BOURNEMOUTH SCHOOL

Year 9

Knowledge Organiser 3

Spring Term: 2023-24

Name:_____

✓Hard Work ✓Discipline ✓Smart Appearance ✓Respect

Bournemouth School

Knowledge Organiser: Year 9 Spring Term 1

'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 with you at all times in school and when you need to do your homework at home.
2. Ensure you have your Homework Learning Journal with you at all times in school and when you need to do your homework at home.
3. 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.
4. Initially, follow your homework timetable to decide what to revise each evening.
5. 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 understand 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. Use a blue or black pen to complete your homework or a pencil if you need to draw.
4. Always use a ruler to underline titles and dates.
5. Use a green pen to complete corrections of your work.

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.

What are Annotations?
Annotations are written explanations or critical comments added to art or design work that record and communicate your thoughts. ☐

Do's and don'ts of annotation	Tick
What to do	
Do add labels which help explain your creative process, e.g. 'Initial Ideas', 'Thumbnail Compositional Studies', 'Exploring Negative Space.'	
Do add details on techniques you might forget later, e.g. the stages you went through to achieve a particular print-making or drawing technique.	
Do record your thoughts on the success of the work – what worked and what didn't.	
Do reflect on the work of artists and designers you are influenced by and how this helped inform your ideas.	
Do write down ideas about what you would like to try next, or if there is anything you could change to improve an idea or technique.	
What not to do	
Don't write very lengthy comments. At this stage, the purpose of annotation is to allow you to record your thoughts quickly so you can explore them later	
Don't annotate in a way that distracts attention from the work, e.g. by writing over an area of a drawing in large text.	
Don't use annotations to label obvious things, e.g. 'oil pencil drawing of a bottle.'	

Term/ Keyword	Definition/ explanation	Tick
Observational drawing	Drawing from observation comes in many forms, from a simple sketch of something in front of you to the surrounding landscapes or even a reference image from online sources.	
Tone	the relative lightness or darkness of a colour	
Proportion	refers to the dimensions of a composition and relationships between height, width and depth.	
Mark making	describes the different lines, dots, marks, patterns, and textures we create in an artwork. It can be loose and gestural or controlled and neat.	
Types of pencils	The H stands for hard and the B for black. The harder pencil leaves less graphite on the surface resulting in lighter mark-making. The pencils classed as B, on the other hand, are softer and leave much more graphite on the surface. Hence, the marks are blacker.	
Dry point etching	A printmaking process in which a design is drawn on a plate with a sharp, pointed needle-like instrument.	
Mono printing	a form of printmaking where the image can only be made once, unlike most printmaking which allows for multiple originals.	
Development of ideas	Development is about selecting ideas, visual elements, compositions and techniques from this initial work and using them in new ways. It is important that you don't become too attached to your first idea.	
Realising intentions and reflection	Reflect critically upon your creative journey and its effectiveness in relation to you personal intentions. Have you met them? Has your journey be clear and consistent?	

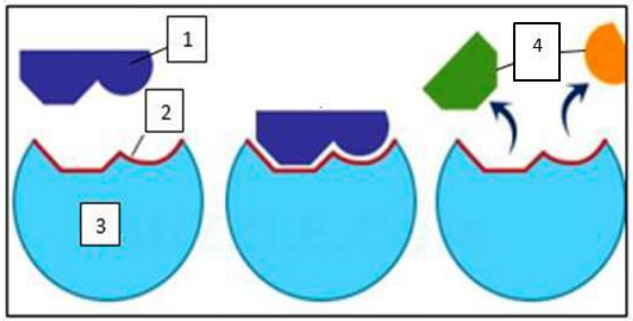
❑ How tone is applied to create form: **You must vary the pressure you apply to your pencil to create a range of tones, from light to dark.** Mark making can be used to create tones, texture and surfaces. **A rubber can be used to create highlights.** Different types of pencils. The spacing between your mark making will create a range of tones, along with layering.

B2a Organisation and Digestion

Levels of organisation: cell → tissue → organ → organ system →organism		✓
Cell	The smallest unit for building all organisms e.g. muscle cell	
Tissue	A group of similar cells which work together to do a particular job e.g. muscle tissue	
Organ	A group of different tissues, which all work together to do a particular job e.g. heart	
Organ system	A group of different organs, which all work together to do a particular job e.g. circulatory system	
Organism	A living thing (capable of the 7 life processes)	

Food tests			✓
Food type	**test**	**Positive result**	
Starch	iodine	Blue/black	
Protein	Biuret's solution	Purple	
Sugar, including glucose	Heat with Benedict's solution	Red	

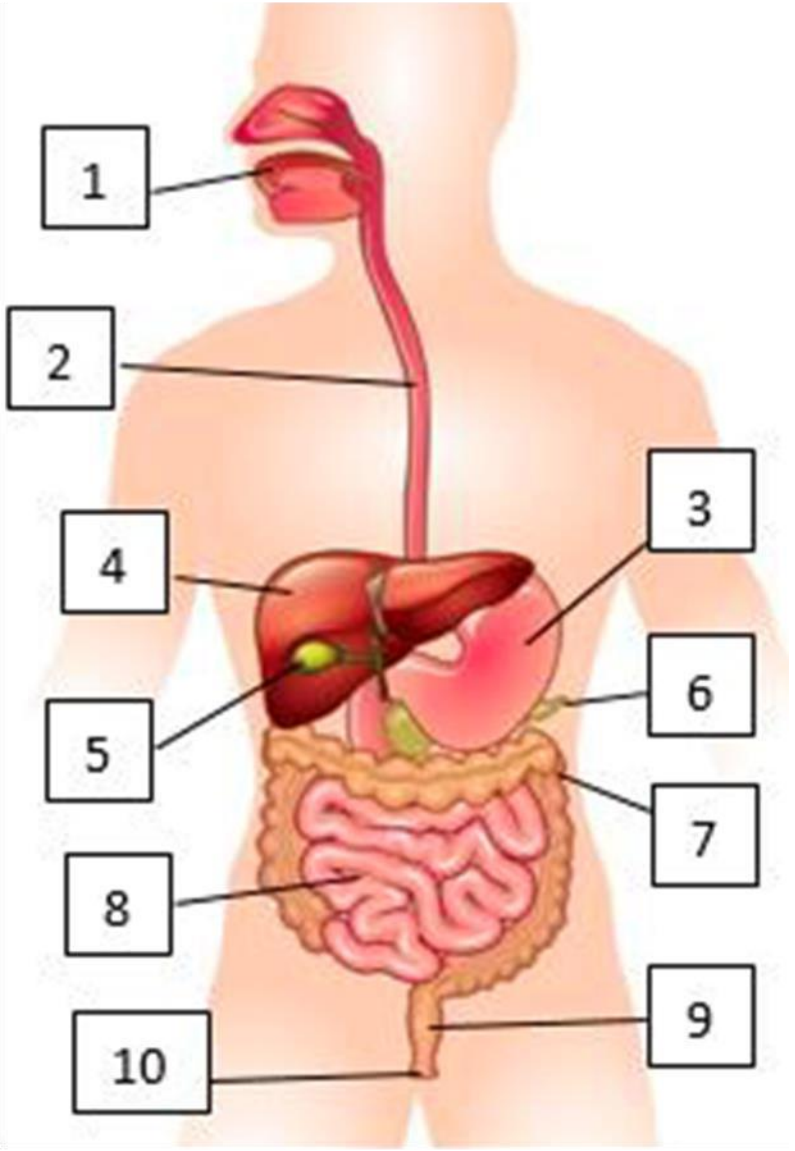
Lock and key model		✓
#	**Description**	
1	Substrate	
2	Active site	
3	enzyme	
4	products	



Digestive enzymes					✓
Enzyme	**Site of production**	**Site of action**	**substrate**	**product**	
Carbohydrase e.g. amylase	Salivary glands, pancreas and small intestine wall	Mouth, small intestine	Carbohydrates e.g. starch	Simple sugars e.g. glucose	
Protease	Stomach, pancreas and small intestine wall	Stomach, small intestine	Proteins	Amino acids	
Lipase	Pancreas and small intestine wall	Small intestine	Lipids	Glycerol and fatty acids	

B2a Organisation and Digestion

Parts of the digestive system			✓
#	**Organ**	**Function**	
1	Mouth	Mechanical digestion by chewing. Saliva from salivary glands, contains the enzyme amylase	
2	Oesophagus	Muscular tubing where peristalsis takes place	
3	Stomach	Mechanical digestion by churning. Cells in the lining of the stomach release acid to kill bacteria and produce the enzyme protease	
4	Liver	Produces bile	
5	Gall bladder	Stores bile	
6	Pancreas	Produces digestive enzymes	
7	Small intestine	Chemical digestion; larger molecules are broken down into small soluble molecules which are absorbed into the blood	
8	Large intestine	Absorbs water from waste back into the bloodstream	
9	Rectum	Stores faeces	
10	Anus	Ring of muscle allowing faeces to exit the body	



The purpose of business planning		✓
The main reasons why a business creates a business plan are:		
Importance in setting up a new business	Lots of decisions to make – planning decisions can help to gather good quality information to help anticipate problems.	
Raising finance	Potential investors will want to know how any money invested will be spent.	
Setting objectives	Everyone in the organisation has a clear target	
How functions of a business will be organised	Marketing, Finance, Operations and HR will all be clearly organised to achieve the success outline in the business plan.	

Basic Financial calculations	✓
Revenue = Sales x price Total costs = total fixed costs + total variable costs Profit = Revenue – Total costs If this is a negative figure it will be defined as a 'loss'.	

Evaluation		✓
Benefits	• Help businesses to raise finance • Organise resources • Motivate employees	
Drawbacks	• Uncertainty • Lack of experience • Opportunity cost • Too optimistic	

Basic financial terms		✓
Variable costs	Costs that vary with output	
Fixed costs	Costs that do not change when a business changes their output	
Total costs	Fixed costs plus variable costs	
Revenue	The income a business receives from selling goods and services.	
Profit	The difference between revenue and costs over a period of time.	

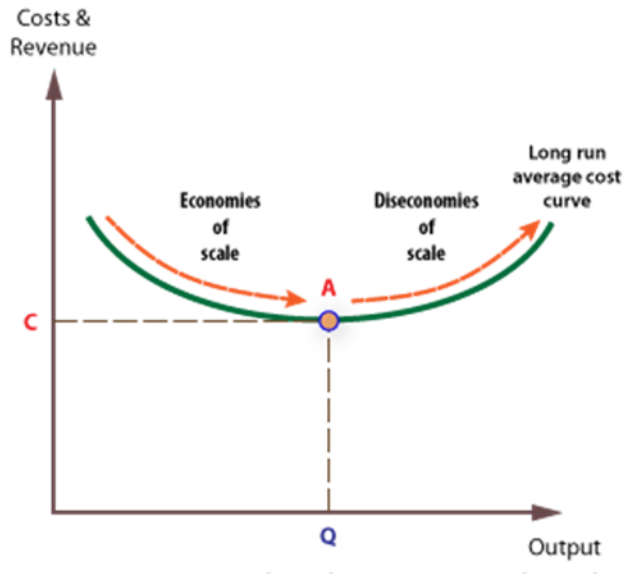
The main sections within a business plan	✓
Most business plans include the following sections:	
1. Personal details	
2. Mission Statement	
3. Objectives	
4. Product Description	
5. Production Details	
6. Staffing requirements	
7. Finance	

Definitions		✓
Organic (Internal) Growth	When a business grows by expanding its own activities	
External (Inorganic) growth	Growing the business by working with other businesses	
E-commerce	The act of buying or selling a product using an electronic system such as the internet	
Outsourcing	When a business uses another business to carry out tasks	
Franchisee	The entrepreneur who buys the right to trade under the name of the franchisor.	
Franchisor	The original business owner who sells a franchise.	
Franchise	When a franchisor sells the rights to its products to a franchisee.	
Merger	When two or more businesses join together to form a new business	
Takeover	When one business buys control of another.	

