BOURNEMOUTH SCHOOL

Year 9

Knowledge Organiser 4

Spring Term

Name: Master 9

Registration Form: -

✓Hard Work ✓Discipline ✓Smart Appearance ✓Respect

Bournemouth School

Knowledge Organiser: Year 9 Spring Term 4

'Knowledge is power' by Francis Bacon

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

How to use your knowledge organiser (KO):

1. Ensure you have your KO and Homework Learning journal with you at all times in school and when you need to do your homework at home.
2. In lessons when you have covered information that appears on your KO, your teacher will ask you to put a tick next to that section. This means that is now added to what you must learn for homework.
3. Initially, follow your homework timetable to decide what to revise each evening.
4. There are 4 strategies that you can use to revise. They are progressively more challenging so always start with the first in the list.
    a. **Look Cover Write Check**
        i. Identify the subject and section of your KO that you want to revise. This should be one of the ticked sections.
        ii. LOOK carefully at the subject and section of your KO you want to revise and try to remember as much as you can. Remember this should be a ticked section.
        iii. Now COVER this information so you can't read it.
        iv. WRITE out what you can remember word for word in your Homework Learning Journal.
        v. CHECK what you have written by comparing it to your KO. Tick each correct word in green pen and correct any errors you have made.
        vi. Repeat this process until you are confident you can remember everything you need.
        AIM: You should be able to repeat the information by rote
    b. **Self or peer quizzing**
        i. Identify the subject and section of your KO that you want to revise. This should be one of the ticked sections.
        ii. Write out a list of questions you could ask either yourself or a friend about this section of the KO. Write these in your Homework Learning Journal.
        iii. If you are working on your own, cover the KO and write a full answer to each question.
        iv. If you are working with a partner swap books and copy down their questions and have a go at answering them.
        v. Now uncover the KO and with a green pen correct your work.
        AIM: You should be able to repeat the information by rote but with a good understanding
    c. **Playing with words and sentences**
        i. Identify the subject and section of your KO that you want to revise. This should be one of the ticked sections.
        ii. You now want to check how well you have learnt the information in your KO.
        iii. Definitions – look at words that are used in this section. Can you write a definition in your own words?
        iv. Rephrasing – can you rewrite the sentences or explanations in your own words?

c. Playing with words and sentences

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

AIM

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

d. Think it, Link it

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

AIM

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

Homework Learning Journal

1. Always write the subject and the date when you start your homework.
2. Always write the strategy that you are going to use for your homework.
3. 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.
6. **You are expected to complete half a side of your Homework Learning Journal each evening as a minimum.**

Success Club

You can attend Success Club every Monday to Thursday in room 53 until 4:30pm. This is a quiet room where you can complete your homework rather than doing it at home. There are also Sixth form helpers and staff who will be there to help you if you need it. You can also choose to work in the Library on a Monday, Tuesday and Thursday until 4:30 and a Friday until 4.

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 have a chat and offer you support.

Maths:

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

How long should I spend on my homework?

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

- You should spend about 35 minutes revising your KO each day.
- You should spend 25 minutes either reading or revising each day.
- This timetable is a guide. If you want to spend longer revising one subject that you find more difficult and less time on one you find easy, that is your choice.
- We would like you to spend one evening involved in a physical activity. This might be a sports club, a run, a game of football with friends or just a nice walk with the dog. Ask your PE teacher if you need guidance with this. It doesn't have to be on a Wednesday.

Artist page example

Title

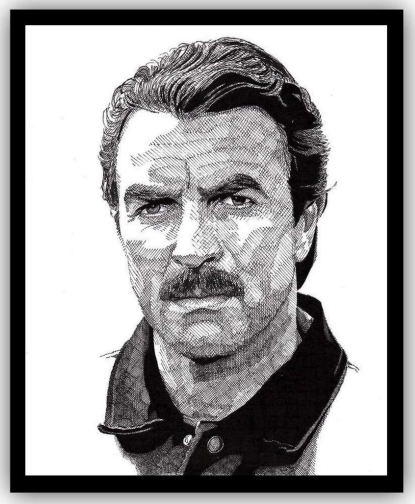
Details about the artists work, how they have been inspired, what materials and processes do they use

Rik Reimert

"Analog, that's my thing. From music to photographs to art. Yes, of course we use computers and cellphones, but isn't it great to put on a record on your turntable on a Sunday morning and just enjoy the cracks in the music and the great artwork on the cover?"

All artist Rik Reimert needs to create these detailed illustrations is some paper and some ink. The rest is a series of lines and hashmarks that Reimert builds, from light to dark, with Rotring Rapidographs–a variety of technical writing devices that provide consistent ink flow. The artist begins with pencil and then fills in the lines with his pens that vary in thickness from 0.2 to 0.8mm tips.

https://mymodernmet.com/rik-reimert-celebrity-ink-portraits/

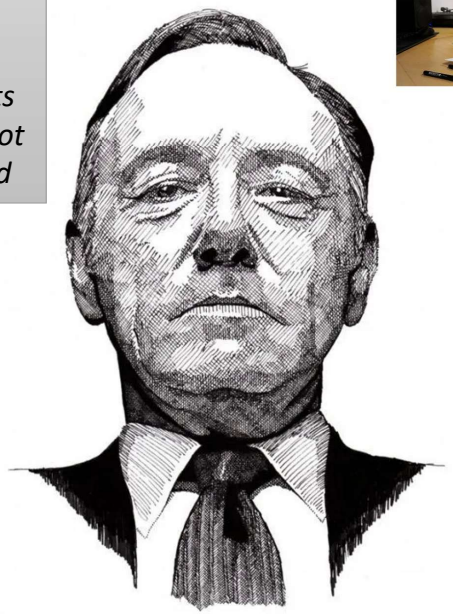


I've been drawing with pen and ink for over 10 years, started off with portraits, animals, cars and other vehicles and now doing mainly landscape. I'm self taught and when I'm not drawing myself I'm searching the internet for inspirational artists, getting new ideas and finding out how other artist work, so I can learn from that.

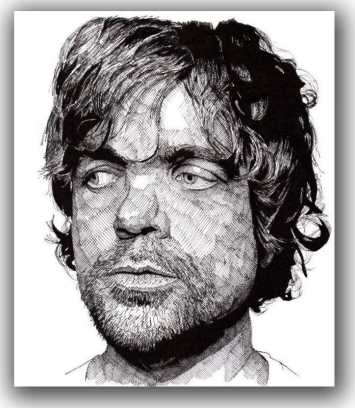
https://rikreimert.com/about/

I was drawn to the works of Reimert due to his harsh use of mark making and how he has chosen to work in a single medium. It shows the wide range of marks and layers that can be built upon to create almost hyper realistic outcomes (landscapes). In his portraits in particular, it almost looks like he has used a ruler for each individual line. A technique I would have frowned upon before has become an inspiration. I would like to try recreate a similar style with one of my own portrait photographs adding that sense of depth and atmospheric finish.

Clear images of artists work, not pixilated



In the image below I especially appreciate the contrast between the obviously straight lines and the use of fine wavy lines to create the hair. The blocked out areas of black adds more layers to the image therefore creating that high contrast between light and dark, I feel this adds to the mystery of the character. Depending on the image I choose I may try this mark making technique.



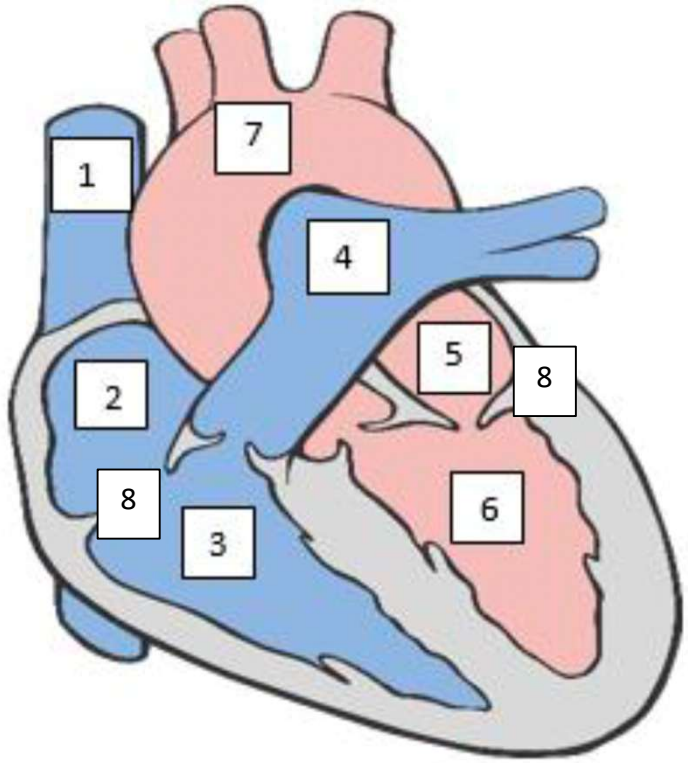
Details about why you have chosen the artist, what do you like about their work and how is it going to inspire you in your work.

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

Health		✓
Term	**Definition**	
Cancer	Uncontrolled cell division	
Benign	Doesn't spread	
Malignant	Does spread in the blood	
Risk factors	Increase the chance of getting a disease, e.g. obesity is a risk factor for diabetes	

Parts of the heart			✓
#	**Structure**	**Function**	
1	Vena cava	Major vein carrying blood back to the heart from the body	
2	Right atrium	Smaller chamber of the heart which fills with blood from the vena cava	
3	Right ventricle	Large chamber which pumps blood to the lungs	
4	Pulmonary artery	Artery carrying blood from the heart to the lungs	
5	Left atrium	Small chamber that fills with blood from the lungs	
6	Left ventricle	Large chamber which pumps blood around the body	
7	Aorta	Major artery carrying blood away from the heart to the body	
8	Valves	Prevent backflow of blood	

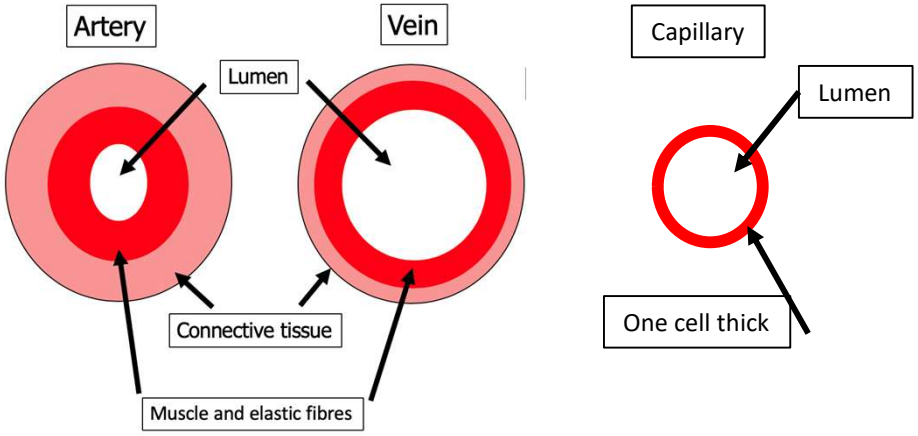
Components of blood		✓
Component	**Function**	
Red blood cells	Transports oxygen in the blood. No nucleus to allow more space for haemoglobin and a biconcave shape to give a large surface area.	
White blood cells	Cells in the blood that fight infection caused by pathogens.	
Platelets	Fragments of cells that cause clotting of blood at a wound, to reduce blood loss.	
Plasma	The liquid part of the blood, mostly made of water, but with substances like glucose, proteins, ions and carbon dioxide dissolved in it.	



