



2023-2024

Year 10 Cycle 2

100% Book

Name:

Tutor group:

Your 100% book and knowledge organisers

2

Knowledge organisers contain **critical** knowledge you must know. This will help you recap, revisit and revise what you have learnt in lessons in order to remember this knowledge for the long-term.

Students remember 50% more when they test themselves after learning.

You must have this 100% book for every lesson – it is part of your equipment.

You must keep your 100% books (even after you have finished the cycle or the year).

How do I use my 100% book for self-quizzing?



1) Write today's date and the title from the knowledge organiser and underline with a ruler



2) Write out the keywords leaving two lines between each word



3) Cover the definitions apart from the first: read it, cover it, say it in your head, check it



4) If you got it right, move on and quiz yourself on the rest in your head, one by one



5) Cover up all the definitions and write them out from memory



6) Check your answers using green pen

- Tick any definitions which are correct
- Correct any definitions not completely correct



Correcting spelling, punctuation and grammar

Your work will be marked across all subjects to help you improve your literacy. This is the code that will be used.

Correcting your spelling, punctuation and grammar	
Sp + underlined word	The underlined word is spelt incorrectly. Look, cover, write then check. Do this at least three times so you spell it correctly.
A circle around part of a word or a space	Your punctuation is incorrect, or something is missing (including capital letters).
? + wobbly line	You haven't explained your ideas clearly enough.
/	You need to start a new sentence here. Remember: full stop, capital letter.
//	You need to start a new paragraph here. Remember: new paragraphs for time, place, topic, person (TiPToP).
^	A word is missing where the arrow is pointing.

Year 10 – Cycle 2 – Art & Design

1	Still life	A painting or sculpture of anything that does not move
2	Composition	The arrangement of elements within an artwork
3	Chiaroscuro	Extreme contrast between light and shadow for dramatic effect
4	Contemporary art	Art produced in the second half of the 20 th Century or in the 21 st Century
5	Foreground	The part of the artwork which depicts an area closer to the viewer
6	Middle ground	The middle distance in an artwork
7	Background	The part of the artwork which depicts an area furthest from the viewer
8	Reductive drawing	Technique where darkness is laid onto paper and removed to show the light parts of an image
9	Monochrome	Artwork that only includes one colour
10	Photomontage	Collage constructed from photographs
11	Photomanipulation	Transforming a photograph using various methods
12	Plate	The surface upon which you have created your design
13	Block-printing	Process of printing designs by engraving blocks or another surface
14	Gouge	Tool used for removing lino in the block printing process
15	Incise	Mark or decorate an object or surface with cuts or gouges
16	Brayer	Roller that is used in printmaking to evenly spread-out ink
17	Offset	Transferring ink from a printed page onto another surface
18	Invert	An image where up and down or left and right are reversed

Year 10 – Cycle 2 – GCSE Business – Influences

1	Internal (organic) growth	When a business gets bigger by selling more products
2	External (inorganic) growth	When a business gets bigger by joining other businesses
3	Merger	When two or more businesses join together to form a new business
4	Takeover	When one business buys control of another
5	Horizontal integration	When one firm joins another at the same stage of the production process
6	Vertical integration	When businesses join at different stages of the production process
7	Diversification	When a business takes over a business in a totally different sector
8	Consumers	Individuals who buy goods and services from businesses
9	Economic climate	Describes key performance factors within an economy
10	Interest rates	The cost of borrowing money
11	Employment	The number of people working in an economy
12	Unemployment	The number of people that are able and willing to work that can't find a job
13	Consumer spending	The value of goods and services bought by consumers over a period of time
14	Globalisation	When the world is more interconnected through communication, transport and technology
15	International trade	Selling of goods and services internationally
16	Exports	When goods and services produced by a business in one country are sold in foreign countries
17	Legislation	A set of laws that govern the way a society operates
18	Competition	Exists when more than one business is attempting to attract the same customers

Year 10 – Cycle 2 – Enterprise BTEC – Component 1

Part A

1	Entrepreneur	Someone who is willing to take risks in starting businesses
2	Market share	% of total sales in a market Sales of product ÷ sales of market × 100
3	Market growth	% change in market size Change in size ÷ original size × 100
4	Qualitative data	Data based on opinions and attitudes
5	Quantitative data	Numerical data
6	Primary research	Data gathered by the business itself
7	Secondary research	Data gathered previously by other organisations