Methods of expansion		✓
Organic growth:	**External Growth:**	
E-commerce	Merger	
Opening new stores	Take over	
Outsourcing		
Franchising		

Benefits and drawbacks of expansion		✓
Benefits:	Drawbacks:	
Economies of scale	Risk of diseconomies of scale	
Greater market power	Slower decision making	
Reduced risk of takeover	Demotivated staff	
Image	Expensive	

Economies and Diseconomies of scale		✓
Economies of scale:	Diseconomies of scale:	
As output increases average unit cost falls	Average unit cost increases as output increases	
Types: Purchasing Technical Managerial	**Causes:** Poor communication Poor coordination Poor control	

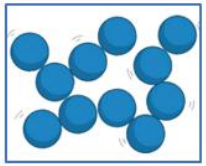


Chapter 2 – Bonding, Structure and Properties of Matter

Keyword	Learn	✓
Allotrope	Different physical forms in which an element can exist. Graphite, charcoal, and diamond are all allotropes of carbon	
Covalent bond	Sharing of pairs of electrons between two non-metal atoms, giving each a full outer shell of electrons	
Electrostatic forces	Forces of attraction between oppositely charged particles.	
Giant Ionic Lattice	A regular 3-D arrangement of alternating positive and negative ions held together by strong electrostatic forces of attraction	
Intermolecular forces	Forces which exist between covalently bonded molecules. The strength of the intermolecular forces impact physical properties like boiling/melting point.	
Ion	An atom or molecule with an electric charge due to the loss or gain of electrons.	
Ionic bond	Strong electrostatic force of attraction between oppositely charged ions.	
Ionic compound	Chemical compound formed of ions arranged in a giant lattice, held together by strong electrostatic forces.	
Metallic bond:	Strong electrostatic force of attraction between positive metal ions and delocalized negatively charged electrons.	

States of Matter – you must be able to represent as particle diagrams

Particles hold a regular arrangement and vibrate in fixed positions – have the least amount of energy. Solids are not compressible.

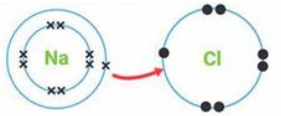


Particles are arranged randomly, close together and are able to move past each other. Liquids are not compressible.

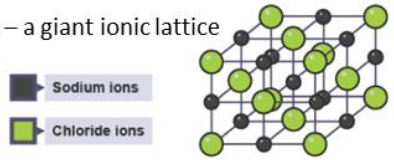
Particles are relatively spread out, move randomly in all directions and have most energy. Gases are compressible.

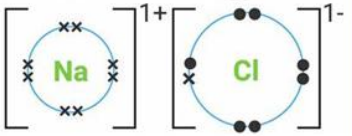
Giant Ionic Lattices – you must be able to draw electron transfer diagrams to represent the formation of ionic bonds

A metal atom loses electron(s) to form a positively charged ion and a non-metal gains these electron(s) to form a negatively charged ion.



Forms a 3-D structure – a giant ionic lattice
e.g. sodium chloride

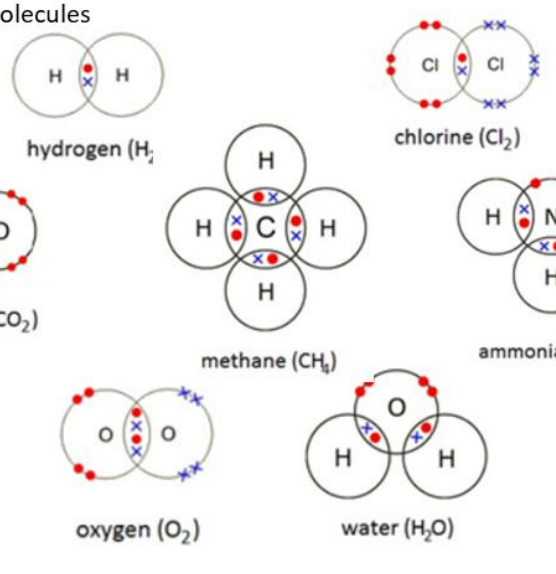




Properties

- High melting and boiling points as a lot of energy is needed to overcome the strong electrostatic attraction between positive and negative ions
- Conduct electricity only when molten or dissolved in water because the ions are free to move and carry charge. Ions are not free to move in solid ionic substances.

Simple Covalent Molecules - you must be able to draw dot and cross diagrams to represent these molecules



Properties

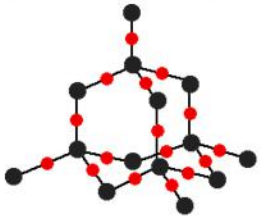
- Low melting and boiling points – due to weak intermolecular forces that require little energy to overcome
- Do not conduct electricity – contain no charged particles that are free to move

Bournemouth School – Knowledge Organiser – Year 9

CHEMISTRY

Chapter 2 – Bonding, Structure and Properties of Matter

Giant Covalent Structures – you must be able to recognise these diagrams



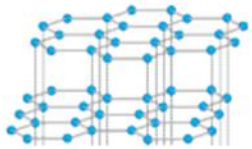
Silicon dioxide (silica), Formula SiO_2

- High melting and boiling point. Many strong covalent bonds between Si and O atoms require large amount of energy to break
- Does not conduct electricity. No charged particles free to move through structure and carry charge

Allotropes of Carbon

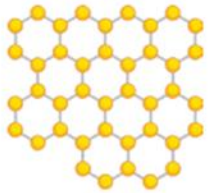
1. Diamond, Formula C

- High melting and boiling point. Hard. Each C atom bonded to 4 others in tetrahedral shape. Many strong covalent bonds between atoms require large amount of energy to break
- Does not conduct electricity. No charged particles free to move through structure and carry charge



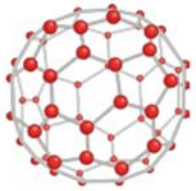
2. Graphite, Formula C

- High melting and boiling point. Each C atom bonded to 3 others in hexagonal shape. Many strong covalent bonds between atoms require large amount of energy to break
- Soft. Weak forces of attraction between layers easily broken
- Good electrical conductor. Delocalised electrons free to move through structure and carry charge



3. Graphene, Formula C

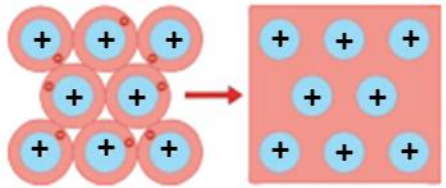
- Single layer of carbon atoms arranged as in graphite.
- Melting and boiling point as for graphite
- Conductivity as for graphite
- Forms strong, flexible sheets which are transparent



4. Fullerenes and Nanotubes, Formula C_n

- Macromolecules, e.g. Buckminsterfullerene C_{60}, with carbon atoms bonded in hexagons & pentagons
- Open cage structures useful in drug delivery systems
- Spherical molecules can roll so useful as lubricants
- Long tube structures form strong lightweight carbon fibres with good electrical conductivity

Giant Metallic Structures



Giant Metallic Structure = layers of positive metal ions surrounded by a sea of delocalised electrons

- High melting and boiling points. Strong attraction between positive ions and negative delocalised electrons
- Good electrical conductors. Delocalised electrons are free to move through the structure and carry charge.
- Malleable and ductile. Layers of ions can slide over each other

Alloys

Alloy = mixture of a metal with one or more other metals or non-metals

- Can be designed with specific improved properties, e.g. corrosion resistance (stainless steel) or hardness (tungsten steel)
- In an alloy, there are atoms of different sizes. The smaller or bigger atoms distort the layers of atoms.
- The layers do not slide over each other as easily so alloys are usually harder and stronger than the pure metal.

Polymers

Polymer = Large long-chain molecule made up of lots of small molecules (monomers) joined together by covalent bonds.

Thermosoftening Polymers

- Easy to recycle as they soften and melt when heated – can be remoulded
- Polymer chains held together by weak intermolecular forces of attraction – require little energy to overcome

Thermosetting Polymers

- Suitable for saucepan handles as they do not soften and melt when heated
- Polymer chains held together by strong covalent bonds (crosslinks) so require lots of energy to break

Nanoparticles

Nanoparticle = Particle between 1 and 100 nanometres in size

- Usually contain only a **few hundred atoms**
- High **surface area** to **volume** ratio gives properties different from those for the same materials in bulk so smaller quantities are needed

Name of Particle	Diameter
nanoparticle	1–100nm
fine particles ($PM_{2.5}$)	100–2500nm
coarse particles (PM_{10})	2500–10000nm

- As particle size decreases, surface area **increases** in relation to volume
- e.g. As the side of a cube decreases by a factor of 10, the surface area to volume ratio increases by a factor of 10

2.2 Programming Fundamentals

<table>
<tr><th>Keyword</th><th>Definition / Example</th><th>✓</th></tr>
<tr><td>Subprogram</td><td>Small programs that are written within a larger, main program. The purpose of a subprogram is to perform a specific task.</td><td></td></tr>
<tr><td>Procedure</td><td>A subprogram that performs a specific task.
<table><tr><th>Python</th><th>OCR Ref.</th></tr><tr><td><pre>def add(num1, num2):
    answer = num1 + num2
    print(answer)</pre></td><td><pre>procedure add(num1, num2)
    answer = num1 + num2
    print(answer)
endprocedure</pre></td></tr></table></td><td></td></tr>
<tr><td>Function</td><td>A subprogram that manipulates data and returns a result back to the main program.
<table><tr><th>Python</th><th>OCR Ref.</th></tr><tr><td><pre>def add(num1, num2):
    answer = num1 + num2
    return answer</pre></td><td><pre>function add(num1, num2)
    answer = num1 + num2
    return answer
endfunction</pre></td></tr></table></td><td></td></tr>
<tr><td>Random</td><td>To generate a random number between two values.
<table><tr><th>Python</th><th>OCR Ref.</th></tr><tr><td><pre>rand = random.randint(1,10)</pre></td><td><pre>rand = random(1,10)</pre></td></tr></table></td><td></td></tr>
</table>

2.2 Programming Fundamentals

<table>
<tr><th>Keyword</th><th>Definition / Example</th><th>✓</th></tr>
<tr><td>String manipulation</td><td>phrase = “Computer Science”
<table><tr><th></th><th>Code</th><th>Value</th></tr><tr><td>Python</td><td><pre>len(phrase)</pre></td><td>16</td></tr><tr><td>OCR Ref.</td><td><pre>phrase.length</pre></td><td></td></tr></table>
<table><tr><th></th><th>Code</th><th>Value</th></tr><tr><td>Python</td><td><pre>phrase[3:8]</pre></td><td>“puter”</td></tr><tr><td>OCR Ref.</td><td><pre>phrase.substring(3,5)</pre></td><td></td></tr></table>
<table><tr><th></th><th>Code</th><th>Value</th></tr><tr><td>Python</td><td><pre>phrase.upper()</pre></td><td>“COMPUTER SCIENCE”</td></tr><tr><td>OCR Ref.</td><td><pre>phrase.upper</pre></td><td></td></tr></table>
<table><tr><th></th><th>Code</th><th>Value</th></tr><tr><td>Python</td><td><pre>phrase.lower()</pre></td><td>“computer science”</td></tr><tr><td>OCR Ref.</td><td><pre>phrase.lower</pre></td><td></td></tr></table></td><td></td></tr>
<tr><td>Advanced string manipulation</td><td>.
<table><tr><th></th><th>Code</th><th>Returns</th></tr><tr><td>Python</td><td><pre>ord(“a”)</pre></td><td>65</td></tr><tr><td>OCR Ref.</td><td><pre>ASC(“a”)</pre></td><td></td></tr></table>
<table><tr><th></th><th>Code</th><th>Returns</th></tr><tr><td>Python</td><td><pre>chr(65)</pre></td><td>“A”</td></tr><tr><td>OCR Ref.</td><td><pre>CHR(65)</pre></td><td></td></tr></table></td><td></td></tr>
</table>

What is a mechanical property?
Elements of a material that resist deformation from external forces in a particular way.

