load to be lifted.	3rd class = low mechanical advantage. Short effort arm allows for faster movement and a large range of motion.

3.1.2.2 Planes and axes of movement KO 2 of 2

Plane = a line drawn through the body to split it in to two parts.		Axis = an imaginary straight line around which the body rotates.	
1. Sagittal plane - through the centre and splits the body into left and right. Forwards or backwards movement. **Sagittal = SOME**		1. Transverse axis- passes through the body from left to right at the hips. Movements in a sagittal plane (forwards and backwards) take place around a transverse axis. **Transverse = TEACHERS**	
2. Frontal plane - separates the front and the back to create a front side and back side. Side to side movement. **Frontal = FEAR**		2. Sagittal axis - passes through the body from back to front, through the belly button. Movements in a frontal plane (side to side) take place around a sagittal axis. **Sagittal = STUDENTS**	
3. Transverse plane - cuts straight through the hips to divide the top of the body from the bottom. Rotational or turning movement. **Transverse = TALKING**		3. Longitudinal axis - passes vertically through the body from head to toe. Movements in a transverse plane (rotations) take place around a longitudinal axis. **Longitudinal = LOUDLY**	
Planes and axis are always paired together – as shown above. We remember them using **SOME**		**TEACHERS, FEAR STUDENTS, TALKING LOUDLY**	

Sporting Movements in each plane/axis			
Plane	**Axis**	**Joint Movement**	**Sporting Example**
Sagittal	Transverse	Flexion/Extension	Running/Jumping
Frontal	Sagittal	Abduction/Adduction	Star Jumps/Cartwheel
Transverse	Longitudinally	Rotation	Discus, Hammer Throw, pirouette

Topic 5a - Forces

Keyword	Learn	✓
Scalar	A quantity with size (magnitude) only.	
Vector	A quantity with both size and direction. A vector quantity may be represented by an arrow. The length of the arrow represents the magnitude, and the direction of the arrow the direction of the vector quantity.	
Velocity	Speed in a given direction. Velocity is a vector.	
Displacement	Distance travelled in a given direction. Displacement is a vector.	
Force	A push or pull. Measured in newtons, N. Force is a vector.	
Contact force	Force exerted between two objects when they touch. E.g. friction, air resistance, tension and normal contact force.	
Non-contact force	Force exerted on objects when they are physically separated. E.g. gravity, electrostatic and magnetic forces.	
Centre of mass	The point at which the weight of the object can be taken to act. In diagrams, arrows representing the weight should start from this point.	
Resultant force	A single force that can replace multiple forces acting on an object.	
Free body diagram	Used to show the magnitude and direction of all the forces acting on the object.	
Work	When a force of 1 N pushes an object 1 m, in the direction of the applied force, then 1 J of work is done	
Elastic deformation	When an object is stretched, it returns to its original length after the forces are removed.	
Inelastic deformation	When an object is stretched, it does not return to its original length after the forces are removed.	
Extension	The difference between the stretched and unstretched lengths of a spring.	
Elastic potential energy	The energy stored in a stretched (or compressed) spring.	
Moment	The turning effect of a force. Measured in newton metres, Nm.	
Principle of moments	When a system is balanced the sum of the anti-clockwise moments equal the sum of the clockwise moments.	
Fluid	A liquid or a gas. It flows and can take the shape of the container.	

Quantity	Unit	Symbol
force	newton	N
mass	kilograms	kg
gravitational field strength	newtons per kilogram	N / kg
work	joule	J
extension	metre	m
spring constant	newtons per metre	N / m
elastic potential energy	joule	J
moment	newton metres	Nm
pressure	newtons per metre squared	N/m^2
density	kilograms per metre cubed	kg/m^3

Pressure in fluids. Learn these two statements.

The pressure in fluids causes a force normal (at right angles) to any surface.

A partially (or totally) submerged object experiences a greater pressure on the bottom surface than on the top surface. This creates a resultant force upwards. This force is called the upthrust.