B2b Heart and Health

Helping the heart				✓
Treatment	**What it is**	**Advantage**	**Disadvantage**	
Stent	Wire mesh opens up a blocked artery	Keeps artery open, low risk surgery	Fatty material can rebuild.	
Statin (drug)	Reduces cholesterol	Reduces fat being deposited in arteries.	Side effects e.g. liver damage	
Heart transplant	Replacement heart from a donor.	Long term	Major surgery, could be rejected	
Artificial heart	Man -made heart used while waiting for a transplant	Not rejected, keeps patient alive.	Short lifetime, limited activity	
Mechanical heart valve	Mechanical replacement of faulty heart valve.	Can last a lifetime	Can damage red blood cells	
Biological heart valve	Biological replacement of faulty heart valve.	Doesn't damage red blood cells.	Valve hardens and may need replacing.	

Blood vessels				✓
artery	Thick muscle wall and small lumen	Carries blood AWAY from heart	Oxygenated blood	
vein	Thin muscle wall and large lumen	Carries blood IN to heart	Deoxygenated blood	

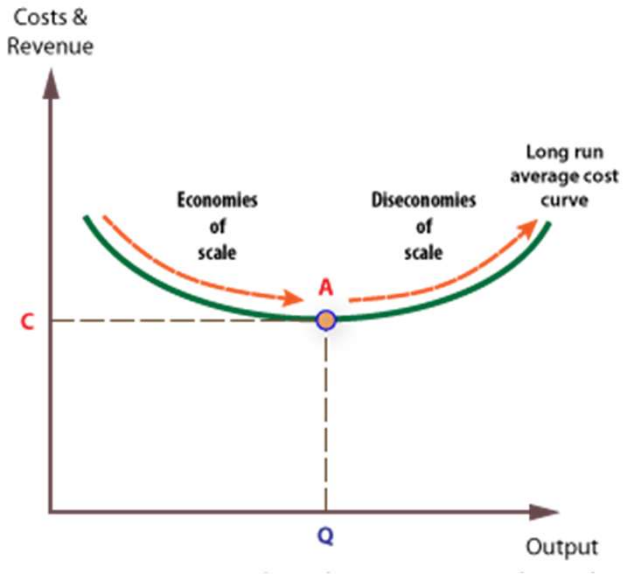


Definitions		☑
Organic (Internal) Growth	When a business grows by expanding its own activities	
External (Inorganic) growth	Growing the business by working with other businesses	
E-commerce	The act of buying or selling a product using an electronic system such as the internet	
Outsourcing	When a business 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 if takeover	Demotivated staff	
Image	Expensive	

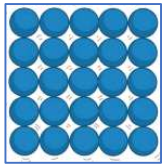
Economies and Diseconomies of scale		☑
Economies of scale:	Diseconomies of scale:	
As output increases average unit cost falls	Average unit cost increases as output increases	
Types: Purchasing Technical Managerial	**Causes:** Poor communication Poor coordination Poor control	



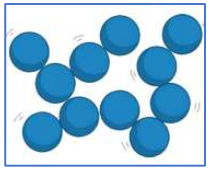
Chapter 2 – Bonding, Structure and Properties of Matter

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.	

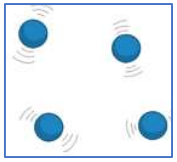
States of Matter – you must be able to represent as particle diagrams



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



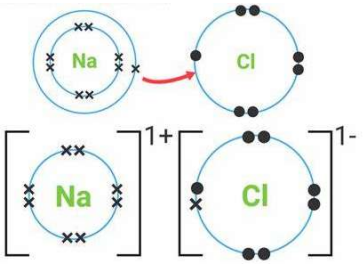
Particles are arranged randomly, close together and are able to move past each other. Liquids are not compressible.



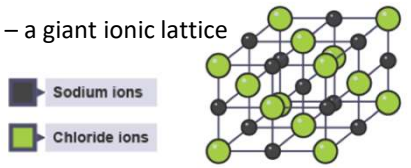
Particles are relatively spread out, move randomly in all directions and have most energy. Gases are compressible.

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.



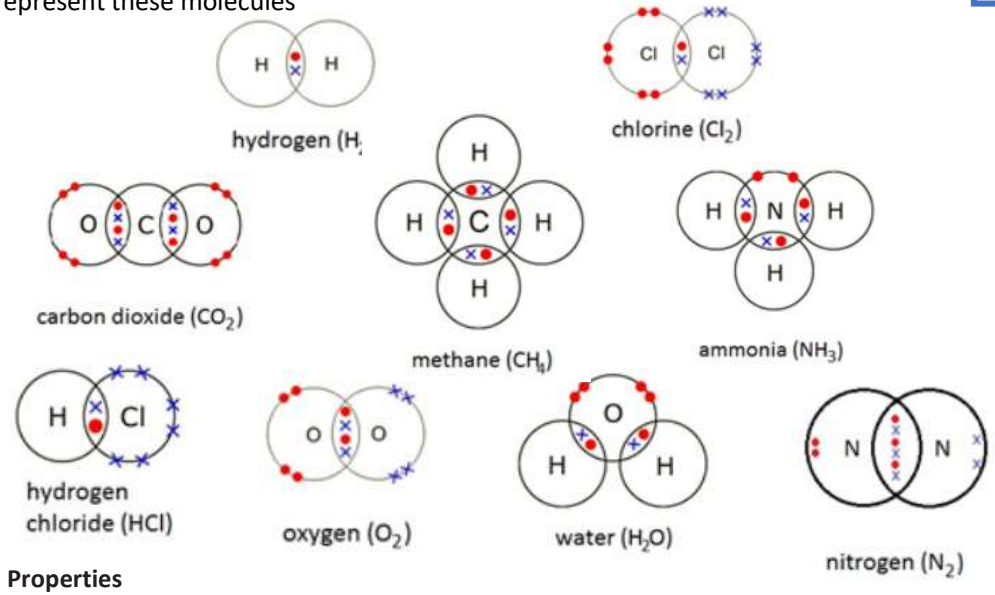
Forms a 3-D structure – a giant ionic lattice
e.g. sodium chloride



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.

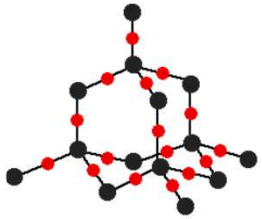
Simple Covalent Molecules - you must be able to draw dot and cross diagrams to represent these molecules



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

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



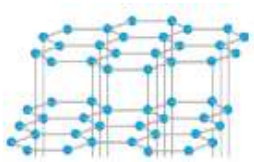
Silicon dioxide (silica), Formula SiO_2

- 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

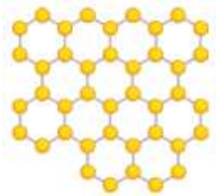
1. Diamond, Formula C

- 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



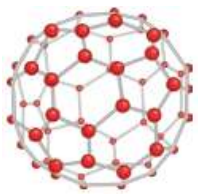
2. Graphite, Formula C

- 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

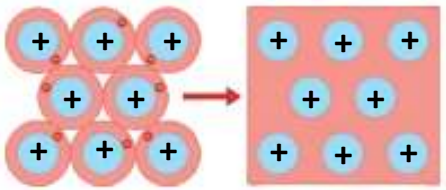
- Single layer of carbon atoms arranged as in graphite.
- Melting and boiling point as for graphite
- Conductivity as for graphite
- Forms strong, flexible sheets which are transparent



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_{25})	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

Chapter 4a – Chemical Changes

Keyword	Learn	✓
Acid	Substance producing H^+ ions in water. Acids react with a base to form a salt	
Alkali	Soluble base (e.g. metal hydroxides) that produces OH^- ions in water. Bases react with an acid to form a salt	
Base	Substance that reacts with an acid to form a salt e.g. metal oxides	
Burette	Laboratory apparatus used to accurately measure a variable volume of solution	
Concentrated	A large number of solute particles per unit volume	
Concentration	Mass or number of particles of solute per unit volume (dm^3)	
Dilute	A small number of solute particles per unit volume	
Indicator	Substance that changes colour depending on the pH of a solution e.g. phenolphthalein, methyl orange, litmus	
Neutralisation reaction	Reaction in which an acid reacts with a base to form a neutral solution. Overall equation $H^+ + OH^- \rightarrow H_2O$	
pH	Measure of concentration of H^+ ions relative to pure water. As pH decreases by 1, H^+ ion concentration increases by a factor of 10	
Pipette	Laboratory apparatus that is used to accurately measure a fixed volume of solution	
Salt	Ionic compound formed by reaction of an acid with a base. Consists of a positive ion from the base and a negative ion from the acid	
Strong acid	One that is fully ionised in aqueous solution to release H^+ ions e.g. $HCl(aq) \rightarrow H^+(aq) + Cl^-(aq)$	
Weak acid	One that is only partially ionised in aqueous solution to release H^+ ions e.g. $CH_3COOH(aq) \rightleftharpoons H^+(aq) + CH_3COO^-(aq)$	

pH Scale

Indicators for titration	Colour in acid	Colour in alkali
Phenolphthalein	Colourless	Pink
Methyl orange	Red	Yellow
Litmus	Red	Blue

Neutralisation Reactions – general equations

Acid + base → salt + water

Acid + alkali → salt + water

Acid + metal carbonate → salt + water + carbon dioxide

Preparation of a Soluble Salt

- Add excess base to warm acid. Stir
- Filter solution to remove unreacted base.
- Transfer filtrate (solution of soluble salt) to an evaporating basin.
- Heat until crystals begin to form.
- Leave to cool and completely crystallise at room temperature.
- Pat crystals dry using paper towel.

Example

copper + sulfuric → copper + water

oxide acid sulfate

$CuO(s) + H_2SO_4(aq) \rightarrow CuSO_4(aq) + H_2O(l)$

Titration

- Fill a burette with acid. Note initial volume
- Transfer $25cm^3$ of alkali to a conical flask using a pipette.
- Add a few drops of indicator and place flask on a white tile
- Slowly add acid from the burette, swirling to mix, adding dropwise near the end point
- Stop as soon as indicator changes colour and note volume of acid added
- Repeat until concordant results are obtained (+/- 0.1 cm^3), then calculate mean volume of acid used

Example

$HCl(aq) + KOH(aq) \rightarrow KCl(aq) + H_2O(l)$

2.2 Programming Fundamentals

Keyword	Definition / Example	Tick
Input	Data sent to a computer to be processed. `name = input("Please enter your name.")`	
Output	Processed information that is sent out from a computer. `print("Hello world!")`	
Sequence	A set of logical steps carried out in order.	
Selection	Making a decision as the result of a Boolean (true/false) condition.	
Iteration	Repeats a block of code.	
Concatenation	Joining strings (text) together. `print("Hello " + name + "!")`	
Variable	A label/identifier which is used to identify a memory location used to store a value that *can be changed* while the program is running.	
Constant	A label/identifier which is used to identify a memory location used to store a value that *cannot be changed* while the program is running.	
Casting	Convert from one data type to another.	
Data Types	Determines what type of value a variable will hold. *Integer* – Whole number: `age = 12` *Real / float* – Number that *can* have a fractional part: `height = 1.52` *Character* – A single letter, symbol or number: `letter = 'a'` *String* – Multiple characters: `name = "Bart"` *Boolean* – Has two values: true or false: `a = True` `b = False`	

Keyword	Definition / Example	Tick
Arithmetic operators		

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

Relational operators

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

Selection (code)

Python	OCR Ref.

`if value > 50:`
`  print("Over 50")`
`elif value >= 20:`
`  print("20 or over")`
`else:`
`  print("Under 20")`
	`if value > 50 then`
	`  print("Over 50")`
	`elseif value >= 20 then`
	`  print("20 or over")`
	`else`
	`  print("Under 20")`
	`endif`

How to practise at home?