Mechanical properties

Property	Definition
Strength	Ability to withstand forces by squashing (compressive strength) or stretching (tensile strength).
Elasticity	Ability to return to its original shape once the deforming force has been removed.
Plasticity	Ability to permanently deform without breaking when subjected to a force.
Malleability	Ability to deform in all directions without fracture.
Ductility	Ability to be drawn out, bent or twisted without fracture.
Hardness	Ability to resist deformation, indentation or penetration.
Toughness	Ability to withstand sudden shock or stress.
Brittleness	Inability to withstand sudden shock or stress.
Durability	Ability to withstand deterioration over a long period of time.
Stability	Ability to resist changes in shape over time.
Stiffness	Ability to resist bending.

What is a physical property?
Elements which can be defined as measurable i.e. colour, weight, size etc.

Physical properties

Property	Definition
Density	Compactness of a material, defined as mass per unit volume.
Electrical Conductivity	Ability to conduct electricity.
Thermal conductivity	Ability to conduct heat.
Size	Dimensions of a material.
Corrosion	When a material reacts with water in the air i.e. ferrous metals rusting.
Aesthetics	The appearance of a material i.e. colour, grain etc.
Optical	Ability to absorb or reflect light.
Joining	Ability to be joined to other materials.
Magnetism	Attraction to magnetic material.

Tick this box once this has been covered in lesson ☐

GCSE Design Technology — CORE 1.08 Metals

What is a ferrous metal?
A metal which contains iron.

Ferrous metal	Properties	Uses
Mild steel	Tough, ductile, malleable, magnetic, high tensile strength, easily joined, poor corrosion resistance	• Screws, nails, bolts • Girders • Car body panels, • General engineering purposes
Stainless steel	Corrosion resistant, hard, tough, sometimes magnetic, resists wear, difficult to cut. Can alter properties by varying alloyed metals	• Kitchenware • Sinks • Cutlery • Medical equipment • Marine applications
Cast iron	Hard 'skin', brittle, soft core, magnetic. Good in compression Self-lubricating	• Machine Parts • Vices • Break discs • Manhole covers

What is a non-ferrous metal?
A metal which does not contain iron.

Non-ferrous metal	Properties	Uses
Aluminium	Corrosion resistant, easily machined, good heat/electrical conductor, excellent strength-to-weight ratio, polishes well	• Aircraft parts • Foil • Window frames • Engine parts • Drinks cans
Copper	Reddish brown; corrosion resistant, ductile, tough, easily machined, good heat/electrical conductor, good hot or cold working, polishes well	• Electrical wire • Electrical components • Gas and water pipes • Printed circuits
Brass	Corrosion resistant, easily machined, good heat/electrical conductivity casts well, harder than Copper, polishes well	• Plumbing fittings • Door fittings • Locks • Musical instruments

Bournemouth School

Year 9 Power and Conflict (Spring 1) Knowledge Organiser

Introduction structure	Example	✓
Identify the key word in the question and say how both poems explore this.	*….is explored in both (named poem - 1) and (chosen poem - 2).*	
If necessary develop this idea with a second sentence.	*Both authors…*	
Now say how both poems do this uniquely.	*While (Poem 1)…, (Poem 2)…*	

What to include in a comparative paragraph	✓
Clear point linked to the question	
Use evidence to support ideas	
Identify a technique	
Use subject terminology	
Analyse the poet's intentions/ messages in using specific techniques	
Link to context	
Use comparative connectives	

Themes	Poems – remember, there's subthemes within these!	✓
Power of humans	Charge of the Light Brigade, War Photographer, Kamikaze, Emigree, Ozymandias, Storm on the Island, London, My Last Duchess, Tissue	
Power of nature	Bayonet Charge, Exposure, Kamikaze, Ozymandias, Prelude, Storm on the Island, Tissue	
Negative emotions	Bayonet Charge, Exposure, Remains, War Photographer, Poppies, Prelude, London, Checking Out Me History	
Loss and absence	Exposure, Charge of the Light Brigade, Remains, Poppies, Kamikaze, Emigree, My Last Duchess	
Effects of conflict	Bayonet Charge, Exposure, Charge of the Light Brigade, Remains, War Photographer, Poppies, Kamikaze, Emigree, Storm on the Island	
Memory	Charge of the Light Brigade, Remains, Poppies, Kamikaze, Emigree, Ozymandias, Prelude, My Last Duchess, Checking Out Me History	
Internal conflict	War Photographer, Kamikaze, Emigree, Checking Out Me History, Remains, Poppies, Bayonet Charge, London	
Identity	Remains, Kamikaze, Emigree, Checking Out Me History, Tissue	
Individual experiences	Bayonet Charge, Exposure, Remains, War Photographer, Poppies, Kamikaze, Emigree, Ozymandias, Prelude, London, My Last Duchess, Checking Out Me History	
Reality of conflict	Bayonet Charge, Exposure, Charge of the Light Brigade, Remains, War Photographer, Poppies, Emigree,	

Assessment objectives	✓
AO1: • make meaningful comparisons between two poems • Be able to use quotations to support your ideas.	
AO2: • use subject terminology & analyse the effect of the writer's techniques	
AO3: • demonstrate knowledge of context and compare contexts between two poems	

Comparative terminology (addition)	Comparative terminology (opposition)	✓
Similarly,	Conversely,	
Likewise,	However,	
In addition,	In contrast,	
In the same way,	On the other hand,	
In a similar manner,	Yet… but…	
Equally,	Whereas,	
As with…	Alternatively,	

Bournemouth School – Knowledge Organiser – Year 9

ENGLISH

Bournemouth School

Year 9: 19th Century Short Stories Knowledge Organiser

Glossary 1		✓
Term	Definition	
Convention	How something is usually done.	
Red Herring	A misleading clue.	
Metropolis	Large/ busy city.	
Pitiable	Poor/ small.	
Dog-cart	Large four wheeled carriage.	
Defray	Provide money to pay.	
Manifold	Many and various.	
Dissolute	Overindulging in pleasures.	
Squire	A man of high social standing.	
Morose	Sullen/ ill-tempered.	
Bequeathed	Leave something to someone.	
Delirium	Disturbed state of mind.	
Livid	Furiously angry.	
Zest	Great enthusiasm and energy.	
Masonry	Stonework.	
Tangible	Something you can touch.	
Vigil	Being awake when usually asleep.	
Circumlocution	Using too many words unnecessarily.	

Glossary 2		✓
Term	Definition	
Syntax	Arrangement of words.	
Postnatal	The time after childbirth.	
Bioterrorism	Using chemical substances as weapons.	
Parody	A funny, exaggerated imitation.	
Hearken	Listen.	
Dissimulation	Concealing our thoughts/ feelings.	
Sagacity	Being wise.	
Audacity	Taking bold risks.	
Trifles	Something unimportant.	
Felicity	Intense happiness.	
Congenial	Pleasing to one's tastes.	
Arbors	Like a pergola, a frame.	
Satire	Style of writing where human foolishness is mocked. .	
Scrutinising	Examine/ inspect closely.	
Chiefly	Mainly.	
Pestilence	A fatal epidemic disease.	
Exaltation	A feeling of extreme happiness.	

Context	Description	✓
Arthur Conan Doyle	A British writer and doctor who created the character of Sherlock Holmes. He wrote four novels and fifty-six short stories about Holmes and Dr Watson.	
Mystery genre	Population and therefore crime rises meant the public were interested in how the police solved crimes.	
Victorian Gentleman	Appeared respectable and orderly in society. Sherlock Holmes was an example of what people aspired to.	
Science	Technology was advancing, eg. Fingerprinting techniques. These featured more in literature.	
Edgar Alan Poe	Suffered from depression and substance misuse. His work captures the darker parts of his personality.	
Penny dreadfuls	Little books that were cheap to buy and very popular for their stories that involved blood and gore, as well as scandals.	
Mental illness	People feared mental illness as a threat to public safety, so asylums were opened to contain these people.	
Women's rights	Women were expected to follow their husband's opinions, and only earned the right to vote fully in 1928.	
Charlotte Perkins Gilman	Suffered with postnatal depression and didn't receive good treatment (like many women at the time). She was an advocate for women's social reform.	
Bioterrorism	Because of the advances in Science, people were afraid of the possibility of using biochemical weapons for terrorism purposes.	
Religion	The Victorians were deeply religious and feared new scientific advancements as an opposition to their beliefs.	
H.G. Wells	A pioneer in the science genre, he was heavily respected as a writer because his work was stimulating.	

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.

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	Liquid	Meringue

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).

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.

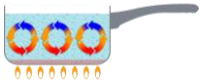
. Have hot food on cold days.

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.

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.

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.

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

travailler	to work
Je travaille	I work
Tu travailles	You work
Il/Elle travaille	He/She works
Nous travaillons	We work
Vous travaillez	You all work
Ils/Elles travaillent	They work

vouloir	to want to
Je veux	I want
Tu veux	You want
Il/Elle veut	He/She wants
Nous voulons	We want
Vous voulez	You all want
Ils/Elles veulent	They want

devoir	to have to
Je dois	I have to
Tu dois	You have to
Il/Elle doit	He/She has to
Nous devons	We have to
Vous devez	You all have to
Ils/Elles doivent	They have to

pouvoir	to be able to/can
Je peux	I can
Tu peux	You can
Il/Elle peut	He/She can
Nous pouvons	We can
Vous pouvez	You all can
Ils/Elles peuvent	They can

Vouloir, devoir and pouvoir are modal verbs. Modal verbs are followed by an infinitive
eg je veux être, on veut travailler

The simple future:

It is used to describe what will happen in the future "I will work". To form it, use future stem plus appropriate ending.
e.g je travaille**rai** – *I will work*.
For **–er** and **–ir** verbs, the future stem is the infinitive. For **–re** verbs, drop the –e from the infinitive.
e.g. vendr**e** -> Je vendr**ai** – *I will sell*

Simple future Infinitive + Verb endings		For example
Je	***-ai***	*Je travaille**rai***
Tu	***-as***	*Tu travaille**ras***
Il/Elle/On	***-a***	*Il/Elle/On travaille**ra***
Nous	***-ons***	*Nous travaille**rons***
Vous	***-ez***	*Vous travaille**rez***
Ils/Elles	***-ont***	*Ils/Elles travaille**ront***

Simple future verb forms for irregular verbs

Irregular future stems + same endings	
avoir	*aur-*
être	*ser-*
aller	*ir-*
faire	*fer-*
vouloir	*voudr-*
pouvoir	*pourr*
devoir	*devr-*

avoir	to have
J'ai	I have
Tu as	You have
Il/Elle a	He/she has
Nous avons	We have
Vous avez	You all have
Ils/Elles ont	They have

être	to be
Je suis	I am
Tu es	You are
Il/Elle est	He/She is
Nous sommes	We are
Vous êtes	You all are
Ils/Elles sont	They are

To form the past tense (passé compose):
Use a form of avoir/être and the past participle
past participles of –er verbs end in é
of –ir verbs end in i
of –re verbs end in u

There are lots of irregular past participles!

aller	to go
Je vais	I go
Tu vas	You go
Il/Elle va	He/She goes
Nous allons	We go
Vous allez	You all go
Ils/Elles vont	They go

faire	to do
Je fais	I do
Tu fais	You do
Il/Elle fait	He/She does
Nous faisons	We do
Vous faites	You do
Ils/Elles font	They do

Mots essentiels	Essential words
car	because
comme	as
lorsque	when
par contre	on the other hand
par exemple	for example
puisque	since/as
si	if
même si	even though
vu que	seeing that
étant donné que	given that
cependant	however
surtout	especially