Part B

1	Marketing mix	The four Ps: the factors which influence customers' buying decisions
2	Price	Setting prices based on different methods of pricing
3	Product	Design, features and functions of the product itself
4	Promotion	Communicating with customers to raise awareness of the product
5	Place	Where products are sold and how products are delivered
6	Internal factors	Factors within the business that influence the marketing mix
7	External factors	Factors outside the business that influence the marketing mix
8	Promotional mix	The combination of promotional methods used by a business to communicate with customers
9	Product life cycle	The change in sales of a product over time
10	Extension strategies	Methods of maintaining the sales of a product to prevent it from decline
11	Competitor	A rival business which is a threat to your success

Year 10 – Cycle 2 – Design & Technology

1	Synthetic polymers	Manmade polymers created from crude oil
2	Biopolymers	Polymers made from natural resources such as plants
3	Carbon fibre reinforced polymer (CFRP)	A thermoforming polymer reinforced with carbon fibre
4	Glass-reinforced plastic (GRP)	A thermoforming polymer reinforced with glass fibres
5	Plasticisers	An additive that gives flexibility to polymers
6	Stabilisers	An additive in polymers that reduces UV degradation and brittleness
7	Extrusion	A length of material with a consistent cross-section
8	Filament	The extruded material that is used in a 3D printer
9	One-off production	One product is made
10	Batch production	Several identical products are made
11	Jigs	A mechanical device to aid production
12	High-volume production	Many products are made, making extensive use of machinery and manufacturing aids
13	Blow moulding	Shaping a thermoforming polymer by heating it and blowing it into shape
14	Vacuum forming	Shaping a thermoforming polymer by heating it and sucking it around a mould
15	Screen printing	A printing process for adding detail or text to polymer products
16	Vinyl	A self-adhesive polymer, available in a range of colours and suitable for CNC knife cutting
17	Anthropometrics	The practice of taking measurements of the human body and providing data that can be used by designers
18	Ergonomics	The relationship between people and the products they use

Year 10 – Cycle 2 – Drama

A: Devising		
1	Devising	Creating your own piece of theatre
2	Stimulus	Starting point for a piece of work
3	Genre	Type of dramatic work, e.g., a comedy
4	Style	Manner in which a piece is performed, e.g., physical style
5	Theme	An idea or topic that runs throughout the show
6	Genre	The type and style of story being told
7	Structure	The order in which the story takes place
8	Theatre company	A group of actors and crew who create theatre
9	Practitioner	A highly skilled person who influences a piece of theatre
10	Linear	When a play's structure is in time order (beginning, middle, end)
11	Episodic	When a play's structure jumps forwards and backwards in time order
12	Verbatim theatre	Style of theatre that takes words and stories from real life scenarios
13	Physical theatre	Style of theatre that uses the body and movement to communicate
14	Epic theatre	Style of theatre that wants to distance the audience from emotional connection and make them think about political or social issues
15	Naturalistic theatre	Style of theatre that is true to real life emotions and actions

B: Theatre company methods		
1	Paperbirds theatre company	<ul style="list-style-type: none"> • Verbatim • Movement • Character and narrative • Exposing the method • Motif
2	Splendid theatre company	<ul style="list-style-type: none"> • Relevance • Extremity • Joy • Balance
3	Frantic Assembly theatre company	<ul style="list-style-type: none"> • Simple truths • Building blocks • Shared language • Movement and speech
		8

Year 10 – Cycle 2 – French

A: Verbs and Structures

1	I used to live	j'habitais
2	There was / there used to be	il y avait
3	We can	on peut
4	We could	on pouvait
5	I have	j'ai
6	I use it	je l'utilise
7	We can	on peut
8	To make purchases	faire des achats
9	To download	télécharger
10	To send	envoyer
11	To do research	faire de la recherche
12	I saw	j'ai vu
13	I read	j'ai lu
14	I downloaded	j'ai téléchargé
15	I spent two hours	j'ai passé deux heures
16	I want to	je veux
17	I would like to have	j'aimerais avoir
18	I study	j'étudie
19	I have good grades	j'ai des bonnes notes
20	The teacher makes me laugh	le prof me fait rire
21	The teacher explains well	le prof explique bien
22	The teacher annoys me	le prof m'énerve

23	In my school there is	dans mon école il y a
24	To be on time	être à l'heure
25	To do homework	faire les devoirs
26	There was	il y avait
27	It was	c'était
28	The lessons start at	les cours commencent à
29	The lessons finish at	les cours finissent à
B: Vocabulary		
1	Before	avant
2	Now	maintenant
3	In order to	afin de / pour
4	A week ago	il y a une semaine
5	Last week	la semaine dernière
6	On my phone	sur mon portable
7	The canteen	la cantine
8	The library	la bibliothèque
9	New	nouveau
10	Run down	délabré
11	Fair	juste
12	Break time	la récré
13	Hard	dur
14	Easy	facile