- Code online using: https://vscodeedu.com
- Online tutorial 1: https://www.w3schools.com/python
- Online tutorial 2: https://time2code.today/python-course

Bournemouth School – Knowledge Organiser – Year 9

COMPUTER SCIENCE

Keyword	Definition / Example	✓
Iteration	Used to repeat a section of code a number of times.	

Count-controlled iteration	When we know the exact number of iterations we wish to make.
	Python
	`#Outputs 1-10`
	`for count in range (1,11,1):`
	`  print(count)`
	OCR Ref.
	`//Outputs 1-10`
	`for count = 1 to 10 step 1`
	`  print(count)`
	`next count`	

Condition-controlled iteration	When the we do not know the exact number of iterations needed and this depends on some condition.
	Python
	`continue = "Y"`
	`while continue == "Y":`
	`  continue = input("Continue?")`	

Iteration with 1D array	**Python**
	`myArray = [1,2,3,4,5]`
	`for i in range(5):`
	`  print(myArray[i])`	

Iteration with 2D array	**Python**
	`myArray = [[1,2,3,4,5],`
	`  [6,7,8,9,10]]`
	`for row in range(2):`
	`  for column in range(5):`
	`  print(myArray[row][column])`	

Keyword	Definition / Example	✓
Subprogram	Small programs that are written within a larger, main program.	

Procedure	A subprogram that performs a specific task.
	Python
	`def add(num1, num2):`
	`  answer = num1 + num2`
	`  print(answer)`	

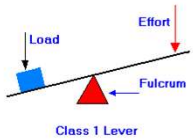
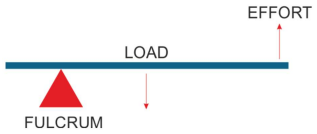
Function	A subprogram that performs a specific task and returns a result back to the main program.
	Python
	`def add(num1, num2):`
	`  answer = num1 + num2`
	`  return answer`	

Parameter	Variables declared when you define a subprogram.	
Argument:	A value sent to a subprogram when it is called.	
Random	To generate a random number between two values. **Python** `rand = random.randint(1,10)`	

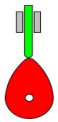
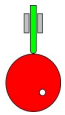
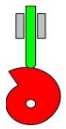
How to practise at home?

- Code online using: https://vscodeedu.com
- Online tutorial 1: https://www.w3schools.com/python
- Online tutorial 2: https://time2code.today/python-course

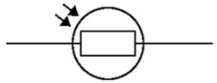
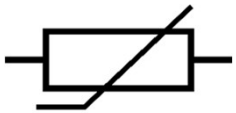
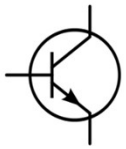
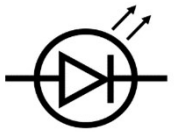
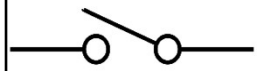
GCSE Design Technology:
CORE 1.05 part 1 Mechanical devices

Tick	Lever	Order of parts	Uses
	Class 1	Load Fulcrum Effort (L F E) 	• Pliers • See-saws
	Class 2	Fulcrum Load Effort (F L E) 	• Wheelbar row • Nut cracker
	Class 3	Fulcrum Effort Load (F E L) 	• Tweezers • Spade

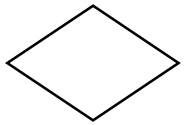
Cams

Tick	Cam type	Motion type	Uses
	Pear 	Motionless for half of the cycle then rises and falls in the 2nd half.	Valves in a car engine
	Circular 	A continuous, smooth rise and fall.	Steam engines
	Snail 	A slow rise/stationary with a sudden drop.	Machines needing a sudden drop

GCSE Design Technology:
CORE 1.06 Electronic components

Tick	Component	Symbol	Function
	LDR (Light Dependent Resistor)		Light on LDR, the resistance changes. More light = less resistance; electricity flows.
	Thermistor		Resistance changes with temperature. Hot = low resistance cold = higher resistance.
	Transistor		Acts as a tiny electronic switch. It is known as a semi conductor. It can amplify small currents.
	Resistor		Changes the resistance to limit the flow of electricity through part of a circuit.
	LED (Light Emitting Diode)		Gives out light when electricity passes through.
	Buzzer		Makes a sound when electricity flows through.
	Switches		Turns the flow of electricity on in a circuit on or off.

GCSE Design Technology:
CORE 1.07 Programmable components

Flowchart element	Definition/explanation	Tick
Programme	A set of instructions the system has been given to make the electronic system do what it is supposed to do.	
Flowcharts	Diagrams that are used to set up a programme.	
	Used in flowcharts for the 'start' and 'end' sections only.	
	Used in flowcharts for the instructions only.	
	Used in flowcharts for 'decisions' only. These are followed by yes and no answers.	
Time delay	Sections of a programme which ask it to wait for 'x' amount of time before moving onto the next instruction.	
Count	When a programme is either told to count how many times it gets an input before moving onto the next instruction or it is told to loop an action 'x' amount of times before moving on.	
Feedback loop	When a programme is sent back to an earlier stage in the flowchart, this is usually set by a sensor and will follow from a decision box.	

GCSE Design Technology:
CORE 1.08 Metals

Tick	Non-ferrous metal	Properties	Uses
	Aluminium	• Corrosion resistant • Malleable	• Engine parts • Drinks cans
	Copper	• Ductile • Excellent heat/electrical conductor	• Electrical wire/ components • Gas and water pipes
	Brass	• Corrosion resistant • Easily machined	• Plumbing fittings • Musical instruments

Tick	Ferrous metal	Properties	Uses
	Mild steel	• Malleable • High tensile strength	• Car body panels • General engineering purposes
	Stainless steel	• Corrosion resistant • Hard	• Cutlery • Medical equipment
	Cast iron	• Hard 'skin' with a soft core • Good compression strength	• Vices • Break discs

Bournemouth School

Year 9 Spr 2 'Have Your Say' Knowledge Organiser

Techniques used to present viewpoints	✓
Specific words (noun/Verb/adverb/adjective)	
Language devices (Simile/metaphor/etc)	
Persuasion - Aristotelian Triad (Logos, Pathos, Ethos)	
Lists	
Sentence types/Structure	

Language devices		
Technique	Definition	✓
Adverbial of time	Modify verbs to tell when something happens.	
Factual Content	Something that is known to have happened or to exist.	
Pattern of Three/Triple	A collection of three words, phrases, or sentences, e.g. Sleep is good for your health, intelligence and all-round well-being.	
Direct speech	Exact words spoken/written by speaker/writer.	
Opinion	View or judgement formed about something, not always based on fact or knowledge	
Exclamation	Indicate strong feelings and convey emotion, as well as to indicate shouting or high volume.	

Terminology #1		
Technique	Definition	✓
Anecdote	A short illustrating story based on real events.	
Hypophora	A rhetorical question which the author then answers.	
Hyperbole	Exaggeration for dramatic effect.	
Formal register	Formal language.	
Colloquialism	Slang or informal language.	

Aristotelian Triad		✓
Logos	Logic/Reason/Truth (Your argument)	
	Enhances Ethos; makes you look knowledgeable.	
Pathos	Emotions/Values (the hearer)	
	Humans are emotional creatures – this is a perfect way to sway somebody.	
Ethos	Credibility/Trust (Public persona)	
	Persuade your audience that you are one of them. You share the same interests.	

Terminology #2		
Technique	Definition	✓
Semantic field	A series of words that all relate to the same topic or theme i.e. branch, root, stem etc.	
Euphemism	Mild or indirect language used in place of terms considered too harsh or blunt i.e. passed-away rather than dead.	
Modal verb	Verbs used to express possibility or necessity i.e. will, should, might, must.	
Personal pronouns	Words used as substitute for the name of a person/people i.e. he, they. These can also be plural: they, us and possessive: my, our.	

Analyse Effects of writer's choices	✓
Step 1 WHAT	Identify the feature of language or the choice the writer has made. Make sure you include your quote.
Step 2 HOW	How does that technique create an effect e.g. how does a metaphor create an effect and how does this specific metaphor create an effect?
Step 3 WHY	Why does the author want this effect? Relate it to the question

Question 5 Exam Structure				✓
Q5	40 (24 + 16 SPAG)	45 min	Write a non-fiction persuasive text: an article, letter or speech.	

Bournemouth School – Knowledge Organiser – Year 9

ENGLISH

Energy Needs

Basal Metabolic Rate (BMR)

The minimum energy required to maintain basic bodily functions at rest.

Affected by:

Age - decreases as you get older

Gender – males generally have higher BMR due to high lean tissue mass

Body size and composition – more muscle = higher BMR

PAL – people who regularly exercise can increase their BMR

Physical Activity Level (PAL)

A measure of how active a person is.

Used together with BMR to calculate total energy requirements.

Life Stage Energy Considerations

Young children – small portions, nutrient-dense foods

Teenagers – require increased energy for rapid growth.

Adults – should maintain a healthy weight and avoid excess fats/sugars.

Elderly – lower energy needs but high nutrient density needed.

Energy Balance

Energy in = energy out → body weight remains stable

Energy in › energy out → weight gain

Energy in ‹ energy out → weight loss

Recommended % Energy from Macronutrients

Protein – 15%

Fat – 35% or less

Carbohydrates – 50% total

- 45% from starches, lactose, fruit sugars
- Maximum 5% from free sugars

Nutritional Analysis

Step-by-Step Nutritional Calculation – worked example

Below is an example of how you would use nutritional analysis software or food tables to calculate values.

Dish: Chicken and veg stir-fry with noodles

1. Calculate total energy (kcal)

Chicken 100g	– 165kcal
Noodles 75g	– 110kcal
Broccoli 80g	– 27kcal
Carrot 50g	– 20kcal
Red pepper 50g	– 15kcal
Vegetable oil 1tsp	– 45kcal
Soy sauce 1 tbsp	– 10kcal
Total Energy	**= 165+110+27+20+15+45+10**
	= 392kcal per portion

2. Macronutrients

Protein – chicken + noodles = 30g

Fat – oil (mainly) = 10g

Carbohydrates – noodles and veg = 45g

Sugars – vegetables = 8g

Fibre – wholewheat noodles and veg = 7g

Salt – soy sauce = 1.3g

3. Compare against dietary guidelines

Protein:30g with 120kcal (6% daily energy) = high protein dish

Fat: 10g with 90kcal (4.5% daily energy) = low fat

Carbs: 45g with 180kcal (9% daily energy)

Fruit/Vegetable: plenty of vegetables (fibre+micronutrients)

Salt: moderate – could use reduced-salt soy sauce

My life

Year 9 French Half-term 4

Tu as une vie active? – *Do you have an active life?*		
Je joue au basket/au foot/au rugby	I play basketball, football, rugby	
dans l'équipe du collège	in the school team	
dans un groupe de musique	in a music band	
Je joue du piano/du violon/ de la guitare/ de la flûte	I play piano/violin/guitar/flute	
Je ne pratique pas de sport	I don't practise sport	
J'ai un cours de musique	I have a music lesson	
J'écoute toutes sortes de musique	I listen to all sorts of music	
Je mange quelque chose	I eat something	
Je participe au club de lecture	I take part in the book club	
Je préfère lire/la lecture	I prefer reading	
une comédie musicale	A musical comedy	
les jeux vidéo/de guerre,	Video/war games	
une pièce de théâtre	a play	

Past tense past participles		
fait	did	
joué	played	
pris	took	
acheté	bought	
passé	spent	
vu	saw	
lu	read	
bu	drank	
mangé	ate	
regardé	watched	
c'était	it was	
il y avait	there was	

Faire - *to do/make*		
je fais	I do/I make	
tu fais	You do/make	
il/elle/on fait	He/she does we do/ make	
nous faisons	We (pl) do/make	
vous faites	You (pl) do/ make	
ils/elles font	They do/make	

Common essentials		
ensemble	together	
aussi	as well	
puisque	as/since	
fort(e)	strong	
pendant	during	
quand	when	
plusieurs	several	
beaucoup de	a lot of..	