Year 9 French Half-term 3

A l'horizon

Les emplois - Jobs		
Qu'est ce que tu veux faire plus tard ?	What do you want to do later?	
Je veux être	I want to be	
avocat	lawyer	
boulanger	baker	
caissier	cashier	
chanteur/chanteuse	singer	
coiffeur	hairdresser	
comptable	accountant	
diplomate	diplomat	
directeur/direc-trice de magasin	store manager	
fermier	farmer	
infirmier/infirmière	nurse	
ingénieur	engineer	
ouvrier	factory worker	
médecin généraliste	doctor (GP)	
professeur	teacher	
vendeur	shop assistant	
vétérinaire	vet	

Verbes utiles – Useful verbs		
acheter	to buy	
aimer le contact avec les gens/les autres	to like the contact with people/others	
discuter	to discuss	
rencontrer	to meet	
respecter	to respect	
rigoler	to laugh	
travailler	to work	
vendre	to sell	
voir	to see	
voyager	to travel	

Le travail – Work		
le métier	job/profession	
la profession	Profession	
un stage	training course/ work placement	
un poste	post	
un candidat	candidate	
créatif/créative	creative	
varié(e)	varied	
le boulot	job (informal)	
l'emploi	job (more formal)	

A l'avenir – in the future		
Je quitterai le collège	I will leave school	
Je ferai un apprentissage	I will do an apprenticeship	
Je ferai le tour du monde	I will go around the world	
Je travaillerai	I will work	
Je tomberai amoureux de quelqu'un	I will fall in love with someone	
J'habiterai	I will live	
J'aurai une Ferrari	I will have a Ferrari	
Je serai	I will be	
Je voyagerai	I will travel	

Questions importantes – Important questions		
Qu'est-ce que tu fais dans la vie?	What do you do for a living?	
Que feras-tu à l'avenir?	What will you do in the future?	
Quelles langues parles-tu ?	Which languages do your speak?	
Comment tu trouves les langues?	How do you find languages?	

l'importance des langues – the importance of languages		
C'est un avantage	It's an advantage	
C'est essentiel	It's essential	
C'est un plus	It a plus/bonus	

Les opinions -Opinions		
C'est mon rêve	It's my dream	
Ce sera utile	It will be useful	
Ce serait bien	It would be good	
Ce serait ennuyeux	It would be boring	
Pourquoi pas ?	Why not?	
Tu rigoles ?	Are you joking?	
Ça ne m'intéresse pas	It doesn't interest me.	
Ce n'est pas mon truc.	It's not my thing.	

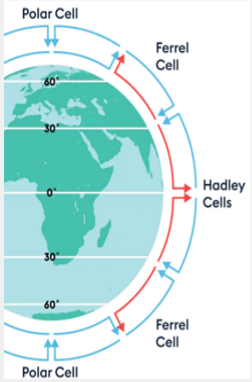
Picture description		
Sur la photo	On the photo	
Je peux voir	I can see	
On peut voir	We/you can see	
Il y a	There is/are	
De plus je peux voir	Also I can see	
À gauche	On the left	
À droite	On the right	
Au centre	In the centre	
À l'arrière plan	In the background	
Au premier plan	In the foreground	
Il est en train de ...	He is in the middle of	
Ils sont en train de ...	They are in the middle of	

YEAR 9 GEOGRAPHY

Hazardous Earth

1. How does the worlds climate system function?

- The atmosphere is constantly moving - transferring heat around the earth in a **global circulation system**. There are three types of cells that make up this circulation pattern.



2. Global Circulation

- The **Inter-Tropical Convergence Zone** (ITCZ) occurs near the Equator.
- The Sun's radiation is most intense at the Equator causing warm tropical air to rise rapidly creating an area of low pressure that brings **heavy rainfall**.
- As the rising air moves away from Equator it loses its moisture and density, descending to form **arid** regions.
- The ITCZ brings **wet** and **dry** Seasons.

3. What are the natural causes of climate change?

There are four main theories that explain why climate has changed in the past.

- **Eruption theory** – eruptions produce ash that rise into the stratosphere, reflecting some sunlight back into space cooling the planet.
- **Asteroid collision theory** – asteroids hit Earth sending tonnes of ash and dust into the atmosphere, blocking sunlight, and cooling the climate.
- **Sunspot theory** – lots of sunspots means more solar energy warming the planet.
- **Orbital change theory** – the Earth's orbit is sometimes more oval affecting the amount of radiation the Earth receives, cooling Earth. Earth's tilt also changes, a greater tilt makes the difference in the seasons more pronounced. Less tilt, less difference in seasons.

4. Evidence for Past Climates?

Ice cores, tree rings and historical sources tell us past climates.

- **Ice cores** – air bubbles contain CO_2 that tell us there have been previous warm and cold periods.
- **Tree rings** – each ring in a tree shows a year's growth. In warmer and wetter years, a tree grows more.
- **Historical sources** – historical drawings, diaries or newspapers are more recent evidence.

5. What is the Greenhouse effect?

- The **enhanced greenhouse effect** is the way that human activities (industry, transport, energy, farming) produce **greenhouse gases** (**carbon dioxide, methane**) that trap heat from the sun and warm the planet. High-income and middle-income countries emit more carbon dioxide than low-income countries.

6. What are the impacts of Climate Change today?

- The enhanced greenhouse effect has led to global warming. There has been a near 1°C rise in average temperature since the early 1900s.
- Sea levels have risen over 200mm (**thermal expansion**) in the same period. Thermal expansion is the increase in volume of sea water owing to heating.
- Arctic sea ice has halved in area since 1980.
- 90% of the world's valley glaciers are shrinking.

7. What might be the future impacts of Climate Change?

Climate change could cause:

- **more frequent floods and droughts**
- **stronger storms (tropical cyclones)**
- **changes to farming (unreliable rainfall)**
- **climate refugees from people living in low-lying areas.**

- Predicting future climate change is difficult because we don't know how populations and economies may grow, fossil fuel consumption versus renewable energy and people's lifestyle choices.

8. What are Tropical Cyclones?

A tropical cyclone:

- is a rotating system of clouds and storms
- forms over tropical waters (26.5°C)
- has winds which can exceed 118 km/h
- is known as a hurricane (Atlantic Ocean), typhoon (Pacific Ocean) and cyclone (Indian Ocean) and is measured on different scales, depending on their origin
- Tropical cyclones form in **source regions** and need warm water, strong winds upwards and a strong **Coriolis force**

9. What hazards are associated with Tropical Cyclones

Tropical cyclones bring a range of hazards.

- **Strong winds** – bring down trees and power lines.
- **Storm surges** – bring flooding owing to the low pressure.
- **Intense rainfall** – large amounts of rainfall in a short period of time.
- **Landslides** – saturated hillsides can slump.

10: Bangladesh

Bangladesh is particularly vulnerable to cyclones. This is because: much of its population is rural living on low-lying flood-prone farmland it is a poor country, and most its people are poor.
Bangladesh attempts to protect the population from tropical cyclones using:

- **forecasting** (forecast issued through tv and radio)
- **satellite technology** (to track cyclones)
- **warning systems**
- **evacuation strategies** (cyclone shelters)
- **surge defences** (embankments).

Bangladesh has reduced the number of deaths, however warning systems are expensive and poverty meant that some people doesn't receive any warnings. In May 2009, Cyclone Aila killed 190 people and made 750,000 people homeless, which was a primary impact. Secondary impacts included crops being destroyed and farm animals killed. Sickness spread from contaminated water.

11.USA

The USA also prepares for **hurricanes** through forecasting, satellite technology, warnings, evacuation systems and storm surge defences. In 2005, Hurricane Katrina was the worst hurricane to hit the USA.

- Its **levees** (embankments) collapsed which flooded 80% of New Orleans.
- Faulty maintenance and design of the levees were partly to blame.
- **1,833** people died and it costed the economy **US$108 billion.**
- Most of New Orleans is **below sea-level** which is where many of the poor African-American suburbs are located.
- Many of the poor and elderly were left behind. **80%** of the city was evacuated and some residents sheltered in the Super Dome stadium.

Bournemouth School – Knowledge Organiser – Year 9

GEOGRAPHY

Was isst du zum Frühstück? What do you eat for breakfast?		
Ich esse	*I eat*	
Einen Joghurt	*A yoghurt*	
Ein Brötchen mit Butter	*A bread roll with butter*	
Und Marmelade	And jam	
Kein Frühstück	*No breakfast*	
Toast mit …	*Toast with*	
…. (die) Butter	*Butter*	
…. (der) Käse	*Cheese*	
…. (der) Schinken	*Ham*	
…. (der) Speck	*Bacon*	
Das Obst	*Fruit*	
Das Ei/ Eier (pl)	*Egg/eggs*	
Ich trinke….	I drink	
….eine heiße Schokolade	Hot chocolate	
……einen Kaffee	Coffee	
…..eine Tasse Tee	A cup of tea	
…….(der) Orangensaft	Orange juice	
…..(die) Milch	Milk	
Das ist (un)gesund	That is (un)healthy	
Das ist lecker/furchtbar	That is delicious/ terrible	

Ein erstes Date – A first date	
Was wirst du machen?	*What will you do?*
Ich werde	*I will*
die Karten im Voraus kaufen	*buy the tickets in advance*
einen guten Film auswählen	choose a good film
früh ankommen	*arrive early*
……abholen	*pick up*
etwas Schickes anziehen	*wear something smart*
mit dem Bus in die Stadt fahren	*go to town by bus*
ins Kino/essen gehen	*go to the cinema/to eat*

Gesund bleiben. Staying healthy.		
Man muss…..	You must	
….acht Stunden schlafen	*Sleep for eight hours*	
….wenig Fett und Zucker essen	*Eat little fat and suger*	
….viel Obst und Gemüse essen	*Eat lots of fruit and vegetables*	
….. mehr Wasser trinken	*Drink more water*	
….früh ins Bett gehen	*Go to bed early*	
…..drei Stunden trainieren	*Exercise for 3 hours*	
…..zweimal pro Woche joggen	*Go jogging twice a week*	

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"		

High frequency words		
wenn	*when (if)*	
immer	*always*	
zum Beispiel	*for example*	
zuerst	*first of all*	
seit	*since (for)*	
für	*for*	
möglich	*possible*	
alle	*all*	
teuer	*expensive*	

Time Phrases		
Letztes Wochenende	*Last weekend*	
Letzte Woche	*Last week*	
Gestern	*Yesterday*	
Nächste Woche	*Next week*	
Nächsten Samstag	*Next Saturday*	
Morgen	*tomorrow*	

Connectives		
und	*and*	
aber	*but*	
auch	*also*	
denn	*because*	
oder	*or*	
weil (VTE)	*because*	

müssen - to have to		
ich muss	I have to	
du musst	you have to	
er/sie/es muss	he/she/it has to	
wir müssen	we have to	
ihr müsst	you all have to	
Sie/sie müssen	you (form)/ they have to	
müssen is a modal verb and needs an infinitve at the end eg Ich muss .....gehen I have to go		

haben - to have		
ich habe	I have	
du hast	you have	
er/sie/es hat	he/she/it has	
wir haben	we have	
ihr habt	you all have	
Sie/sie haben	you (form)/ they have	

sein - to be		
ich bin	I am	
du bist	you are	
er/sie/es ist	he/she/it is	
wir sind	we are	
ihr seid	you all are	
Sie/sie sind	you (form) /they are	

Meinungen - opinions		
Meiner Meinung nach (V2)	In my opinion	
Es ist/war	It is/was	
Ich finde/fand	I find/found	
Ich denke/dachte	I think/thought	
Ich glaube/ glaubte	I believe/believed	
Es macht Spaß	It is fun	
Es hat Spaß gemacht	It was fun	

essen – to eat (strong verb)		
ich esse	I eat	
du isst	you eat	
er/sie/es isst	he/she/it eats	
wir essen	we eat	
ihr esst	you eat	
Sie/sie essen	you(form)/ they eat	