Equations

Weight = mass x gravitational field strength $W = m \times g$

Work done = force x distance in the direction of the force $W = F \times s$

Force = spring constant x extension $F = k \times e$

Elastic potential energy $= \frac{1}{2} \times$ spring constant $\times$ (extension)^2 $E_e = \frac{1}{2} \times k \times e^2$

Moment = Force x perpendicular distance $M = F \times d$

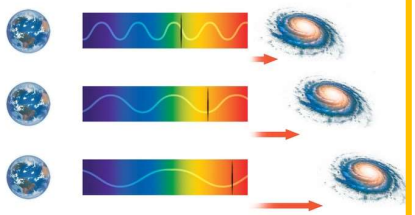
Pressure $= \frac{\text{Force normal to the surface}}{\text{ar} \quad \text{of the surface}}$ $P = \frac{F}{A}$

Pressure = height x density of the liquid x gravitational field strength $P = h \times \rho \times g$

Topic 8 – Space

Keyword	Learn	✓
Planet	A large body which orbits a star (like the Sun).	
Moon	A natural satellite which orbits a planet.	
Solar system	The sun, eight planets, the dwarf planets and moons. Many other stars have similar planetary systems.	
Galaxy	A large group of stars.	
Milky way	The galaxy we live in.	
Nuclear fusion	The joining of light nuclei to form a heavier nucleus. Some of the mass is converted into energy.	
Velocity	Speed in a given direction.	
Orbit	Path of an object in (near) circular motion around another object.	
Red-shift	Light is moved towards the red end of the spectrum as the wavelength increases.	
Big bang theory	Theory that suggests that the universe began from a very small region that was extremely hot and dense about 13.8 billion years ago.	

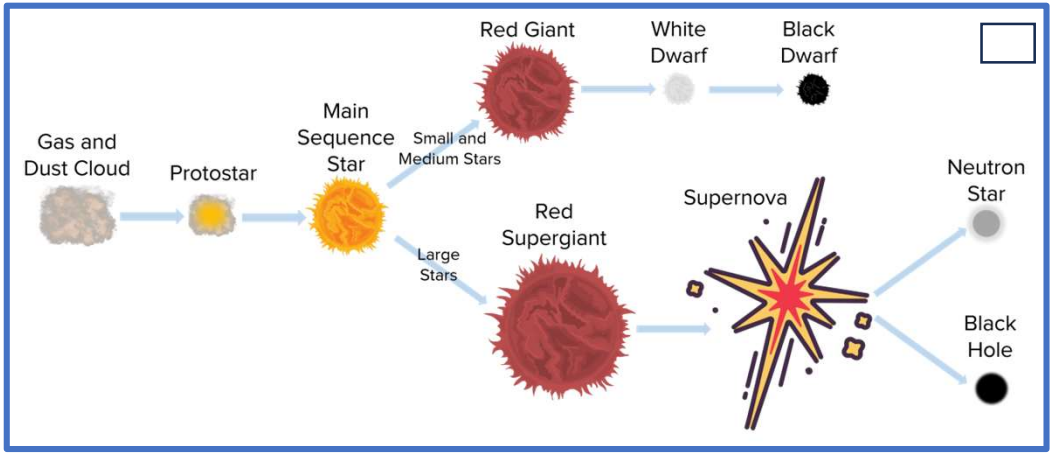
Red-shift and the Big Bang theory



- Red shift is the observed increase in the wavelength of light due to the object moving away.
- The quicker the object moves away the greater the increase in wavelength.
- Galaxies further away are more red-shifted.
- This is evidence that the universe is expanding and supports the Big Bang theory.

- New evidence requires scientists to develop different theories.
- Since 1998, observations of supernovae suggest that distant galaxies are receding ever faster.
- New evidence has lead to new theories about Dark Mass and Dark Energy.

Star life cycle terms – Learn the names in the correct order. Learn to draw the diagram.	
Nebula	Cloud of gas and dust
Protostar	Large ball of gas which contracts to form a star
Main sequence	Releases energy by fusing hydrogen to form helium Forces are balanced; gravitational collapse balanced by expansion due to fusion energy
Red giant	A very large star which fuses helium into heavier elements
White dwarf	Collapsed red giant. Fusion stops and the star slowly cools
Supernova	Gigantic explosion caused by runaway fusion reactions in a very large star. Elements heavier than iron are produced here
Neutron star	Very dense small star made out of neutrons
Black hole	The most concentrated state of matter, from which even light cannot escape



Equations

orbital distance = 2 x π x orbital radius $s = 2 \times \pi \times r$

$$\text{average speed} = \frac{\text{distance}}{\text{time}} \qquad v = \frac{s}{t}$$

The nature of God (what is God like?)
- God is omnipotent (all powerful)
- God is omnibenevolent (all loving)
- God is just (fair)

Key Quotations
"For nothing is impossible with God' - shows God is omnipotent
"For God so loved the world, he gave his One and Only Son" - God is omnibenevolent

Creation
Creation - the act by which God brought the universe into being
The Word – term used at the beginning of John's gospel to refer to God the Son
Christians believe that God created the earth and all living things. Some take the creation story in Genesis literally, therefore they believe God created the world in 6 days and rested on the 7th whereas other Christians believe it is symbolic and teaches them about what God is like.
Key quotation -> "in the beginning, God created the heavens and earth"

The Trinity
Trinity - Christians believe there are three persons in the One God: Father, Son and Holy Spirit. Each person of the Trinity is fully God.