Envoyer - to send There is a small change from 'y' to 'i' in some forms		
j'envoie	I send	
tu envoies	you send	
il/elle/on envoie	he/she/we send	
nous envoyons	we send	
vous envoyez	you send	
ils/elles envoient	they send	

Les activités avec *faire*		
Je fais du vélo	I go cycling	
Je fais de la lecture	I read/do reading	
Je fais de la cuisine	I do cooking	
Je ne fais rien	I do nothing….	
Je ne fais pas de…..	I don't do…	
Je fais une promenade	I go for a walk	
Je fais de la natation	I go swimming/swim	
Je fais du sport	I do sport	
Je fais de la cuisine/ De la danse	I cook/dance	
Ça fait du bien!	It does me good!	

Frequency phrases		
souvent	often	
parfois	sometimes	
quelquefois	sometimes	
tout le temps	all the time	
tous les jours	every day	
tous les soirs	every night	
tous les week-ends	every weekend	
de temps en temps	from time to time	
Le matin	In the morning	
Le soir	In the evening	

General free time phrases		
Je vais…	I go…	
au centre sportif/ au théâtre	To the sports centre/theatre	
à la piscine/ à la plage	To the pool/beach	
avec mon meilleur ami/ ma meilleure amie	With my best friend (m/f)	
avec mes copains/mes copines	With my friends	
Je bois/je lis	I drink/I read	
Je suis actif/active	I am active	
Je suis sportif/sportive	I am sporty	
Je suis membre de l'équipe de rugby	I'm a member of the rugby team	

My life

Year 9 French Half-term 4

À la télé/télévision	On tv	
Des séries	Series	
Une comédie	A comedy	
Une émission	A programme	
Un peu de tout	A bit of everything	
Des clips de musique	Music clips	
La télé-réalité	Reality tv	
Des vidéos amusantes	Funny videos	
Sur Youtube	On Youtube	
Une chaine	A channel	
Une célébrité	A celebrity	
Les informations/les infos	The news	
Un personnage	A character	
Un documentaire	A documentary	
Une scéance	A screening	

Des dangers en-ligne	Dangers on-line	
les vols d'identité	identity theft	
des risques de sécurité	security risks	
le harcelement en ligne	cyber-bullying	
les fausses nouvelles	fake news	
la cyber-criminalité	cyber-crime	
des mauvaises images	bad images	
à mon avis	in my opinion	
un commentaire	Comment/ remark	
malgré cela	Despite that	

Activities on line		
télécharger des chansons	to download songs	
parler avec un ami	to speak with a friend	
partager des photos	to share photos	
chercher	to look for	
acheter/faire des achats	to buy things	
jouer aux jeux vidéo	to play video games	
regarder des clips	to watch clips	
envoyer des messages	to send messages	
passer du temps	to spend time	
chanter/danser	To sing/dance	
écouter de la musique	to listen to music	

un ordinateur	a computer	
des écouteurs	headphones	
les réseaux sociaux	social media	
un réseau	a network	
une appli	an app	
un écran	a screen	
un site-web	a web-site	
un portable	a phone	
une tablette	tablet	
un SMS/un texto	a text	

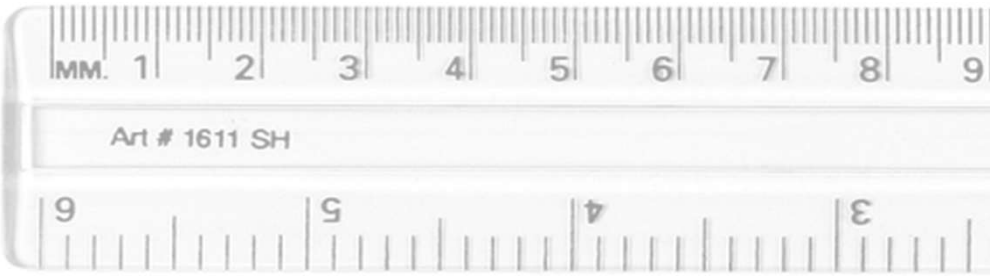
La musique	music	
Célèbre	famous	
Un genre	genre/type/sort	
Un groupe	a group	
Le bruit	noise	
Un chanteur/euse	a singer	
Un concours	a competition	
Les paroles	the words/lyrics	
Le public	the audience	
Le son	the sound	
Une critique	a review	

Un lien	A link	
Les médias	Media	
Un mot de passe	Password	
La technologie	Technology	
Les données	Data	
Une console de jeu	Games console	
Un influenceur	An influencer	
Un abonnement	A subscription	

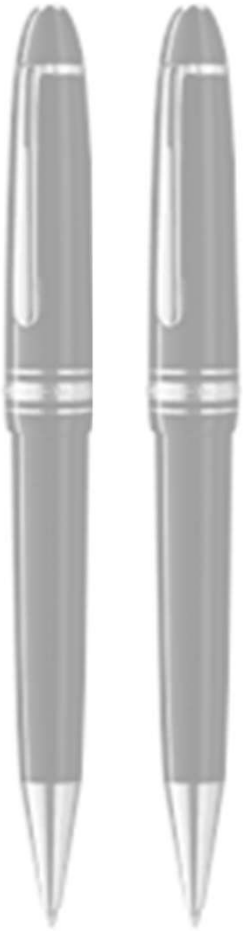
Opinions		
C'est divertissant	entertaining	
pratique	practical	
Utile	useful	
une perte de temps	A waste of time	
mauvais pour la santé mentale	Bad for mental health	
C'est indispendable	It's essential	
dangereux	Dangerous	
inquiétant	Worrying	
affreux	awful	

Equipment

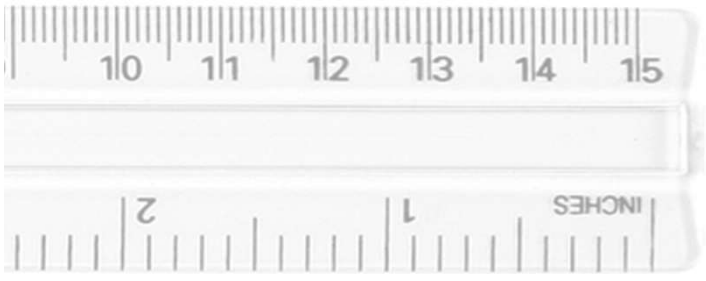
ID Card

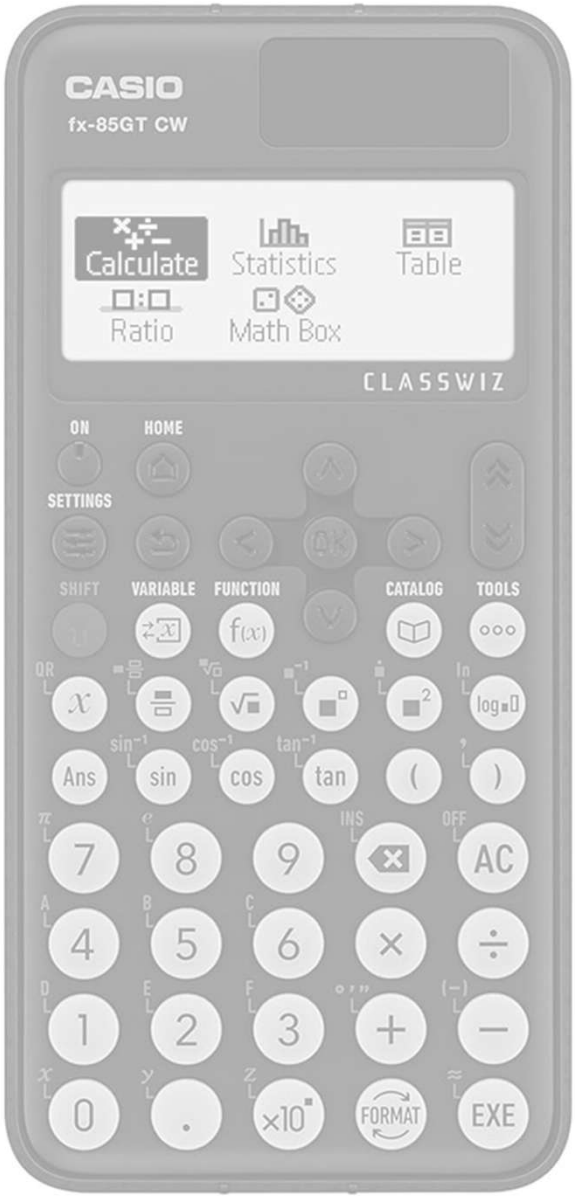


Check



- ID card
- Green and purple pens
- Whiteboard pens
- Black/blue pens
- Glue stick
- Pencil
- Ruler
- Calculator





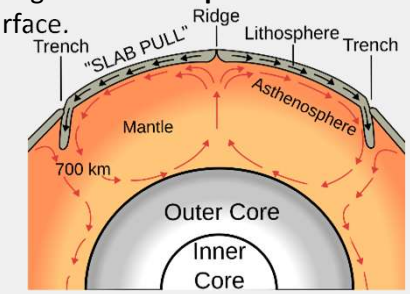
Hazardous Earth

1. The Earth's layered structure

- The Earth is divided into layers.
- The **lithosphere** is the uppermost layer and is split into **continental crust** (granite) and **oceanic crust** (basalt).
- Continental Crust:
  - Thicker (30-70 km)
  - Less dense, made mostly of granite
  - Older (up to 3.8 billion years old)
  - Forms landmasses, less prone to subduction
- Oceanic Crust:
  - Thinner (5-10 km)
  - Denser, made mostly of basalt
  - Younger (up to 200 million years old)
  - Forms ocean floors and is more likely to be subducted under continental crust
- The **mantle** can be divided into two layers. The thinner **asthenosphere**, a partly molten 'lubricating' layer under the lithosphere. The lower mantle which is solid.
- The **core** is also split into two layers. The outer core is liquid, whilst the inner core is solid because the pressure is so great. The composition of both is iron and nickel.

2. The Earth's physical properties

- The Earth is heated by **radioactive decay** in the core and mantle.
- **Convection currents** are caused by the **geothermal energy** and move tectonic plates.
- The rising heat creates **plumes** which bring magma to the surface.



3. Plate Boundaries

- Earthquakes and volcanoes are tectonic hazards. They occur at plate boundaries.
- **Conservative** – plates slide past each other – friction between the plates causes earthquakes (e.g. San Andreas Fault in California).
- **Divergent** – plates move apart, and magma rises to fill the gap – hot and runny magma made of **basalt** spreads to form **shield** volcanoes e.g. Iceland sits on the mid-Atlantic ridge. Earthquakes tend to be frequent but rarely life threatening. Smaller earthquakes tend to occur.
- **Convergent** – plates push together, and the denser oceanic plate is **subducted** – partial melting of the oceanic plate creates **andesitic** magma which is cooler and less fluid, so more explosive forming **composite** volcanoes e.g. the Andes mountains in Chile and Peru. Earthquakes can be violent as pressure builds from the subducting oceanic plate.
- **Collision** – two continental plates move towards each other and collide. The land between the plates is forced upwards to form fold mountains, eg The Alps and Himalayas.