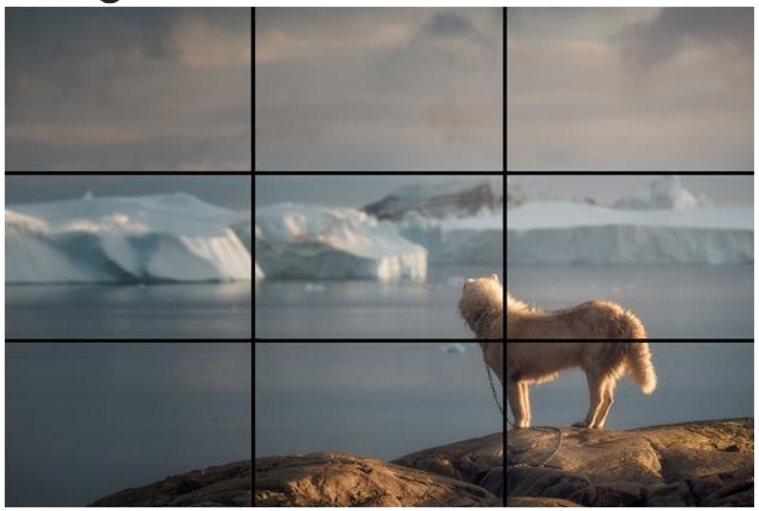
nehmen – to take (strong verb)		
ich nehme	I take	
du nimmst	you take	
er/sie/es nimmt	he/she/it takes	
wir nehmen	we take	
ihr nehmt	you take	
Sie/sie nehmen	you(form)/ they take	

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 hat/wir haben:	I/he, she/we	
gespielt/gelernt/ gemacht/gekauft/getanzt some past participles are irregular **getragen/ gesehen/gelesen**	played/learnt/ did/bought/danced wore/saw/read	
Ich bin/er, sie ist/wir sind: some past participles are irregular **gefahren/gegangen/ geschwommen/geblieben**	I/he, she/we travelled/went/ swam/stayed	

The future tense is formed by using the correct part of "werden" with an infinitive at the end.		
ich werde .....gehen	I will go	
du wirst .....gehen	you will go	
er/sie/es wird .....gehen	he/she/it will go	
wir werden .....gehen	we will go	
ihr werdet .....gehen	you (pl) will go	
Sie/sie werden .....gehen	you (formal)/they will go	
NB The future tense translates to I will go or I am going to go		

The imperfect tense is sometimes used to talk about the past. Usually used for formal situations. Three key verbs are often used in the imperfect to DESCRIBE things in the past		
Es war **Ich war**	It was I was	
Es hatte **Ich hatte**	It had I had	
Es gab	There was	
Es war spitze/klasse! – it was amazing **Die Stadt hatte ein modernes Kino – the town had a modern cinema** **Es gab keine Schlange– there was no queue**		

Design terms:



Keyword	Definition	tick
The rule of thirds	This is a guideline that places the subject in the left or right third of an image, leaving the other two thirds more open. It divides a photo into nine equal parts, split by two equally spaced horizontal and vertical lines.	

Left Align

Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book.

Center Align

It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software.

Right Align

There are many variations of passages of Lorem Ipsum available, but the majority have suffered alteration in some form, by injected humour, or words which don't look believable. If you are going to use a passage of Lorem Ipsum, be sure there isn't anything hidden in the text.

Keyword	Definition	Tick
Negative space	Negative space is a term used to describe the space surrounding a subject. It is typically empty and lacks details to simplify a design and provides breathing space which avoids over complicating visuals. Sometimes, it is used to show a hidden image too.	
Hierarchy	Hierarchy in graphic design utilizes several key principles, including size, colour, contrast, alignment, repetition, and brightness, to emphasize certain characteristics of the design. It controls those factors to show importance within the design.	
Bold	Bold colours or text stand out in a design. They are often bright or contrasting colours. Bold text has a thicker weight.	
Font weight	The font-weight specifies the weight, or thickness, of a font. A heavier weight is often used to aid with hierarchy in a design.	
Colour palette	A chosen set of colours to be used in a design. These colours are relevant to the subject theme and appear visually pleasing when used together.	
Alignment	Depending on the desired visual outcome, text can be either left, center or right aligned in a design. This refers to which margins the paragraph is aligned to.	
Justified text	Justified text has a unified line length created by increasing the spacing between the words. While the structured shape of justified text can initially look neater (with hard edges on both sides as opposed to the soft edge of left-aligned text), it can lead to unpleasant rivers (or gaps), which can cause the design to be more disorganised.	

Bournemouth School: History Department: Knowledge Organiser: Spring 1 Year 9: Nazi control of Germany 1933-9

1. Keeping Control by using Terror		
Method	**Description**	✓
SS 1925	Led by Himmler after 1929; oversaw the terror state including concentration camps	
Concentration Camps (Feb 1933)	Used to imprison the Nazi's enemies: prisoners had different categories: religious, political, 'work-shy', foreign forced labour groups, Jews.	
Gestapo 1933	Secret Police, led by Goering. Had power to arrest and people send to camps without trial.	
SD 1931	Intelligence agency led by Heydrich, under the command of Himmler. Main aim was to discover actual and potential enemies and ensure their removal.	

2. Keeping Control by using propaganda		
Method	**Description**	✓
Ministry of Propaganda led by Joseph Goebbels	*'Gleichschaltung'*: oversaw all censorship and propaganda to control all the thoughts, beliefs and opinions of Germans.	
Censorship	Anti-Nazi newspapers closed, radio broadcasting controlled, pre-publication censorship, Jazz music banned, book burnings	
Propaganda	Spread Nazi message through: Posters, films, rallies (Nuremburg), architecture, theatre, literature, 1936 Olympics (4x Gold medals for Jesse Owens, pause on anti-Semitism)	

3. Keeping control of the Law		
Method	**Description**	✓
Nazi Socialist League for the Maintenance of Law	Part of *Gleichschaltung* (an identical way of thinking) All judges had to join this organisation and swear an oath of loyalty to Hitler.	
German Lawyer's Front 1933	All lawyers had to join and swear oath, 100,000 members by late 1933.	
People's Court 1934	Judges were all Nazis. Cases of treason tried and defendants summarily executed. Hitler sometimes personally intervened on judgements.	

4. Keeping control of the churches		
Method	**Description**	✓
Catholic Church	Concordat signed with Catholic Church 1933. Hitler agreed to allow Catholic schools, if the church stayed out of politics	
Protestant Church	All Protestant churches merged in 1933 under Bishop Muller, Nazification of the churches – swastikas in church etc.	
Faith Movement	Rival church set up in 1933 to worship traditional volk images – worship of the soil, crops etc	

5. What opposition did Hitler face from churches?	✓
1. Catholic Church: despite 'Concordat' there was tension: Pope Pius XI issued an encyclical called *'With Burning Anxiety'* read out in churches by Priests. 2. Protestant Church – Opponents set up the "Confessional Church" led by Father Niemoller. Emergency Pastor's League set up and had 7,000 members by 1934.	

6. What opposition did Hitler face from the youth?	✓
1. Edelweiss Pirates: attacked Hitler Youth, listened to Swing and Jazz. Began from 1934 and had 2000 members by 1939. Mainly working class youth groups and had differing names. 2. Swing Youth: generally from the middle-classes: listened to Swing music (hated by the Nazis) boys grew their hair, girls wore make-up and nail-varnish! Rebelling against the order and discipline of the Nazis.	

7. What opposition did Hitler face from ordinary Germans?	✓
1. Genuine support as result of Germany's economic recovery 1933. 2. Most happy to see Germany restored, Versailles reversed, army rebuilt. 3. Many happy that Communists imprisoned. 4. 300,000 left Germany to live in more liberal countries; 1.3 million sent to concentration camps between 1933 – 1939.	

History Department: Knowledge Organiser: Year 9 Spring Term: Life in Nazi Germany 1933-9

1. Attitude & Policies Towards Women

Method	Description	✓
Social Pressure	Women encouraged to dress plainly, avoid make up, not work, to remain at home	
Attempts to raise birth rate	Propaganda, marriage loans, medals for mothers of large families, Lebensborn programme, divorce made easier, family allowances increased	
Work	3 Ks, women removed from professional jobs from 1936, but this policy failed due to economy needing more workers pre-WW2	
Repression	Concentration Camps: Morigen opened in 1933 and Ravensbruck opened in 1939	

2. Policies towards the Youth of Germany

Method	Description	✓
School changes	Napola schools set up ages 10-18, Adolf Hitler Schools 12-18, Ordensburgen from age 20	
Curriculum Changes	Textbooks rewritten, Mein Kampf used as a school text, teachers joined Nazi Teachers League and NSDAP, Racial Studies, 15% of curriculum for PE, girls taught domestic skills	
Youth Groups	Hitler Youth (boys) and League of German Maidens (girls) for ages 14-18. Military drill, camping, singing, marching for boys. Domestic skills for girls. Other groups for younger and older boys and girls.	

3. Economic Policies – Reducing unemployment

Method	Description	✓
Reich Labour Service	From 1935, compulsory labour for all men 18-25, low pay	
Job Creation	By 1938 37.1bn Marks spent on public works – Autobahns, engineering projects, public buildings. 7,000kms of autobahns built	
Rearmament	Conscription introduced 1935 – 1.4m in the army by 1939. Government contracts given to iron, coal, steel companies.	
Invisible unemployment	Jews dismissed, under 25s pushed into labour schemes, women dismissed, opponents were in camps so their numbers didn't count.	

4. Improvements to the lives of workers

Method	Description	✓
KdF (set up by the DAF)	Subsidised leisure and cultural activities for workers: holidays, museums, cinema trips	
Beauty of Labour (Dept of the KdF)	Improvements made to working conditions: ventilation, canteens, improved sports facilities.	
Wages	Average weekly wage rose from 86 Marks p/w in 1932 to 109 Marks p/w by 1938	
Unemployment Reduced	Conscription and Public Works schemes provided thousands of new jobs from 1933.	

5. Workers lives get worse ✓

* **Trade Unions closed** in 1933 – no one to represent the workers.
* **Volkswagen Swindle** 1938 – Workers encouraged to save for a VW car from the government but none were delivered
* **Cost of living increased** – Inflation reduced real wages. All basic groceries cost more in 1939 than in 1933. Food items in short supply to keep prices high for farmers
* **Working Hours increased**: 42.9 hours p/w by 1933 to 47 hours p/w by 1939

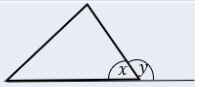
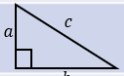
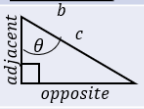
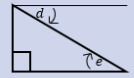
6. Persecution of minorities ✓

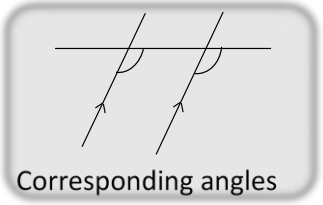
Nazis believed Aryans would be a *Volksgemeinschaft* (peoples community) and a pure race: a '*Herrenvolk'* achieved by elimination:
1933 – Sterilisation Law – 350,000 compulsorily sterilised
1935 – Marriage between gypsies and Germans forbidden
1938 – Gypsies, Vagrants, Homosexuals taken to concentration camps
1939 – Euthanasia Campaign – 6000 babies murdered for having disabilities

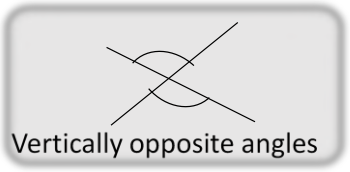
7. Persecution of the Jews ✓

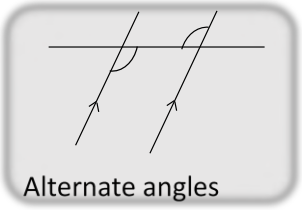
1933 – Boycott of Jewish Shops
1935 – Nuremberg Laws – Citizenship removed for Jews, marriage between Jews and non-Jews made illegal4
1936 – Jews forbidden from professional jobs
1938 – Jewish children expelled from schools
1938 – Kristallnacht – Pogrom against the Jews – 100 killed, 20,000 temporarily sent to camps, 20,000 businesses destroyed. Jews fined for the damage, 250,000 Jews left Germany.