The Father - creator of life
The Son - became incarnate through Jesus. Fully God and fully human
The Holy Spirit - guides and comforts Christians
Key quote -> " We believe in one God'

Incarnation
Incarnation - the belief that Jesus was God in human form (becoming flesh, taking a human form)
Jesus was fully God and fully human, which helps explain his miracles and resurrection.
His words and teachings have authority because they are the word of God.
Christians believe that Jesus is the Messiah (saviour)

Key quotation -> "The Word became flesh and made his dwelling among us." John 1:14 NIV

Crucifixion
Crucifixion - Roman method of execution by which criminals were fixed to a cross
- Jesus was accused of blasphemy (proclaiming to be God) and was crucified on Good Friday
- Although he was fully God he still felt pain as he was also fully human
- Christians believe God understands suffering as Jesus suffered and therefore accept suffering as a part of life
- Jesus' death on the cross washed away humanities sins

Key quotation -> 'Father, into your hands I commit my spirit." Luke 23:46 NIV

Resurrection and ascension
Resurrection - rising from the dead. Jesus rising from the dead on Easter Sunday
Ascension - the event, 40 days after Jesus' resurrection, when Jesus returned to God, the Father in heaven
Christianity is based on the belief that Jesus died and resurrected
Resurrection is important as it teaches Christians not to fear death and that their sins will be forgiven if they follow God's laws.
Ascension is important as it shows Jesus is with God in heaven.
Key quotation -> 'He is risen!"

Resurrection and life after death
Christians believe that because Jesus resurrected they will too.
There are different Christian beliefs about resurrection: some believe a person's soul is resurrected straight after death, others believe it happens at the end of time when Jesus returns to play the role of judge.

How does the belief in resurrection impact Christians?
- Means life after death is real
- Gives them confidence in the face of death
- Inspires them to live a good life and follow Gods laws

Key quotation -> "So it will be the resurrection of the dead."

The afterlife and judgement
Day of Judgement - a time when the world will end and every soul will be judged
Christians believe Jesus plays the role of judge as he has lived life as a human and set the path for Christians to follow
They will be judged based on their behaviour and actions as shown in the Parable of the Sheep and Goats

Key quotation -> "I am the way and the truth and the life. No one comes to the Father except through me"
"For I was hungry and you gave me something to eat..."

Heaven and hell
Heaven - a state of eternal happiness (with God)
Hell - place of eternal suffering (separated from God for eternity)
Purgatory - intermediate state where the soul is cleansed (Catholic belief)
Christians believe if they have lived a good life and had faith in God they will be rewarded with heaven and if they have lived a bad life they will be punished with hell.
Some believe that heaven and hell are physical places, whilst others believe they are spiritual places.

The role of Christ in salvation
Atonement - restoring the relationship between God and humans through the life, death and resurrection of Jesus
- Jesus' crucifixion made up for the original sin of Adam and Eve
- The death of Jesus restored the broken relationship between God and humans which allowed for salvation to be achieved
- Christians can now be forgiven for their sins and go to heaven
- Jesus atoned for the sins of humanity

Key quotation -> 'For the wages of sin is death, but the gift of God is eternal life in Christ Jesus our Lord' Romans 6:23 NIV

Sin and salvation
Sin - any thought or action that separates humans from God
Original sin - everyone is built with the urge to sin/Adam and Eve brought sin into the world
Salvation - saving the soul from sin, made possible by Jesus
Grace - God's love which humans do not have to earn

Salvation through good works -> can be achieved by doing good and following God's laws:
"Faith… without action is dead'
Salvation through grace -> salvation is given by God to show his love, does not have to be earnt 'For it is by grace you have been saved"

High level phrases		
Suelo + infinitive	I usually …	
Tengo ganas de + infinitive	I feel like …	
Acabo de + infinitive	I have just …	
Lo mejor es que…	The best thing is that…	
Lo peor es que …	The worst thing is that…	
Si pudiera, me gustaría + infinitive …	If I could, I would like to …	
Si tuviera más dinero, me gustaría + infinitive	If I had more time, I would like to …	

Opinion phrases		
Pienso que	I think that	
Creo que	I believe that	
Opino que	I think that	
A mi modo de ver	From my point of view	
Me interesa(n)	It interests me	
Me molesta(n)	It annoys me	
Me aburre(n)	It bores me	

Time phrases		
Ayer	Yesterday	
El año pasado	Last year	
Anteayer	The day before yesterday	
Hoy	Today	
Actualmente	Currently	
Mañana	Tomorrow	
La semana próxima	Next week	