4. Earthquakes.

- The magnitude of an earthquake is measured on the **Richter Scale**. The scale is logarithmic – a 6.0 quake is 10 times more powerful than 5.0.
- The **epicentre** is directly above the focus, on the Earth's surface.
- Shallow Earthquakes occur near the surface (0-70 km depth) and are the most damaging, causing strong shaking, building collapses, and landslides. These earthquakes often have a high magnitude (e.g. 7.0+).
- Tsunamis are usually triggered by earthquakes and, as such, are a secondary hazard. A tsunami is a series of giant ocean waves that send surges of water, sometimes over 30m onto land.

5. Japan Earthquake: Developed country

- **Sendai (Japan)** was hit by a **tsunami** in 2011 following a **magnitude 9.0** earthquake 70km from the coast.
- Primary impacts: The magnitude 9.0 earthquake caused severe destruction, collapsing buildings and damaging infrastructure. 20,000 died
- Secondary impacts: A tsunami devastated coastal areas, flooding towns and damaging the Fukushima nuclear plant, which led to radiation concerns.
- Management:
- Short-term: Rapid deployment of shelter, medical supplies, and food. Japan's well-trained emergency services and infrastructure ensured a swift response.
- Long-term: Earthquake-resistant buildings and extensive evacuation plans contributed to rebuilding. Well-funded and trained emergency services were crucial for recovery.

6. Haiti Earthquake: Developing country

- **Port-au-Prince (Haiti**) was hit by a magnitude 7.0 earthquake in 2010.
- Primary: The magnitude 7.0 earthquake caused severe destruction in the capital, Port-au-Prince, with buildings collapsing, leaving thousands trapped.
- Secondary: Limited access to medical care and supplies worsened the situation, and weak infrastructure slowed recovery.
- Management:
- Short-term: Aid was slow to arrive, and there was a lack of adequate shelter and medical supplies.
- Long-term: Recovery efforts faced challenges due to limited funding and poor infrastructure. Trained emergency services were lacking, which hindered relief operations.

Sportarten - Sports	
Ich bin (sehr) sportlich	I am (very) sporty
Ich bin ziemlich/nicht sehr sportlich	I am quite/not very sporty
üben	to practise
Was spielst du?	What do you play?
Ich spiele ... für eine Mannschaft/einen Klub	I play……. for a team/a club
Badminton/Basketball	badminton/ basketball
Fußball/Handball	football/handball
Eishockey	ice hockey
Tennis/Tischtennis	tennis/table tennis
das Mitglied	member
an einem Wettbewerb teilnehmen	to take part in a competition
der Trainer	coach

Ich liebe Sport	
Ich treibe Sport	I do sport
Ich mache Judo/ Karate/Leichtathletik	I do judo/ karate/athletics.
Ich fahre Rad/Ski/ Snowboard	I ride a bike/I ski/ I snowboard
Ich gehe laufen/ schwimmen/wandern	I go running/ swimming/hiking
Ich reite/schwimme	I go horseriding/I swim
Ich gehe ins Fitnesszentrum	I go to the gym
Mein Lieblingssport ist	My favourite sport is
im Sommer/im Winter	in summer/in winter
das Schwimmbad	swimming pool
das Freibad	outdoor pool
das Hallenbad	indoor swimming pool

Was machst du gern in deiner Freizeit? What do you like to do in your free time?	
Was machst du gern?	What do you like doing?
Ich mache gern/ lieber/am liebsten …	I like to/prefer to/most of all I like to do …
Freizeitaktivitäten	Free time activities
Mein Lieblingshobby ist	My favourite hobby is
Meine Lieblingsfreizeit-aktivität ist	My favourite freetime activity is
Ich interessiere mich (sehr/nicht) für …..	I am (very/not) interested in
Einkaufen	Shopping
Fernsehen/Gaming	TV/gaming
Lesen	Reading
Radfahren/Sport	Cycling/sport
Ich spiele am Computer	I play on the computer
Ich gehe einkaufen/ schwimmen/wandern	I go shopping/ swimming/hiking
ins Kino	to the cinema
in die Stadt	to the town
Ich besuche (Ausstellungen/ Freunde)	I visit (exhibitions/friends)
Ich tanze/koche/singe	I dance/cook/sing
Ich mache Fotos	I take photos
Ich lese Bücher/ Romane	I read books/novels
Ich male/zeichne Bilder	I paint/draw pictures
Ich höre Musik	I listen to music
Ich sehe fern/Filme	I watch TV/films

Und wie oft? And how often?	
häufig	frequently
immer	always
jeden Abend	every evening
jeden Nachmittag	every afternoon
jede Woche/ wöchentlich	every week
normalerweise	normally

Und wie oft - Freizeit? And how often – free time?	
ab und zu	now and then
jeden Tag/täglich	every day
manchmal	sometimes
(fast) nie	almost never
oft	often
selten	seldom
am Wochenende	at the weekend

fahren – to travel/go	
ich fahre	I travel/go
du fährst	you travel/go
er/sie/es fährt	he/she/it travels/go
wir fahren	we travel/go
ihr fahrt	you all travel/go
Sie/sie fahren	you (formal) /they travel/go

This is a strong verb – note the vowel change in the du and er/sie/es forms
This change also applies to tragen – to wear and laufen to run

Was machst du online? What do you do online?		
Welche Geräte benutzt du?	Which devices do you use?	
Ich benutze ein Tablet	I use a tablet	
einen Computer/ Laptop	a computer/ laptop	
eine Spielkonsole	a games console	
ein Handy/ Smartphone	a mobile/ smart phone	
Was machst du online?	What do you do online?	
Ich sehe mir Filme/Videos an	I watch films/videos	
Ich lade (Apps) herunter	I download Apps	
Ich lade (Fotos) hoch	I upload photos	
Ich nehme Musik auf	I record music	
Ich rufe (Freunde) an	I call friends	
Ich benutze soziale Medien	I use social media	
Ich chatte/plaudere	I chat	
Ich schreibe/lese/schicke Nachrichten	I write/read/send messages	
Ich folge berühmten Persönlichkeiten	I follow famous people	
Ich streame (gern) (Musik/Serien)	I (like to) stream music/series	
Was sind die Vorteile/ Nachteile von Technologie?	What are the advantages / disadvantages of technology?	
Man kann Computer-Viren bekommen	You can get computer viruses	
falsche Informationen oder Nachrichten lesen	read false information or news	
Filme und Musik herunterladen	download films and music	
Informationen schnell finden	find information quickly	
mit Freunden in Kontakt bleiben	keep in touch with friends	
Probleme mit Mobbing/ Cyberkriminalität erleben	have problems with bullying and cybercrime	

hören – to listen to		
ich höre	I listen to	
du hörst	you listen to	
er/sie/es hört	he/she/it listens to	
wir hören	we listen to	
ihr hört	you all listen to	
Sie/sie hören	you (formal)/ they listen to	

Hören means to listen to – Ich höre Rap. These are the regular present tense verb endings and apply also to spielen to play

Role Play Questions		
Was kostet .....?	How much is?	
Wo ist ……..?	Where is ?	
Wann beginnt … bitte?	When does … begin, please?	
Um wie viel Uhr ……?	At what time?	
Gibt es ……?	Is/Are there?	
Können Sie bitte … empfehlen?	Can you recommend?	

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/are	
Auf der linken/ rechten Seite	On the left/on the right side	
Im Hintergrund	In the background	
Im Vordergrund	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"

Was hörst du gern? What do you like to listen to?		
Ich höre (nicht) gern …….	I (don't) like listening to ..	
Ich höre lieber/nie ……	I prefer/never listen to …….	
Ich höre am liebsten	Most of all I like listening to …….	
Tanzmusik	dance music	
Popmusik	pop music	
Rock(musik)	rock music	
klassische Musik	classical music	
elektronische Musik	electronic music	
die Musik von	the music of	

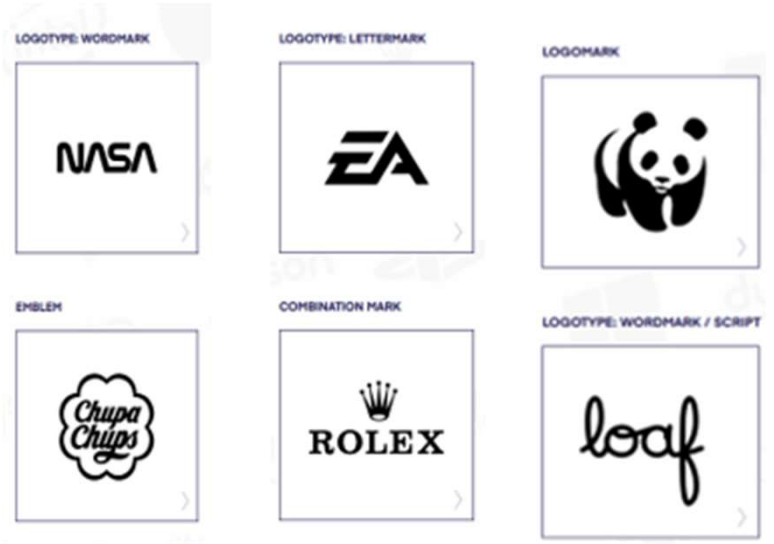
Warum? Why?		
Er/sie/es ist/war	It is/was …….	
besonders/extrem	particularly/extremely	
ganz/ziemlich	quite/rather	
wirklich/sehr	really/very	
nicht/zu	not/too	
melodisch	tuneful	
beliebt	popular	
laut/leise	loud/quiet	
modern/modisch	modern/fashionable	
klassisch	classical	
kulturell	cultural	
langsam/schnell	slow/fast	
berühmt	famous	
spannend	exciting	
interessant/ langweilig	interesting/boring	
komisch	funny, strange	

Logo redesign project

Graphic design isn't solely about making things look good (although of course this is integral), it's about effective communication, conveying information, creating a visual identity, appealing to a target market, and much more. It has an essential role to play in every aspect of a business.

The ability of good graphic design to effectively communicate information and to persuade people to take action is one of its best traits. With a well designed flyer, advert or web landing page, you can turn prospective clients into paying clients. A skilled designer will know exactly how to create a call-to-action type design, and this will automatically lead to a bigger client base and a healthier bottom line.

Types of Brand logos - RCWC	Tick
A **logomark,** also known as a logo symbol or brandmark, consists of a graphic element or symbol representing a brand or company. A logomark focuses solely on the visual representation without incorporating any accompanying typography.	
Lettermark logos, also known as monogram logos or letter logos, consist of initials, abbreviations, or acronyms of a brand or company name. Instead of using the full name of the organisation, these logos focus on creating a visual representation using one or more letters.	
A **wordmark** logo consists of a stylised or custom-designed typography-based representation of a brand or company name. It focuses on the visual arrangement and design of the text itself, rather than incorporating additional graphic elements or symbols.	
A **wordmark or script logo** consists of the company or brand name represented in a unique, stylised, and often artistic manner. Instead of relying on symbols, icons, or graphic elements, it focuses solely on typography and the visual presentation of the text.	
A **combination mark** logo combines both text and a visual symbol or icon. It typically incorporates a unique visual element alongside the brand name or company name.	
Emblem logos combine text and imagery into a single integrated unit. They are characterised by their compact, symmetrical shapes and often have a traditional or vintage aesthetic. They typically feature a detailed, illustrated graphic or symbol enclosed within a border or frame, with the company or brand name placed below or around the graphic.	



Remember:

- A well-designed logo is timeless, memorable, and represents the essence of the brand.
- Using a limited palette means that you're only using a few select colours in your piece. It's not an entire gamut of the rainbow, but just two or three colours that you stick to for the entire illustration

History Department: Knowledge Organiser: Year 9 Spring Term 1 & 2: 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 ("donate a baby to the Fuhrer"), 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: Moringen 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.