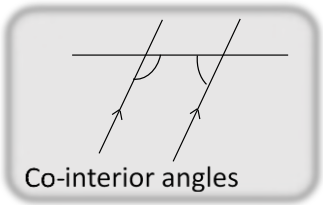
Keyword	Definition	Example
Fraction	Represents a non-integer value, made up of a numerator and denominator	$\frac{6}{10}$ which simplifies to $\frac{3}{5}$
Reciprocal	1 divided by the number. The reciprocal of "n" is $\frac{1}{n}$ or n^{-1}	Reciprocal of $5 = \frac{1}{5}$ Reciprocal of $\frac{2}{3} = \frac{3}{2}$
Ratio	Used to compare values, showing how much there is of one quantity relative to another	$A: B = 1: 2$ means there is twice as much of B than A
Unit ratio	One of the values is reduced to 1 in a ratio. The other can be a decimal.	$4: 7$ becomes $1: 1.75$
Ratio equations	Taking equivalent ratios and forming equivalent fractions that can be solved	If $x: 2x - 3 = 3: 4$ then $\frac{x}{2x-3} = \frac{3}{4}$
Proportion	A statement on how two quantities are linked. This can be direct or indirect.	
Direct proportion	As one value increases, the other increases by the same multiple	$y \propto x$
Indirect proportion	As one value increases, the other decreases by the same multiple	$y \propto \frac{1}{x}$
Percentage	Parts out of 100	40% means $\frac{40}{100}$ or $\frac{2}{5}$
Multiplier	Used to find a percentage of a value, or to increase or decrease by a percentage	To increase by 35%, multiply by 1.35%
Percentage change	The percentage increase from an original value to the new value	$\%\ change = \frac{difference}{original}$
Appreciate	To increase in value	Money invested in a bank appreciates in value
Depreciate	To decrease in value	The value of common items depreciates in value
Simple interest	Interest calculated from the original amount and is the same each year	£100 invested at 5% for 2 years $100 + 2 \times (0.05 \times 100) = 110$
Compound interest	Interest is added on at the end of each term, and included in the interest calculation for the next term	£100 invested at 5% for 2 years $100 \times (1.05)^2 = 110.25$
VAT	Value Added Tax, 20% is the UK, charged on most goods and services	
Recurring decimals	A rational number. A decimal with a recurring pattern, which can be represented by a fraction.	$0.2\ (=\frac{1}{5})$ $0.\dot{6}\ (=\frac{2}{3})$

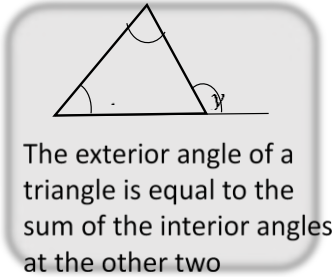
Keyword	Definition	Example(s)
Vertex	The point where two lines meet	
Interior angle Exterior angle	When one side of a polygon is extended at a vertex • the angle inside the polygon is called the interior angle • the angle outside the polygon between the side and the extended side is called the exterior angle.	
Tesselate	Shapes fit together exactly like tiles with no gaps between them. The angles where the shapes meet must sum to 180°	
Sum of interior angles	$S_n = (n-2) \times 180°$	
Sum of exterior angles	The sum of the exterior angles of a polygon is always 360°	
Regular polygon	A polygon where all sides are the same length, and all interior angles are the same.	
Hypotenuse	In a right-angled triangle, this is the longest side and is opposite the right angle.	
Pythagoras' theorem	The square of the hypotenuse is equal to the sum of the squares of the other two sides	
Opposite side	In a right-angled triangle, the side opposite the angle labelled θ is called the opposite	
Adjacent side	In a right-angled triangle, the side next to the angle labelled θ is called the adjacent.	
Sine ratio	The sine of angle θ is the ratio of the opposite side to the hypotenuse	$\sin\theta = \frac{opp}{hyp}$
Cosine ratio	The cosine of angle θ is the ratio of the adjacent side to the hypotenuse	$\cos\theta = \frac{adj}{hyp}$
Tangent ratio	The tangent of angle θ is the ratio of the opposite side to the adjacent side	$\tan\theta = \frac{opp}{adj}$
Angle of depression	The angle of depression (d) is the angle measured downwards from the horizontal	
Angle of elevation	The angle of elevation (e) is the angle measured upwards from the horizontal.	











	0°	30°	45°	60°	90°
sin	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1
cos	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0
tan	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	

Year 9 – Maths – Spring 1 – Units 4 & 5

Bournemouth School – Knowledge Organiser – Year 9

MATHEMATICS

Bournemouth School music department

Year 9 Spring Term 1

Folk

Jazz

Indian

Component 3: Appraising

Folk Music

Folk music - orally-transmitted music that comes from a specific region or culture

Periodic Phrasing—phrases of equal length

Melodic range—the interval between the top and bottom notes of a melody

Pentatonic scale—five note scale eg black notes

Mode—a scale which contains a different interval pattern

Dorian mode—scale formed of d-d on the white notes

Aeolian mode—scale formed of a-a on the white notes

Drone—continuously sounding note, usually at the bass of the texture

Primary chords—chords I, IV and V

Folk Rock—style of music which fuses folk music with features of more contemporary rock music

Blues Music

Blues—a style of music which begins in the southern states of the US in around 1900. Fuses elements of African and European musical styles

Component 3: Appraising

12 bar blues chord sequence—chord sequence used in blues

I	I	I	I
IV	IV	I	I
V	IV	I	I

Fill—improvised melodic line which fills the gap at the end of a phrase

Blues note—flattened notes on the 3rd, 7th and sometimes 5th note of the scale.

Jazz Music

Trad Jazz—sometimes known as Dixieland jazz. Early form of jazz from around 1900. Usually features trumpet, clarinet and trombone. Artist include Louis Armstrong and Jelly Roll Morton.

Swing - style of jazz prevalent in the 1930's using swing rhythms. Often performed by a big band. Artists include Glenn Miller and Duke Ellington

Swing Rhythm—rhythm where quavers are played unevenly, with a longer first quaver in each pair.

Big Band—jazz band with a line up of 5 saxes, 3/4 trumpets, 3/4 trombones and a rhythm section

Rhythm Section—usually a kit, bass instrument and chordal instrument

Bebop—style of jazz which emerged in the 1940s. Includes lots of improvisation, complex chords and a fast tempo. Artists include Dizzy Gillepse and Charlie Parker.

Indian Music

Sitar— plucked string instrument with frets and sympathetic and drone strings. Plays the melodic line.

Tambura—plucked string instrument. Plays the drone.

Bansuri—bamboo flute—plays the melodic line.

Tabla—pair of drums used to the rhythmic part in Indian music. Have a black disc of iron filing paste ont eh drum skin.

Raga—word used to describe the scales in Indian music

Bhangra—1. Punjabi folk music 2. Fusion of Indian music and Western dance music.

Chaal Rhythm—characteristic rhythm in bhangra music

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.

Bournemouth School

music department

Year 9 Autumn Term 2 —continued

Historical periods

Twentieth Century Music period of music history starting from 1900.

Extended techniques—using techniques which are beyond the normal playing techniques of the instrument to alter the sound in some way

Atonality—music which is not in any key

Non-Functional Harmony—harmony where the chords do not work to define the key

Nationalism—music which shows characteristics of the music of the country of the composer eg by using folk music, modes or dance rhythms associated with that country

Neoclassicism—music which is superficially of an earlier style, but contains twists such as extra beats or obviously dissononant chords which reflect the twentieth century

Electronic Music—music which uses electronic sounds and instruments as well as computer software to produce music

Postmodernism—music from the later part of the twentieth century which returns to a more listenable style following the atonality and modernism earlier in the century

Minimalism—style of postmodern music which makes use of motivic cells, repetition and very gradual change. Music has quite a static feel to it.

Music Theory

Theory of Music

Note Values

Notes	Name		Value
	Semibreve	Whole note	4 beats
	Minim	Half note	2 beats
	Crotchet	Quarter note	1 beat
	Quaver	Eighth note	½ beat
	Semi-quaver	Sixteenth note	¼ beat
	2 Quavers	2 Eighth notes	1 beat
	4 Semi-quavers	4 Sixteenth notes	1 beat

Time Signatures—way beats are grouped within a piece of music. Top number tells you how many, bottom number tells you what type of beat

4/4—4 crotchets per bar

3/4—3 crotchets per bar

2/4—2 crotchets per bar

6/8—2 dotted crotchets per bar

9/8—3 dotted crotchets per bar

12/8—4 dotted crotchets per bar

Scales

Major Scale — made up of 7 pitches. The bottom note is repeated an octave higher. Pattern of intervals is tone, tone, semitone, tone, tone, tone, semitone

Minor Scale—made up of 7 pitches. The bottom note is repeated an octave higher. In the harmonic minor, the interval pattern is tone, semitone, tone, tone, tone, augmented 2nd, semitone.

Relative major/ minor—two scales which share the same key signature

Intervals

Interval—the distance between two notes. Intervals are always defined as an adjective and a number

Chords

Chord—two or more notes sounding together. The most common chords are triads with 3 notes. Chords are named after their bottom or root note and by whether they are major or minor

Perfect Cadence—Chord V-I Sounds finished

Imperfect Cadence—Chord I, IV or II –V sounds unfinished

Plagal Cadence—Chord IV-I sounds finished, sometimes called Amen cadence

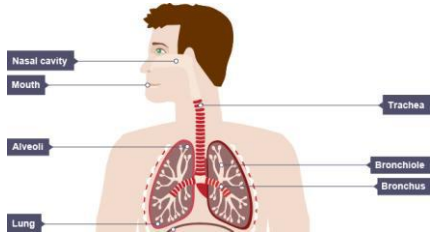
Interrupted Cadence—Chords V– VI—sounds unfinished. In the major scale, chord VI is minor

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.

3.1.1.2 The structure and functions of the Cardio-Respiratory System (KO 1 of 2)

The Pathway of Air into the Body

When we breathe in, air moves through the mouth and nose.
It then travels down the trachea. Near the lungs the trachea divides into two tubes called bronchi (one enters left lung and the other the right). Once in the lungs the bronchi split into smaller bronchi before dividing into even smaller tubes called bronchioles. At the end of each bronchiole are openings to the alveoli. At the alveoli gaseous exchange occurs. Capillaries carrying blood surround each alveoli resulting in oxygen being passed into the bloodstream from the alveoli in exchange for carbon dioxide which passes from the blood stream into the alveoli.



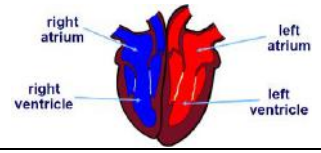
Pathway of Blood

This is the order for the pathway of blood moving around the body.

1. Deoxygenated blood into the right atrium.
2. Then into the right ventricle.
3. Pulmonary artery transports deoxygenated blood to the lungs.
4. Gas exchange occurs (blood is oxygenated).
5. Pulmonary vein transports oxygenated blood back to the left atrium.
6. Then into the left ventricle.
7. Oxygenated blood is then ejected and transported to the body via the aorta.

The diastolic phase of the cardiac cycle is the filling stage during relaxation.
The systolic phase of the cardiac cycle is the ejection stage during contraction.
Valves within the heart open due to pressure and close to prevent backflow.