A: Where I Live – Verb Structures

1	I live in	vivo en
2	In my city there is	en mi ciudad hay
3	We have	tenemos
4	Where you can	donde se puede
5	It is (located) in	está en
6	It is next to	está al lado de
7	It is to the right of	está a la derecha de
8	It is to the left of	está a la izquierda de
9	It was crowded	era concurrido
10	It was dangerous	era peligroso
11	There were green spaces	había espacios verdes
12	There were shops	había tiendas
13	When I was little	cuando era pequeño
14	I used to live in	vivía en
15	I used to go to the library	iba a la biblioteca
16	I used to like it	me gustaba
17	Unemployment	el paro
18	There is a bit of everything	hay de todo
19	There is nothing to do	no hay nada que hacer
20	Employment	el empleo
21	Rent	el alquiler

B: Technology – Verb Structures

1	I use my mobile phone	uso el móvil
2	I use social media	uso las redes sociales
3	I use it (masculine)	lo uso
4	I used them (feminine, plural)	las usé
5	In order to meet new people	para conocer a gente nueva
6	In order to share photos	para compartir fotos
7	In order to spend time	para pasar el tiempo
8	In order to buy online	para comprar en línea
9	I searched online	navegué por internet
10	I sent an email	mandé un correo electrónico
11	I watched a film	vi una película
12	I downloaded apps	descargué aplicaciones
13	The good thing is that it is	lo bueno es que es
14	The bad thing is that it is	lo malo es que es
15	The good thing is that you can	lo bueno es que se puede
16	The bad thing is that you can	lo malo es que se puede
17	I am taking photos	estoy sacando fotos
18	I am watching a video	estoy viendo un video
19	I am uploading a photo	estoy subiendo una foto
20	I am downloading songs	estoy descargando canciones

Year 10 – Cycle 2 – Music

1	Intro	Short opening section, usually instrumental
2	Verse	Same music but different lyrics each time
3	Chorus	Repeated with the same lyrics each time
4	Middle eight	A link section, often eight bars, with different musical ideas
5	Bridge	A link or transition between two sections
6	Outro	An ending to finish the song
7	Lead guitar	Plays the melody, solos, riffs
8	Rhythm guitar	Plays the chords or accompaniment

9	Riff	A short, repeated pattern
10	Pitch bend	Altering (bending) the pitch slightly
11	Power chords	A guitar chord using the root and 5th note (no 3rd)
12	Distortion	An effect which distorts the sound
13	Fill	A short, improvised drum solo
14	Belt	A bright, powerful vocal sound, high in the chest voice
15	Falsetto	Male voice in a higher than usual range
16	Syllabic	One note sung per syllable
17	Melismatic	Each syllable sung to a number of different notes
18	A cappella	Voices singing without instrumental accompaniment

Year 10 – Cycle 2 – Religious Studies – Beliefs and Practices (Islam & Christianity)

1	Tawhid [2]	The belief in the oneness of God
2	Prophethood / Risalah [2]	Messengers of God, beginning with Adam and ending with Prophet Muhammad
3	Angels / Malaikah	The belief in angels of Islam, e.g. Jibril, Israfil, Mika'il
4	Halal [2]	Anything which is permitted in Islam, e.g. eating permitted foods
5	Haram [2]	Anything which is forbidden in Islam, e.g. eating forbidden foods
6	Jihad [2]	To strive or struggle – there are two forms of jihad: greater and lesser
7	Mosque [2]	A place of prostration for Muslims, a communal place of worship
8	Shari'ah [2]	The straight path; Shari'ah Law is the set of moral and religious principles set out by the Qur'an and Hadith
9	Ummah [2]	Worldwide Muslim community who share a common religious identity
10	Trinity [2]	The three persons of God: Father, Son and Holy Spirit
11	Incarnation [2]	God becoming human in the form of Jesus
12	Atonement [2]	The belief that Jesus' death on the cross healed the rift between humans and God
13	Resurrection [2]	The belief that Jesus rose from the dead on Easter Sunday, conquering death
14	Liturgical worship	When worship follows a set structure or pattern
15	Salvation	Saving from sin and its consequences
16	Sacraments	An outward sign of an invisible blessing from God
17	Evangelism [2]	Preaching the gospel to others to convert them to Christianity