History Department: Knowledge Organiser: Year 9 Spring Term 2: Revision

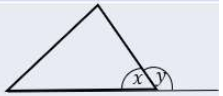
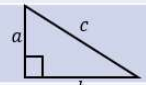
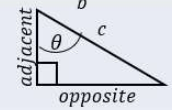
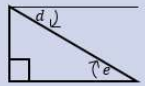
Weimar Germany 1918-1929	Hitler's rise to power 1919-1929	Nazi Control and Dictatorship 1933-39	Life in Nazi Germany 1933-1939
9th November 1918: Kaiser Wilhelm abdicates January 1919: Spartacist uprising 28th June 1919:Treaty of Versailles is signed August 1919: Weimar Constitution set up 1920: March: Kapp Putsch 1923: Jan: French occupation of the Ruhr 1923: January – November: Hyperinflation 1923: Rentenmark introduced 1924: Dawes Plan 1925: Locarno Pact 1926: Germany becomes a member of the League of Nations 1929: Young Plan	1919: Hitler joins the German Workers' Party 1920: NSDAP set up 1921: The SA is formed 1923: 8th November: Munich Putsch 1925: Mein Kampf is published 1926: Bamberg Conference 1928: Nazis win 12 seats in the Reichstag 1929: Stresemann dies 1929: 29th October: Wall Street Crash 1932: Nazis win 107 seats in the Reichstag 1932: July: the Nazis win 230 seats in the Reichstag and von Papen becomes Chancellor 1932: November: the Nazis win 196 seats in the Reichstag and von Schleicher becomes Chancellor 1933:Hitler becomes Chancellor	1933: 30th January, Hitler becomes Chancellor, invited by Hindenburg 1933: 27th February, the Reichstag building was set on fire 1933: 24th March: Enabling Act 1933: Dachau set up (first concentration camp) 1933: 2nd May, trade unions were banned 1933: 14th July: Law Against the Formation of Parties was passed 1934: 30th June: Night of the Long Knives 1934: August, President Hindenburg died 1934: August, Hitler combined both the posts of Chancellor and President and took the title of Fuhrer 1934: August: the German army swore allegiance to Hitler 1938: 16 army generals were removed from their positions	1933: Boycott of Jewish shops and businesses 1933: Law for the Encouragement of Marriage 1933: July: Sterilisation Law 1933: October: opening of Moringen (first concentration camp for women) 1933: Napola schools set up 1935: 15th Sept: Nuremberg Laws passed (the Reich Citizenship Law and the Law for the Protection of German Blood and Honour) 1935: Conscription introduced 1936: Membership of the Hitler Youth made compulsory 1938: Jewish children were not allowed to attend German schools 1938: 'Lebensborn' programme 1938: 9th November: Kristallnacht: 1939: Euthanasia campaign began 1939 Designated Jewish ghettos established

Paper 3 Exam Question Technique: (52 marks; 1 hour 30 mins)

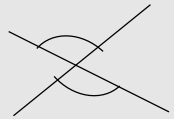
Question 1: 'Give two things you can infer from source A about…' *(4 marks)* (infer, support from source: repeat)
Question 2: 'Explain why…' *(12 marks)* 3 x PEEL paragraphs. You will have a choice from 2 questions
Question 3 a): 'How useful are sources B and C for an enquiry into...' *(8 marks) (what sources suggest: evaluate NOP and include own knowledge*
Question 3 b): 'Study interpretations 1 and 2... They give different views… What is the main difference between their views?' *(4 marks)*
Question 3 c): 'Suggest one reason why interpretations 1 and 2 give different views on. 'You may use sources B & C to help explain your answer.'*(4 marks)*
Question 3 d): 'How far do you agree with interpretation 2 about…?' *(16 marks + 4 SPaG marks) (always lead out with Interpretation 2 and your own knowledge; then challenge this view by using Interpretation 1 and your own knowledge)*

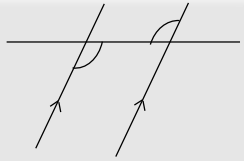
Keyword	Definition	Extra information
Gradient	The steepness of a line, giving the change in y for every 1 increase in x	$m = \frac{\Delta y}{\Delta x}$
y - intercept	Where a graph crosses over the y-axis	Found by making $x = 0$
Root	Where a graph crosses over the x axis	Found by making $y = 0$
Parallel lines	Lines with the same gradient	$m_1 = m_2$
Perpendicular lines	Lines at right-angles to each other	$m_1 = -\frac{1}{m_2}$
Linear Graph	A straight line graph.	Has the general form $y = mx + c$ or $ax + by = c$
Distance-time graph	Shows distance from the starting point on the y-axis. The gradient at given time gives the speed	
Velocity-time graph	Shows velocity on the y-axis. The gradient at a given time gives the acceleration. The area under the graph gives the distance travelled	
Line Segment	A line with a start and end point.	Midpoint of a line segment: $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$
Average speed	$Average\ Speed = \frac{Total\ Distance}{Total\ Time}$	It may require several calculations to find the total distance.
Rate of change	How something changes over time.	Can be found from the gradient of a tangent to a graph
Axis break	Axes do not have to start at zero. A discontinuity symbol can be used.	
Quadratic graph	A parabolic curve, with 1 turning point which is either a maximum or minimum.	Has the general form $y = ax^2 + bx + c$
Quadratic equation	An equation with a quadratic term. Can be solved graphically by finding intersections.	Will have 0, 1 or 2 solutions
Cubic graph	A curve with 0 (an inflection) or 2 (a minimum and a maximum) turning points	Has the general form $y = ax^3 + bx^2 + cx + d$
Cubic equation	An equation with a cubic term. Can be solved graphically by finding intersections.	Will have 1, 2 or 3 solutions
Reciprocal graph	A graph with horizontal and vertical asymptotes	Has the general form $y = \frac{k}{x}$
Circle graph	A circle centred on the origin with a radius r	Has the general form $x^2 + y^2 = r^2$

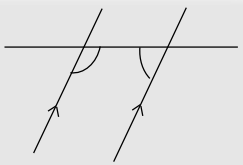
Formula for finding the equation of a line that passes through *(x1,y1)* with gradient *m*:
y-y1=m(x-x1)

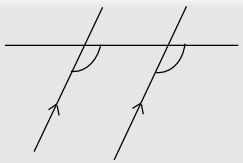
Keyword	Definition	Example(s)
Vertex	The point where two lines meet	
Interior angle Exterior angle	When one side of a polygon is extended at a vertex • the angle inside the polygon is called the interior angle • the angle outside the polygon between the side and the extended side is called the exterior 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	$\sqrt{3}$	


Vertically opposite angles are equal


Alternate angles are equal


Co-interior angles sum to 180°


Corresponding angles are equal

Year 9 – Maths – Spring 1 – Units 5 & 6

Bournemouth School – Knowledge Organiser – Year 9

MATHS

Bournemouth School

music department

Year 9
Unit **Instrumental music wider listening**

Context

Baroque the dominant style of Western classical music composed from about 1600 to 1750

Classical era the musical period from ~1750-1820

Concerto grosso a concerto for more than one soloist

Dance suite A Baroque collection of movements in dance rhythms

Romantic era the period of musical history from ~1810-1900

Romanticism the artistic and intellectual movement behind the Romantic era. Romanticism is characterised by an emphasis on an individual's expression of emotion and their freedom of imagination, as well as a love of the natural world. Another common theme was individual rebellion against established social rules and conventions, which led to the rise of the virtuoso heroic soloist in Romantic concertos.

Solo concerto A concerto for a single instrument accompanied by orchestra

Trio sonata A Baroque piece for two melody instruments and continuo

Dynamics

Crescendo gradually getting louder.

Diminuendo gradually getting quieter.

Fortissimo very loud

Sforzando (*sf* or *sfz*) an accent showing that a note or chord should be played with greater force than those surrounding it.

Terraced Dynamics When the dynamics are either forte or piano, with no gradual changes. Common in Baroque music.

Rhythm

Compound time signature when the beat subdivides into 3 rather than 2

Rit./ritardando slowing down.

Tempo rubato (usually just **rubato**) Literally 'robbed time'. The tempo is sped up and slowed down for expressive effect.

Triplets Three notes in the space of two

Texture

Alberti bass a figuration common in the Classical period, using broken chords as an accompaniment

Antiphonal Music performed alternately by two groups which are often physically separated

Basso continuo literally continuous bass line. Accompaniment played by a melodic bass instrument, often a cello, and a chordal instrument such as harpsichord, lute or organ

Contrapuntal When two melodies are played at the same time and interweave—almost the same as polyphonic

Dialoguing Instruments in dialogue—playing one after the other, swapping ideas

Homophonic a texture comprising a melody with accompaniment.

Monophonic A musical texture with a single line

Passagework a constantly moving passage, often in patterns of quick notes and including sequences and scales

Polyphonic More than one melody at once, or entering at different times so that they overlap

Stretto entries of the subject closer together than before in a fugal recapitulation

Tutti All parts plying at the same time

Structure

Bridge passage another term for transition
Coda a section sometimes added at the end of a piece or movement.
Codetta a short coda at the end of a section within a piece or movement.
Development second section in sonata form in which the themes of the exposition are developed and a variety of keys are explored

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 – Knowledge Organiser – Year 9

MUSIC

Bournemouth School music department

Year **9**
Unit **Instrumental Music Wider Listening**

Exposition first section in sonata form – contains first subject in tonic and second subject in a different but related key – dominant or relative major
First subject the first theme or melody in Sonata form.
Fugal exposition The initial statements of subject and answer in a fugue

Fugue Contrapuntal piece with exposition, development and recapitulation

Recapitulation final section of a sonata form which repeats the material of the exposition, but this time all in the tonic key.
Second subject the second theme or melody in sonata form.
Sonata form a large-scale form developed in the Classical era comprising exposition, development and recapitulation.
Ternary form Simple ABA structure
Transition a linking passage often used to modulate (change the key of the music) in preparation for the second subject in Sonata form.

Melody
Appoggiatura an ornament sometimes referred to as a 'leaning in' note. The appoggiatura leans on the main note, usually taking half its value and starting a step higher.
Answer In a fugue, the subject repeated in response to its original appearance, usually a fourth or fifth lower or higher than the preceding subject. If it is an exact transposition of the subject it is a real answer; if not it is a tonal answer.

Articulation the way in which a note or sequence of notes is played—for example staccato, legato, accented etc.

Diatonic notes that belong to the key of the piece.

Chromatic from the Greek word for colour. In harmony, notes and chords that are not diatonic (part of the key of the music). In melody, ascending or descending in semitones.

Conjunct Movement by step

Countersubject the melody played after the subject or answer

Diatonic notes that belong to the key of the piece.

Legato played smoothly

Lyrical songlike, flowing

Mordent an ornament that goes quickly from the main note to the note above (upper mordent) or below (lower or inverted mordent) and back again.

Motif A short melodic phrase of just a few notes

Ornament notes that decorate a melody

Sequence repetition of a musical idea at a higher or lower pitch

Subject the main theme of a fugue

Variant A phrase whose shape resembles the original.

Staccato played in a detached manner

Instrumentation

Concertino the group of soloists in a concerto grosso

Range The distance from the lowest to the highest notes an instrument can play

Ripieno the larger group in a concerto grosso

Tonality

Passing modulation modulations where the new key on lasts a few bars (or less) before modulating to another key.