Structure of the Heart



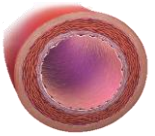
Gaseous Exchange

Oxygen passes through the alveoli, into the capillaries.
In the capillaries, oxygen combines with haemoglobin to form oxyhaemoglobin and is carried around the body.
At the same time, haemoglobin carries carbon dioxide from the body to the capillaries.
The carbon dioxide in the capillaries passes through the alveoli and is exhaled.
Oxygen combines with haemoglobin in the red blood cells to form oxyhaemoglobin.
Haemoglobin can also carry carbon dioxide back to the heart from the working muscles.

Features that assist gaseous exchange	Role
Large surface area of alveoli.	Allows a larger volume of gases to move between the lungs and the bloodstream.
Moist thin walls (one cell thick) – semi permeable membrane.	Allows gases to pass through the walls of the alveoli.
Short diffusion pathway.	Allows gases to move quickly from the alveoli to the bloodstream.
Large capillary network.	Creates a large area for gaseous exchange to take place.
Large blood supply.	Carries oxygen and carbon dioxide to and from the alveoli.
Movement of gas from high concentration to low concentration.	This pressure gradient allows diffusion to occur as gases always move from an area of high concentration to an area of low concentration.

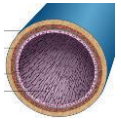
Blood Vessels

Arteries:



- Carry blood away from the heart.
- Most arteries carry oxygenated blood (oxygen rich).
- Thick walls to withstand the high blood pressure.
- Small / narrow lumen so that the blood is forced around the body at a high pressure.
- Strong elastic walls that can easily increase and decrease in diameter (vasodilate).
- The Pulmonary Artery carries deoxygenated blood from the right side of the heart to the lungs.
- The Aorta carries oxygenated blood from the left side of the heard to the rest of the body.

Veins:



- Veins carry blood towards the heart.
- Most veins carry deoxygenated blood (carbon dioxide rich).
- Thinner walls than arteries as the blood is pumped through at a low pressure.
- Due to the low pressure, veins contain valves to prevent the backflow of blood.
- They also have a large lumen to allow more blood to pass through them.
- The Vena Cava carries deoxygenated blood from the body to the right side of the heart.
- The Pulmonary Vein carries oxygenated blood to the left side of the heart from the lungs.

Capillaries:

- In Capillaries gaseous exchange takes place.
- Capillaries are one cell thick to enable substances to enter and leave the blood stream (allows rapid diffusion).
- Capillaries surround our alveoli and body tissues (e.g. muscles) to allow gaseous exchange to take place (the exchange of oxygen and carbon-dioxide).
- Huge network throughout the body linking arteries and veins (large surface area for gaseous exchange to take place).

Vasoconstriction / Vasodilation

- Vasoconstriction and vasodilation work together to cause 'blood shunting' (the redistribution of blood around the body).
- Vasoconstriction is reducing the diameter of small arteries, so by reducing the blood flow to certain parts of the body.
- Vasodilation is increasing the diameter of small arteries to increase blood flow to certain parts of the body.
- This occurs during exercise. Vasoconstriction reduces blood flow to parts of the body not needed during exercise e.g. bladder / stomach, and that blood is redistributed to the muscles that are being used in the activity.
- Vasodilation occurs around the muscles so that more blood, carrying oxygen, can get to the muscles to create more energy. This will allow a performer to perform for longer and maintain their standard of play.

3.1.1.2 The structure and functions of the Cardio-Respiratory System (KO 2 of 2)

Heart rate, stroke volume and cardiac output

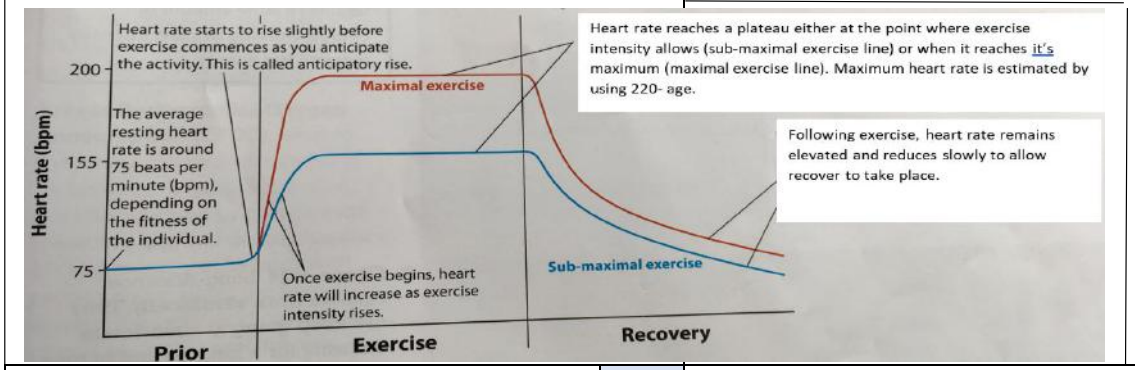
Heart rate – the number of times the heart beats per minute.
Stroke volume – amount of blood pumped out of the heart per beat.
Cardiac Output – amount of blood pumped out of the heart per minute.
HEART RATE X STROKE VOLUME = CARDIAC OUTPUT (Q)

Heart Rate

Heart rate is expressed as beats per minute (BPM) and resting heart rate is lower the fitter the person is. Average resting heart rate is 70 – 75bpm.
If your heart rate is below 60 then you are said to have 'bradycardia'.
MAXIMUM HEART RATE = 200 – AGE
During exercise the heart beats faster and with greater force to keep up with the demands from the body. This means that both heart rate and stroke volume will increase.

Regular exercise causes changes to the heart

The heart gets larger, as the muscular wall becomes thicker and stronger.
Stroke volume at rest increases, leading to a lower resting heart rate.
Stroke volume during exercise increases, leading to increased cardiac output.



Breathing during exercise

During exercise, muscle cells use up more oxygen and produce increased amounts of carbon dioxide.
Your lungs and heart have to work harder to supply the extra oxygen and remove the carbon dioxide.
Your breathing rate increases and you breathe more deeply.
Heart rate also increases to transport the oxygenated blood to the muscles.

INSPIRATION
Pectorals and sternocleidomastoid assist in raising the sternum when you breathe in. This further reduces the pressure of the chest cavity, allowing more air to rush in.

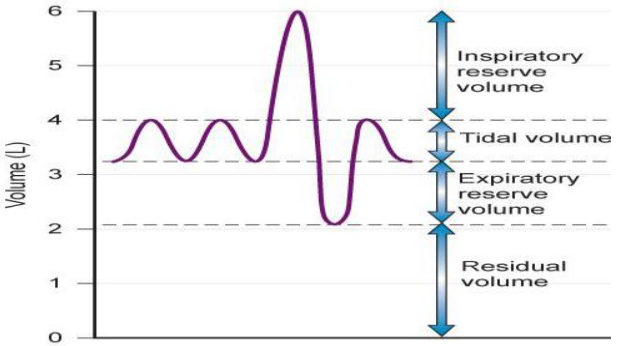
EXPIRATION
Abdominals pull the ribs down more quickly, forcing air out when you expire.

The effects of exercise on the respiratory system

The respiratory muscles get stronger, enabling the chest cavity to become larger. Therefore, more air can be inspired leading to increased lung capacity. More capillaries form around the alveoli, creating a larger surface area for gaseous exchange.

Spirometer trace

Volume	Definition
Tidal Volume	The amount you breathe in and out in one normal breath.
Inspiratory Reserve Volume	The amount of air that can be forced in after a normal inspiration.
Expiratory Reserve Volume	The amount of air left in your lungs after you have breather out as hard as you can.
Residual Volume	The amount of air left in your lungs after you have breathed out as hard as you can.
Vital Capacity	Largest volume of air that can be forcibly expired after the deepest possible inspiration.



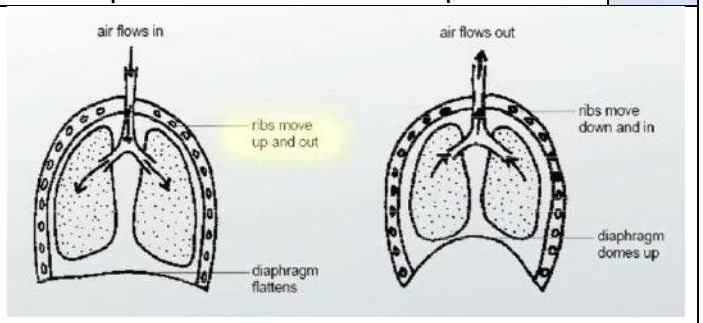
During Exercise

1. Tidal Volume increases
2. Breathing rate increases

Mechanisms of Breathing

INSPIRATION
1. Intercostal muscles contract, pulling the chest up and out.
2. The diaphragm contracts and flattens.
3. The chest cavity increases in size.
4. The pressure inside the lungs decreases and air rushes in.

EXPIRATION
1. Intercostal muscles relax so the chest moves down and in.
2. The diaphragm relaxes and bulges up.
3. The chest cavity decreases in size.
4. The pressure inside the lungs increases and air is pushed out through the nose and mouth.



Keyword	Learn	✓
Homeless	The state of not having safe, secure and (semi)permanent accommodation.	
Conflict	An active disagreement between people with opposing opinions or principles	
Commitment	A willingness to give your time and energy to something or someone that you believe in	
Marriage	A social and legal bond between two people that gives them rights and duties as spouses and parents	
Civil Partnership	A legal bond entered into by two people, it has the same responsibilities as marriage but the difference is that it is entered into by signing a document while marriage is confirmed by vows.	
Divorce	An official or legal process to end a marriage.	
Dissolution	An official or legal process to end a civil partnership. In many respects it is the same as a divorce.	

Useful websites:
https://www.depaul.org.uk/nightstop/

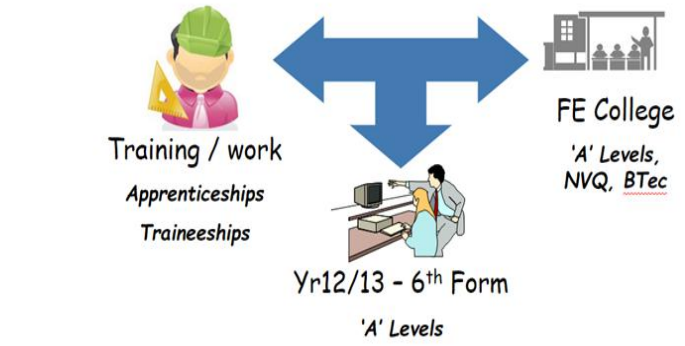
https://www.childline.org.uk/ 0800 1111

Useful Careers Websites

The **Unifrog** platform is designed to support learners in making the most informed decisions about their futures and has a range of tools that are suitable for all year groups. Each student has their own personal account that provides a wide range of information related to their interests and aspirations. www.unifrog.org

Information on apprenticeships, including a range of different schemes:
https://amazingapprenticeships.com/
www.gov.uk/apply-apprenticeship

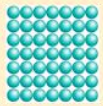
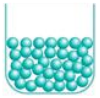
General careers information:
https://careerpilot.org.uk/
www.nationalcareers.service.gov.uk
www.prospects.ac.uk/job-profiles