Useful adjectives		
Gracioso/a	Funny	
Estupendo/a	Amazing	
Agradable	Pleasant	
Entretenido/a	Entertaining	
Emocionante	Exciting	
Alucinante	Incredible	
Flipante	Fantastic	
Simpático/a	Nice	
Decepcionante	Disappointing	
Desagradable	Unpleasant	
Duro/a	Hard	
Fatal	Awful	
Horroroso/a	Horrific	
Inútil	Useless	
Raro/a	Strange	
Ridículo/a	Ridiculous	

Connectives		
Y	And	
Además	Furthermore	
Así que	So	
Por lo tanto	Therefore	
Ya que	Since	
Dado que	Given that	
No obstante	None the less	
Por otro lado	On the other hand	

Past tense opinions		
Me gustó	I liked it	
Me encantó	I loved it	
Nos gustó	We loved it	
Nos encantó	We loved it	
Fue genial	It was great	
Lo pasé bien	I had a good time	
Lo pasé fatal	I had a terrible time	

¿Qué tiempo hizo?		
Hizo buen tiempo	It was good weather	
Hizo mal tiempo	It was bad weather	
Hizo calor	It was hot	
Hizo frío	It was cold	
Hizo sol	It was sunny	
Hizo viento	It was windy	
Llovió	It rained	
Nevó	It snowed	

¿Qué fue lo peor de tu visita?		
Lo bueno fue cuando	The good thing was when	
Lo malo fue cuando	The bad thing was when	
comí algo malo y vomité	I ate something bad and I vomited	
me puse enfermo	I became ill	
tuvimos que (volver a casa)	we had to (return home)	
dejé	I left	
perdí	I lost	
rompí	I broke	
mi reloj	my watch	
mi maleta	my suitcase	

¿Dónde te quedaste?		
El alojamiento	The accommodation	
Me alojé en	I stayed in	
Me quedé en	I stayed in	
Nos alojamos en	We stayed in	
Nos quedamos en	We stayed in	
Alquilamos	We rented	
una casa	a house	
una habitación	a room	
un coche	a car	

¿Cómo era el alojamiento?		
Tenía	It had	
No tenía	It didn't have	
Había	There was / were	
No había	There wasn't / weren't	
No tenía ni…ni…	It didn't have either…or…	
(una) cocina	a kitchen	
vistas al mar	sea views	
mucho ruido	lots of noise	
El ascensor	The lift	
La luz	The light	
estaba roto/a	was broken	
era muy	it was very	
agradable	pleasant	
decepcionante	disappointing	

¿Qué sueles hacer en verano?		
Suelo	I usually	
Solemos	We usually	
ir al extranjero	Go abroad	

¿Qué fue lo peor de tu visita?		
Lo bueno fue cuando	The good thing was when	
Lo malo fue cuando	The bad thing was when	
comí algo malo y vomité	I ate something bad and I vomited	
me puse enfermo	I became ill	
tuvimos que (volver a casa)	we had to (return home)	
dejé	I left	
perdí	I lost	
rompí	I broke	
mi reloj	my watch	
mi maleta	my suitcase	

¿Qué tal tus últimas vacaciones?		
Acabo de	I have just	
Acabamos de	We have just	
volver de	come back from	
regresar de	returned from	
visitar	visited	
ir a	been to	

Mi aventura por Latinoamérica		
El verano pasado	Last summer	
Hace…días	…days ago	
En primavera	In spring	
En otoño	In autumn	
En verano	In summer	
En invierno	In winter	
Fui de vacaciones a	I went on holiday to	

Mi aventura por Latinoamérica		
Lo mejor fue cuando	The best thing was when	
Lo peor fue cuando	The worst thing was when	
aprendí mucho sobre	I learnt a lot about	
compré regalos	I bought presents	
conocí a	I met	
decidí visitar	I decided to visit	
fui a un parque temático	I went to a theme park	
vi* un partido	I watched a match	
una exposición	An exhibition	
llegué*	I arrived	
visité	I visited	
hice turismo	I went sightseeing	
probé un plato típico	I tried a typical dish	

¿Adónde vas a ir?		
El año próximo	Next year	
El año que viene	Next year	
Voy a	I am going to	
Vamos a	We are going to	
ir a	go to	
pasar	spend	
hacer	do	
ver	watch	
visitar	visit	
Va a ser	It is going to be	

Timetable

	1Mon	1Tue	1Wed	1Thu	1Fri	2Mon	2Tue	2Wed	2Thu	2Fri
Reg										
1										
2										
Break										
3										
4										
Reg										
Lunch										
5										
6										