Relative minor The minor key based on the sixth note of the major scale

Harmony

Cadential relating to a progression of chords forming a cadence.
Circle of fifths A series of chords or keys in which the root or tonic is a fifth lower (or a fourth higher) than the previous one.
Consonant intervals or chords that sound pleasant;
Diminished seventh a four-note chord (tetrad) made up entirely of minor thirds.
Dissonant intervals or chords that clash—seconds, sevenths and the tritone
Dominant preparation a passage using the dominant chord to create expectation of a return to the tonic.
Dominant seventh chord V with added minor seventh.
Figured bass The numbers a chord instrument player in the basso continuo would read.
Harmonic rhythm the rate at which chords change.
Harmonic sequence When a chord sequence is immediately repeated at a higher or lower pitch
Imperfect cadence a cadence ending on chord V. Sounds incomplete.
Interrupted cadence a cadence with chord V followed by chord vi—interrupts an expected perfect cadence.
Inversion chords with a note other than the root in the bass.
Pedal a sustained or repeated note in the bass, while the harmony changes.
Perfect cadence Chord V followed by chord I at the end of a phrase.
Suspension Prolonging a note to create dissonance with the next chord

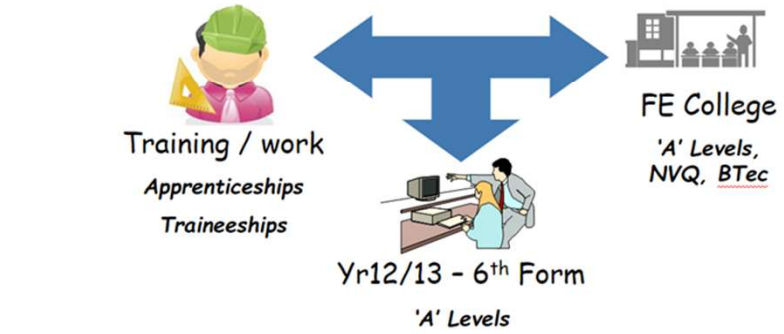
Keyword	Learn	✓
Homeless	The state of not having safe, secure and (semi)permanent accommodation.	
Conflict	An active disagreement between people with opposing opinions or principles	
Commitment	A willingness to give your time and energy to something or someone that you believe in	
Marriage	A social and 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 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



Worship:

- **Liturgical worship-** a church service that follows a set structure and pattern.
- **Non-liturgical worship-** a church service that does not follow a set text or ritual
- Why do Christians worship? To praise God, give thanks thanks, for forgiveness, to strengthen relationship with God.

Liturgical worship	Non-liturgical worship
takes place in a church	no set order
set prayers with set response	Services follow themes

Holy Communion and celebrating it:

- **Holy Communion** sacrament that uses bread and wine to remember sacrificial death of Jesus. Remembers the events of the Last Supper
- **Different understandings of Holy Communion** Catholic transubstantiation (bread and wine actually becomes the body and blood of Jesus) **Protestant** see the bread and wine as symbolic to remember Jesus' sacrifice

"**Do this in remembrance of me"**

Mission and evangelism:

- **Mission**- vocation or calling to spread the faith
- **Evangelism-** showing faith in Jesus by example or by telling others. The Great Commission Jesus instructs his disciples to go and spread the gospels and make disciples of others through baptism. "Go and make disciples of all nations."
- **Missionary work** to persuade people to accept Jesus as their Saviour. Alpha is an example of evangelism in the UK. It is an introductory course to Christianity for those that are interested.

- **Set prayer-**prayers that have been said more than once and written and written down for example the Lord's prayer.
- **Informal prayer** -a prayer that is made up by the individual using his/her own words
- **Why is prayer important?** - Allows Christians time to reflect, find peace, allows them to communicate with God - The Lord's prayer is important as it reminds Christians to forgive others in order to be forgiven - **Key quote - "Our Father, who art in heaven**

Pilgrimage:

- Religious journey of moral and spiritual importance
- **Lourdes** – France in the South West of France. Bernadette had numerous visions of the Virgin Mary who told her to dig for spring water. The water is believed to have healing powers and miracles are said to happen there. Pilgrims bathe in the water and there is a big focus on the sick and disabled.
- **Iona** – island off the coast of Scotland. Ecumenical community pilgrims spend time praying, reading the Bible, reflecting and meditating. It is said the veil between earth and heaven is thin here.

Is Christianity in decline in the Great Britain?

- **For-** Interest in science, atheism ,rise in other groups for example Humanism, Immigration has led to rise in other faiths.
- **Against**- Still Christian places of worship in Great Britain, Festivals are still public holidays. Sunday trading laws show day of rest on Sunday.
- **Census**- Survey every ten years. Optional Religious question.

Baptism:

- Infant baptism -is for babies and young children Believers' baptism people who are old enough to make the decision to be baptised.
- Why are people baptised? To become a member of the Church, to be cleansed of sin, follow in Jesus' footsteps.
- **Believer's baptism**

Believer's baptism	Infant baptism
Attend baptism classes	Parents make promises
Gives a brief testimony	Removes original sin

Celebrating festivals

- **Christmas-** commemorates the incarnation of Jesus Ways it is celebrated carol services, nativity scenes, giving to charity, Midnight Mass, Christmas cards and gifts
- **Easter-c**elebrates the resurrection of Jesus from the dead Ways it is celebrated on Good Friday there are special services and processions led by a person carrying a cross, Saturday night some churches hold a special service to celebrate the resurrection, Easter Sunday churches are filled with flowers and hymns are sung **"He is Risen!"**

- **Role of the Church in the local community**: Food banks The Church the holy people of God, also called the Body of Christ, among who Christ is present and active A church building in which Christians worship
- **What does the Church do?** Support projects such as food banks, providing social services and campaigning for justice. **The Trussell Trust** runs over 400 foodbanks in the UK, provides food for those in need . **The Oasis Project** provides an internet café, CV support and a safe meeting place.

3.1.1.3 Anaerobic and Aerobic Exercise

Aerobic Exercise

Aerobic respiration
With the presence of oxygen.

Word equation
oxygen + glucose = energy + carbon dioxide + water

Application to sport
Continuous exercise for more than one minute.
Completed at **moderate** intensity.

Road Cycling

Cross-country Skiing

Marathon

Anaerobic Exercise

Anaerobic respiration
Without the presence of oxygen.

Word equation
glucose = energy + lactic acid

Application to sport
Short duration
Completed at **high** intensity

Shot putt

50m freestyle

Vault in gymnastics

Excess Post-Exercise Oxygen Consumption (EPOC)

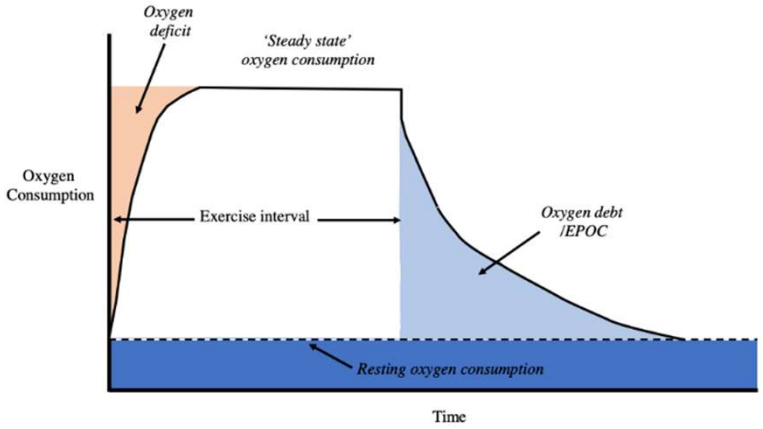
Definition
The amount of oxygen needed to recover after anaerobic exercise.

Lactic acid is produced when the body cannot supply the muscles with enough oxygen.

It is a **waste product** that causes muscles to **fatigue** and causing the performer to **reduce intensity** or stop. Your muscles need oxygen to convert the lactic acid into glucose, carbon dioxide and water. This happens after you have finished exercising.

To enable this to happen, you must maintain an increased breathing rate and depth of breathing post exercise.

By completing an active recovery your heart rate (HR) stays higher. This allows more O2 to be delivered to the muscles, thus clearing away more lactic acid in a shorter amount of time.



The Recovery Process

Method	Explanation
Cool down	Maintain elevated breathing rate/heart rate for blood flow and stretching will support the removal of lactic acid
Massage	Increased blood flow to muscles. Prevents the Delayed Onset of Muscle soreness (DOMS).
Ice bath	Causes blood vessels to constrict forcing blood away from the muscles. Following the bath, the blood vessels dilate and oxygenated blood flows to the muscles. Prevents DOMS.
Diet	Drinking water to replace the fluids lost during exercise – rehydrate. Increased protein intake to repair muscles. Eat carbohydrates to replenish glycogen stores.

Physics P5a Forces

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

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

Pressure in fluids. Learn these two statements.

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

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

Equations

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

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

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

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

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

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

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

Mi vida digital		
Escucho música	I listen to music	
Mando mensajes	I send messages	
Subo vídeos a YouTube	I upload videos to YouTube	
Saco fotos	I take photos	
Juego a los videojuegos	I play videogames	
Charlo en línea	I chat online	
Mando correos electrónicos	I send emails	
Veo programas	I watch programmes	

Los riesgos de la vida digital		
Las redes sociales	Social networks	
Son buenas porque	Are good because	
Mantenerse en contacto es fácil	Staying in touch is easy	
Puedes chatear con amigos	You can chat with friends	
Son buenas para	They are good for	
Compartir fotos	Share photos	
Buscar información	Look for information	
Jugar en directo a Xbox	Play Xbox live	
Son malas porque	Are bad because	
Los jóvenes tienen seguidores desconocidos	Young people have unknown followers	
Las aplicaciones no son privadas	The apps are not private	

Time expressions		
Paso…horas al día	I spend…hours a day	
Todo el tiempo	All the time	
A menudo	Often	
De vez en cuando	From time to time	
Casi nunca	Almost never	
Una vez	Once	
Dos veces a la semana	Twice a week	
Los fines de semana	At weekends	

Mi tiempo libre		
En mi tiempo libre	In my free time	
Juego al fútbol / baloncesto	I play football / basketball	
Hago atletismo / natación	I do athletics / swimming	
Monto en bici	I ride a bike	
Leo libros	I read books	
Veo películas	I watch films	
Voy al gimnasio	I go to the gym	
Voy a la piscina	I go to the swimming pool	
Paso tiempo con mi familia	I spend time with my family	

Nos juntamos		
Este fin de semana	This weekend	
Voy a ….	I am going to…	
descansar	relax	
estar en casa	be at home	
hacer deporte	do sport	
ir al parque	go to the park	
limpiar mi habitación	clean my room	
hacer tareas	do chores	
salir con mis padres	go out with my parents	
ir de compras	go shopping	

Un día fatal		
Tuve un día fatal porque…	I had an awful day because…	
Llegué muy tarde	I arrived very late	
No hice los deberes	I didn't do my homework	
Me caí	I fell over	
Mi equipo perdió	My team lost	
No compré nada	I didn't buy anything	
Perdí el móvil	I lost my phone	

Mi tiempo libro - opiniones		
Me mola(n)	I really love	
Me chifla(n)	I really love	
Me flipa(n)	I really love	
No aguanto	I can't stand	
Odio	I hate	
Detesto	I hate	
Me apasiona(n)	I am passionate about	
Me interesa(n)	I am interested in	
A mi madre le gusta(n)	My mum likes	
A mi amigo le gustan(n)	My friend likes	

El fin de semana pasado		
Jugué al fútbol	I played football	
Jugué al baloncesto	I played bastketball	
Jugué a los videojuegos	I played videogames	
Fui al parque	I went to the park	
Fui a un restaurante	I went to a restaurant	
Fui al centro comercial	I went to the shopping centre	
Escuché música	I listened to music	
Gané una competición	I won a competition	
Me quedé en casa	I stayed at home	
Hablé con mi amigo	I spoke to my friend	
Salí con mi amigo	I went out with my friend	
No hice mucho	I didn't do a lot	

Past tense opinions		
Fue divertido	It was fun	
Fue aburrido	It was boring	
Lo pasé bomba	I had a blast	
Me gustó	I liked it	
Me encantó	I loved it	

The present tense

The present tense is formed by taking the –ar/-er/-ir off the infinitive and adding the endings below.