Year 9– Personal Development – January 2024

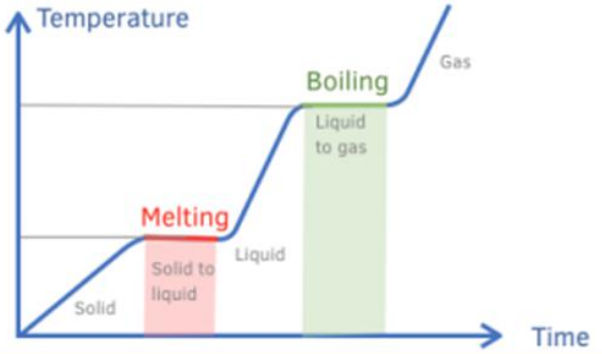
Topic 3 – Particle Model of Matter

Keyword	Learn	✓
Density	The mass per unit volume.	
Internal energy	The total kinetic and potential energies of all the particles that make up the system.	
Melting	When a solid turns to a liquid. The internal energy increases.	
Freezing	When a liquid turns to a solid. The internal energy decreases.	
Boiling / evaporation	When a liquid turns to a gas. The internal energy increases. (Boiling occurs at one temperature the boiling point. Evaporation occurs at any temperature.)	
Condensation	When a gas turns to a liquid. The internal energy decreases.	
Sublimation	When a solid turns to a gas. The internal energy increases.	
Physical change	A change that does not produce a new substance and it can be reversed.	
Specific heat capacity	The amount of energy required to raise the temperature of 1 kg of a substance by 1°C.	
Specific latent heat of fusion	The amount of energy required to change the state of 1 kg of a substance from solid to liquid. With no temperature change	
Specific latent heat of vaporisation	The amount of energy required to change the state of 1 kg of a substance from liquid to gas. With no temperature change	

State	Diagram	Learn the key points for each state of mater.
Solid		• Regular arrangement, touching neighbouring particles • Vibrate about a fixed position • Strong intermolecular forces • Fixed shape • Cannot be compressed
Liquid		• Irregular arrangement, touching neighbouring particles • Particles move past one another • Weaker intermolecular forces than in a solid • Take the shape of the container (can flow) • Cannot be compressed
Gas		• Particles are not touching • Particles move randomly • No / very small intermolecular forces • Particles move to fill the container • Can be compressed

Quantity	Unit	Symbol
mass	kilograms	kg
volume	metres cubed	m^3
density	kilograms per metre cubed	kg/m^3
specific heat capacity	joules per kilogram per degree Celsius	J/kg °C
specific latent heat	joules per kilogram	J / kg
pressure	pascal OR newtons per metre squared	Pa OR N/m^2

Heating Curve



Gases – Learn these properties.
The higher the temperature the higher the average kinetic energy of the particles .
The pressure in a gas produces a force at right angles to the wall of the gas container.
Heating a gas in a fixed volume increases the pressure.
Using a force to decrease the volume of a gas is doing 'work' to transfer energy to the gas. The gas will get hotter as its internal energy is increasing.

Equations

Density = $\frac{\text{mass}}{\text{volume}}$ $\rho = \frac{m}{V}$

Thermal energy transferred = mass x specific heat capacity x temperature change $E = m \times x \times \Delta T$

Thermal energy transferred = mass x specific latent heat $E = m \times L$

Pressure x volume = constant $p \times V = constant$

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

Olam Ha-Ba:	Refers to the 'world to come' in Jewish teachings.		Aron Hakodesh:	(The Ark) A cupboard which holds the Torah Scrolls situated within the eastern wall of a synagogue.		Cantor (chazzan):	Person who leads the service; he chants the prayers and leads the singing. He will also undertake pastoral duties e.g. visiting sick etc.	
Soul:	The inner you; it is the part of us that can communicate to God. It is eternal (survives death).		Menorah:	Seven-branched candelabra.		Rabbi:	He is the teacher and spokesman for the Jewish community. He preaches the sermon (talk/lesson).	
Heaven:	A place that people can live within God's Presence, where there will be no more death, sadness or pain.		Ner Tamid:	Light above the Aron Hakodesh.		Challah:	(Plural challot) is a special bread used by Jews during Shabbat where three separate pieces of dough are plaited.	
Hell:	Jews believe it is a place where wicked people go;		Bimah:	Platform from which the Torah Scrolls are read.		Manna:	'Bread from heaven'. A dough substance that could be made into bread, collected by Jews when they lived in the desert, provided by God.	
Written Torah:	Consists of the first five books of the Jewish Bible (Tanak).		Gallery:	Women's seating area within an orthodox synagogue.				
Oral Law:	Known as the Talmud, contains an explanation and interpretation of the 613 mitzvot found in the Torah.		Yarmulke:	Also known as 'kippah'. This is a skull cap worn by Jews.		Havdalah:	A ceremony that marks the symbolic end of Shabbat and Jewish holidays, and ushers in the new week.	
Chumash:	Comes from the Hebrew word meaning five, and refers to the five books of the Torah, which are divided into weekly readings.		Tallit:	Prayer robe worn by Jews during worship.		Kiddush:	Literally, "sanctification," is a blessing recited over wine or grape juice to sanctify the Shabbat and Jewish holidays.	
			Mezzuzah:	Parchment of scroll which contains the SHEMA.				
Haftarah:	A selection of readings from the Nevi'im read in addition to the Torah in services.		Tefillin:	Two black cube-shaped boxes, which contain the SHEMA.		Revision task: Plot a Route	Design either a flow chart/ mind map showing the Jewish idea of the written & oral law & their origins.	
Parshiyot:	Torah readings.		Siddur:	Jewish prayer book, containing a set order of daily prayers. Siddur means 'order'.		Revision task: Without a word	Create an image/ equation which represents your learning about the celebration of Shabbat at home & Synagogue.	
Synagogue:	Consists of the first five books of the Jewish Bible (Tanak).		Chumash:	Book that contains the 54 set readings (sidrot - orders) read out each Shabbat according to the Jewish calendar.		Revision task: Alternative reality	Suggest an alternative view/ position Jews could have on the importance of praying as a community/ together.	
Beit Midrash:	House of learning.		Shabbat:	Day of spiritual renewal and rest. Beginning at sunset on Friday and closing at nightfall on Saturday.		Revision task: The blueprints	Sketch and label the floorplan of a synagogue and its key features.	
Beit Knesset:	House of gathering / assembly.		Haftorah:	Passage from one of the books of the Neviim (prophets) which is read after the Torah reading.		Revision task: In quotations	Give and explain two pieces of scripture (from the Torah) that emphasise the importance of prayer.	
Beit Tefilah:	House of prayer.		The Amidah:	Forms the core of every Jewish worship service, (containing 18 blessings) and is also referred to as 'The standing prayer'. People stand throughout the prayer to show they are in God's presence.		Revision task: Table it	Create a table to compare the key features of orthodox and reform services.	
Shul:	A Yiddish word for school, originating from the German word *school,* used by Jews with reference to the synagogue					Revision Task: snap-shot	Create flashcards for each key term and ask someone to quiz you on them.	

The future tense

The future tense is formed by taking the infitive and adding the endings seen below.
The endings are the same for AR, ER and IR verbs

Infinitve + ending = future tense
trabajar + é = trabajaré (I will work)

Trabajar	To work	
trabajar**é**	I will work	
trabajar**ás**	you will work	
trabajar**á**	he/she will work	
trabajar**emos**	we will work	
trabajar**éis**	you all will work	
trabajar**án**	they will work	

There are some irregular stems which are not the infinitive. Here are some examples:		
haré	I will do	
tendré	I will have	
podré	I will be able to	

Future tense opinions		
Será...	It will be...	
difícil	difficult	
interesante	interesting	
monótono	monotonous	
duro	hard	
estresante	stressful	
repetitivo	repetitive	
estimulante	stimulating	

Describing a photo		
En la foto	In the photo	
Hay	There is/are	
Puedo ver	I can see	
Puedes ver	You can see	
A la izquierda	On the left	
A la derecha	On the right	
En el centro	In the centre	
En el fondo	In the background	
En primer plano	In the foreground	
Al lado de	Next to	

Durante las vacaciones de Navidad...		
fui	I went	
fue	He / she went	
fue	It was	
recibí	I received	
comí	I ate	
jugué	I played	
bebí	I drank	
vi	I watched	
salí	I went out	

Essential words		
porque	because	
dado que	given that	
sin embargo	however	
pero	but	
también	also	
además	furthermore	
si	if	
cuando	when	
por ejemplo	for example	
sobre todo	especially	

Mis ambiciones		
Voy a...	I am going to...	
ganar mucho dinero	earn lots of money	
hacer un trabajo interesante	do an interesting job	
ir a la universidad	go to university	
ser famoso/a	be famous	
ser voluntario/a	be a volunteer	
tener hijos	have children	
viajar mucho	travel a lot	
vivir en el extranjero	live abroad	

Infinitives

trabajar	to work	
comer	to eat	
hacer	to do	
ganar	to earn	
escuchar	to listen	
vivir	to live	
viajar	to travel	
visitar	to visit	
ser	to be	
estar	to be	
tener	to have	
ir	to go	

Los trabajos en el hotel

Soy....	I am	
camarero/a	a waiter	
cocinero/a	a cook	
dependiente/a	a shop keeper	
esteticista	a beautician	
jardinero/a	a gardener	
limpiador(a)	a cleaner	
peluquero/a	a hairdresser	
recepcionista	a receptionist	

Note: in Spanish we don't use the article un/una with jobs (e.g. soy camarero)

¿Qué tipo de persona eres?

En mi opinión, soy	In my opinion, I am	
creo / pienso que	I believe / think that	
soy muy / bastante	I am very / quite	
ambicioso/a	ambitious	
creativo/a	creative	
práctico/a	practical	
responsable	responsible	
independiente	independent	
organizado/a	organised	
inteligente	intelligent	
sociable	sociable	
paciente	patient	

Connectives

así que	so	
por eso	because of this	

¿En qué te gustaría trabajar?

Me gustaría ser..	I would like to be...	
quiero ser..	I want to be...	
abogado/a	a lawyer	
diseñador/a	a designer	
enfermero/a	a nurse	
mecánico/a	a mechanic	
cantante	a singer	
periodista	a journalist	
policía	a police officer	

Describe tu trabajo

hablo con clientes	I speak with customers	
leo mi agenda	I read my diary	
preparo mis cosas	I prepare my things	
trabajo con mi equipo	I work with my team	
voy a la oficina	I go to the office	
viajo al extranjero	I travel abroad	
trabajo con animals	I work with animals	
trabajo solo	I work alone	

Me gustaría...

trabajar en una oficina	work in an office	
trabajar al aire libre	work outdoors	
hacer un trabajo creativo	do a creative job	
hacer un trabajo manual	do a manual job	
trabajar con animales	work with animals	

¿Cómo será tu futuro?

En el futuro...	In the future	
ganaré mucho dinero	I will earn lots of money	
haré un trabajo interesante	I will do an interesting job	
iré a la universidad	I will go to university	
seré famoso/a	I will be famous	
seré voluntario/a	I will be a volunteer	
tendré hijos	I will have children	
viajaré mucho	I will travel a lot	
viviré en el extranjero	I will live abroad	

¿En qué consiste tu trabajo?

¿Tienes que...?	Do you have to...	
Tengo que....	I have to..	
contester al teléfono	answer the phone	
cortar el pelo a los clientes	cut the customers' hair	
cuidar las plantas	to look after the plants	
limpiar habitaciones	clean rooms	
preparer comida	prepare food	
servir la comida en el restaurante	serve food in the restaurant	
vender productos en la tienda	sell products in the shop	

How long should I spend on my homework?

Monday		Tuesday		Wednesday		Thursday		Friday	
Maths	15	Maths	15	Maths	15	Maths	15	Free Choice	15
English	15	English	15	English	15	English	15	Free Choice	15
Science	15	Science	15	Science	15	Science	15	Free Choice	15
MFL	15	MFL	15	MFL	15	MFL	15	Free Choice	15
Hums	15	Hums	15	Hums	15	Hums	15	Free Choice	15
Free Choice	20	Free Choice	20	Free Choice	20	Free Choice	20	Free Choice	20
Reading	25	Reading	25	Reading	25	Reading	25	Reading	25

- You should spend a maximum of 2 Hours revising each day.
- You can decide what you revise in each slot that is called Free Choice. You can do this at the start of the year and have a fixed plan or you can decide on each day based on how well you feel you know your Knowledge Organisers.

Timetable

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