-ar verbs	-er verbs	-ir verbs
-o	-o	-o
-as	-es	-es
-a	-e	-e
-amos	-emos	-imos
-áis	-éis	-ís
-an	-en	-en

The preterite (past) tense

The preterite tense is formed by taking the –ar/-er/-ir off the infinitive and adding the endings below. The endings for –er/-ir are the same in the preterite tense

-ar verbs	-er & -ir verbs
é	í
aste	iste
ó	ió
amos	imos
asteis	isteis
aron	ieron

Key phonics for read aloud	
Spanish	**English**
i	like **"ee"** in *see*
c + e/i	like **"th"** in *think*
g + e/i	a throaty 'h' sound
h	**silent**
j	a throaty 'h' sound
ll	like **"y"** in *yes*
ñ	like **"ny"** in *canyon*
qu	like **"k"** in *kite*
que / qui	like **'ke'** and **'ki'**

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

Present continuous	
está viendo	he / she is watching
están comiendo	they are eating
está jugando	he / she is playing

The simple future tense

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

Infinitve + ending = future tense
ir + é = iré (I will eat)

Jugar	To play
Jugaré	I will play
Jugarás	you will play
Jugará	he/she will play
Jugaremos	we will play
Jugaréis	you all will play
jugarán	they will play

Irregular stems	
haré	**I will do**
tendré	**I will have**
podré	**I will be able to**

En el cine	
Me gustaría dos entradas, por favor.	I would like two tickets, please.
Quiero ver una película de acción.	I want to see an action film.
Voy a ver la película mañana por la tarde.	I am going to see the film tomorrow / in the afternoon.
¿Cuánto cuesta una entrada?	How much does a ticket cost?
¿Cuánto es una entrada?	How much is a ticket?
¿Cuándo empieza la película?	When does the film start?
¿Cuándo termina la película?	When does the film finish?

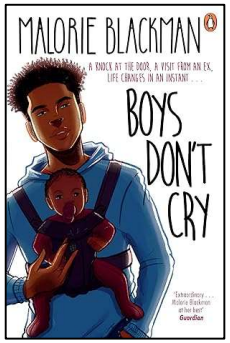
Direct object pronouns + preterite	
lo	**it (singular / masc.)**
la	**it (singular / fem.)**
los	**them (plural / masc.)**
las	**them (plural / fem.)**

e.g. Perdí el móvil. Lo perdí a la casa de mi amigo.
I lost my phone. I lost it at my friend's house.
Perdí mis gafas. Las perdí al colegio.
I lost my glasses. I lost them at school.

¿Que haces con tu móvil?	
prefiero	**I prefer**
prefieres	**you prefer**
prefiere	**he/she prefers**
preferimos	**we prefer**
prefieren	**they prefer**

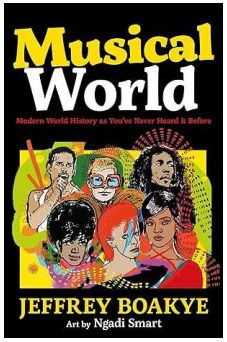
The verb 'preferir' is always followed by an infinitive

Prefiero sacar fotos con mi móvil. (I prefer to take photos with my phone.)



Boys Don't Cry by Malorie Blackman

You're about to receive your A-level results and then a future of university and journalism awaits. But the day they're due to arrive your old girlfriend turns up unexpectedly - with a baby. Your baby. You agree to look after it, just for an hour or two. Then she doesn't come back - and your life changes forever.



The Musical World by Jeffrey Boakye

From Billie Holliday to Aretha Franklin, Fela Kuti to Donna Summer, Elton John to Michael Jackson - it turns out that 40 classic tunes reflect and encapsulate the key historical moments of the 20th and 21st century.

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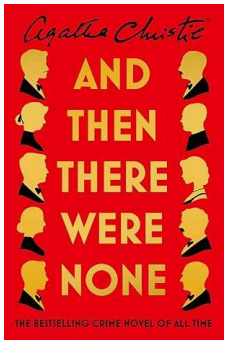
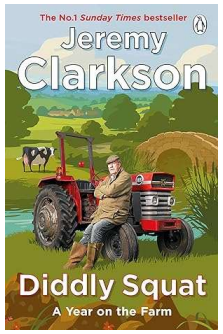


And Then There Were None by Agatha Christie

1939. Europe teeters on the brink of war. Ten strangers are invited to Soldier Island, an isolated rock near the Devon coast. Cut off from the mainland, with their generous hosts Mr and Mrs U.N. Owen mysteriously absent, they are each accused of a terrible crime. When one of the party dies suddenly, they realise they may be harbouring a murderer among their number.

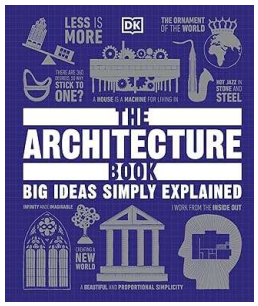


Diddly Squat by Jeremy Clarkson

Clarkson trades in his fast cars and city living and takes on the life of a gentleman farmer at Diddly Squat farm, in a hilarious collection of stories and observations.

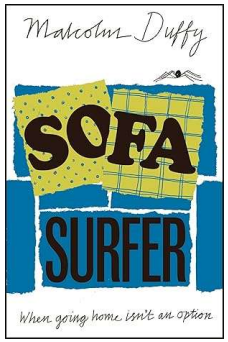
Ladult by Dr Andy Cope

Growing up can be a hazardous journey. One minute, you're a carefree kid. The next, you're juggling exams, screens, relationship dramas, weird emotions, and the reality of entering the adult world. That's where 'Ladult' comes in. This isn't just another book - it's a survival guide for the wild ride from boy to man.



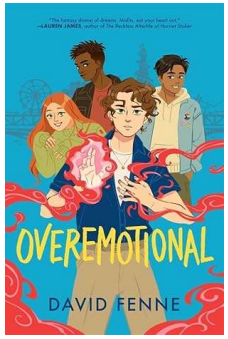
The Architecture Book by DK

Learn about key concepts behind the world's most incredible buildings. Explore architectural movements, styles and celebrated buildings from all over the world, and stunning religious structures from mosques to churches, stupas to pagodas and temples.



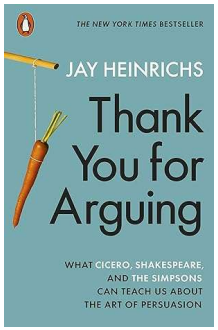
Sofa Surfer by Malcolm Duffy

15-year-old Tyler's teenage angst turns to outright rebellion when his family leave London for a new life in Yorkshire. He's angry with his parents about the upheaval and furious at losing his home. With only the dog to confide in, Tyler has no idea that a chance meeting with a skinny girl called Spider will lead him into a world he never even knew existed. Spider is sofa surfing and Tyler finds himself spinning a tangled web of lies in his efforts to help her escape her world of fear and insecurity.



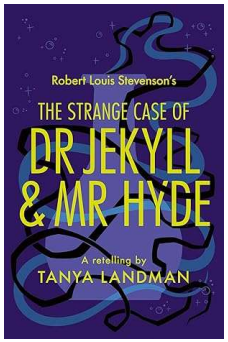
Overemotional by David Fenne

Steven flees to the miserable town of Grunsby-on-Sea, determined not to hurt anyone else with his "Emomancy". With a best friend as determined as Freya, it is impossible to stay hidden for long though, especially when she realises Steven might be in danger after a mysterious organisation called DEMA start asking questions about him.



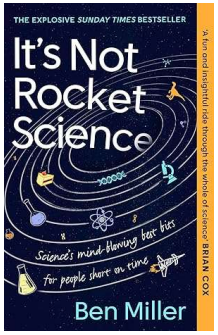
Thank You For Arguing by Jay Heinrichs

Everyone is always trying to persuade us of something: politicians, advertising, the media, and most definitely our families. Thank You for Arguing is your master class in the art of persuasion, taught by professors ranging from Bart Simpson to Winston Churchill. With all the wisdom of the ages, from classical oratory to contemporary politics and pop-culture, Thank You For Arguing shows you how to win more than your fair share of arguments.



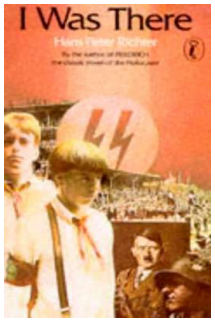
The Strange Case of Dr Jekyll and Mr Hyde: A Retelling by Tanya Landman

Evil Mr Hyde stalks London's streets, leaving a trail of destruction in his wake. Good Dr Hyde keeps protecting him. Why? Is Hyde blackmailing Jekyll for some shameful past sin? Or is something stranger and more sinister going on?



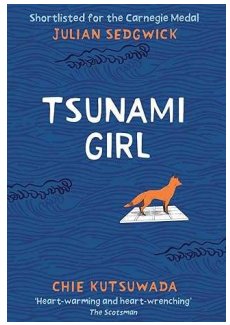
It's Not Rocket Science by Ben Miller

Black holes. Global warming. The Hadron Collider. Ever had that sinking feeling that you really should know about these things, but somehow never quite grasped them? Don't worry - you're not alone. Before Ben Miller was a comedian, he used to be a physicist. Here, he shares his knowledge about science.



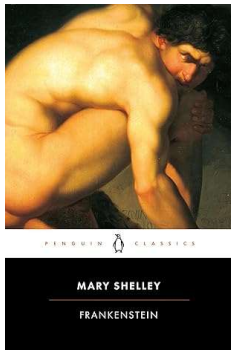
I Was There by Hans Peter Richter

Hans and his friend Gunther, are just trying to get through life with Adolf Hitler being elected in Germany. Gunther's father was against Hitler, but eight-year-olds Hans and Gunther join the SS youth program, and later enter the military, where they are swept away by Hitler's regime.



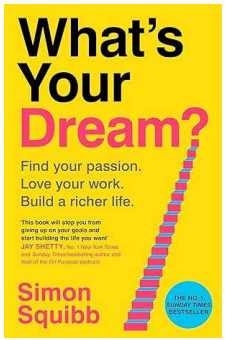
Tsunami Girl by Julian Sedgwick and Chie Kutsuwada

Fifteen-year-old Yuki goes to Japan to stay with her grandfather, a well-known manga artist and to whom she is very close. During her visit, a calamitous event occurs - the March 2011 East Coast Earthquake and Tsunami - and her beloved Grandpa is lost. Yuki and her friend Taka must make sense of the terrible situation and come to terms with the loss of their life as they knew it.



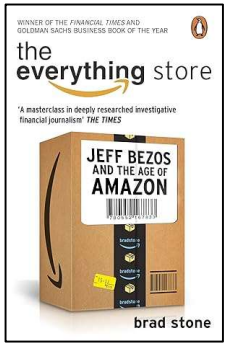
Frankenstein by Mary Shelley

Mary Shelly's classic tale of terror is the story of Victor Frankenstein, a young student, who learns the secret of imparting life into a creature that he has constructed from corpses he finds.



What's Your Dream? by Simon Squibb

Simon Squibb is on a mission to change people's lives for the better. Here, he shares the hard-won life lessons from his years in the business world plus his own personal life, from facing homelessness as a teenager to selling a multimillion-pound business, and now inspiring a new generation of budding entrepreneurs.



The Everything Store by Brad Stone

The definitive story of the largest and most influential company in the world and the man whose drive and determination changed business forever. Though Amazon.com started off delivering books through the mail, its visionary founder, Jeff Bezos, was never content with being just a bookseller.

Accessit
Bournemouth School Library Catalogue WebApp
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Timetable

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