Year 10 – Cycle 2 – BTEC Sport – Component 1

A: Terminology

1	Sport	Competitive activities that involve physical exertion, have rules and regulations and a National Governing Body
2	National Governing Bodies (NGBs)	Organisations that oversee a sport's rules within a country
3	Outdoor activities	Activities that are carried out outdoors or in recreational areas that are adventurous
4	Provision	Providing an opportunity to take part in something
5	Sector	A group of people connected by what they do
6	Barrier	Something that prevents you from carrying out a task
7	Pulse raiser	An activity that increases the pulse rate
8	Mobilise	Move the main joints of the body such as knees, hips, shoulders, ankles and wrists
9	Stretching	Loosening of the muscles to prepare the body for exercise

B: Body systems

1	Cardiorespiratory system	The heart and blood vessels which work with the respiratory system
2	Musculoskeletal system	The muscular and skeletal systems working together, including the bones, muscles, tendons and ligaments
3	Thermoregulation	Regulating your own body temperature
4	Pliability	How flexible something is, like your muscles
5	Erector spinae	A group of muscles that are attached to the length of the spine, from the base of the skull to the hips
6	Ligaments	Join bone to bone
7	Tendons	Join muscles to bone
8	Cardiac muscle	A muscle that is unconsciously controlled where we don't have to think to make it contract
9	Voluntary muscle	Muscles under our conscious control and we move them when we want to

A: Effects of exercise on the muscular system		
1	Muscle fatigue	When the efficiency of the muscles drops, reducing the level of performance
2	Lactate	A chemical formed through anaerobic respiration
B: Vascular shunting		
1	Vascular shunting	Blood that is diverted away from inactive areas to the working muscles
C: Respiratory system		
1	Tidal volume	The amount of air inspired (inhaled) or expired (exhaled) in a normal breath
2	Vital capacity	The maximum amount of air the lungs can expire (breath out) after the maximum amount they can inspire (breath in)
3	Gas exchange	Gases move from areas of high concentration to areas of low concentration
D: Energy production		
1	Aerobic exercise	Uses oxygen for energy production
2	Anaerobic exercise	Does not use oxygen for energy production

E: Cardiovascular system		
1	Right atrium	Receives deoxygenated blood from the body via the vena cava
2	Left atrium	Receives oxygenated blood from the lungs via the pulmonary vein
3	Right ventricle	Receives deoxygenated blood from the right atrium via the tricuspid valve
4	Left ventricle	Receives oxygenated blood from the left atrium via the bicuspid valve
5	Tricuspid valve	On the right side of the heart between the right atrium and right ventricle
6	Bicuspid valve	On the left side of the heart between the left atrium and left ventricle
7	Vena cava	The main vein bringing deoxygenated blood back <u>to</u> the heart
8	Aorta	The main artery and carries oxygenated blood <u>away</u> from the left ventricle to take oxygen to the working muscles
9	Pulmonary artery	Receives deoxygenated blood from the right ventricle to take to the lungs to receive oxygen
10	Pulmonary vein	Brings oxygenated blood from the lungs to the left atrium

Year 10 – Cycle 2 – Citizenship

1	Rights	Privileges and freedoms that we should all have
2	Responsibility	A duty we are required to follow
3	Human rights	Freedoms all humans should have simply because they are human
4	Discrimination	Treating a person or group unfairly because of, for example, their gender, race or age
5	International Criminal Court	A court that examines evidence against someone accused of war crimes
6	Anarchy	A total breakdown in society where there is no form of government
7	Barrister	Specialists in law used to represent clients in court
8	Chief constable	Chief police officer within each regional police force
9	Judiciary	System of judges and other legal officials responsible for enforcing the law
10	Magna Carta	Established the rights and powers of the king and the people of England
11	Civil law	Law that deals with disputes between individuals or groups
12	Criminal law	Law which punishes individuals who break the law
13	Common Law	Law based on court decisions by judges over the years
14	Legislation	A law passed by Parliament
15	Magistrates	Part-time community of volunteers that make decisions in Magistrates' Courts
16	Jury service	A duty where 12 random local citizens make a decision in a legal case
17	Tribunal	A court of justice that settles certain types of dispute
18	Advocacy	Speaking out to promote a cause or an issue

A: Writer's methods		
1	Imperative	A verb used to give a command or order
2	Soliloquy	A speech where a character is alone and speaks their thoughts and feelings out loud
3	Aside	A comment by a character that is meant for the audience to hear, but no other characters
4	Paradox	A statement that contradicts itself
5	Foreshadow	A warning or clue about a future event
6	Tragic hero	A great, virtuous character destined for a downfall or defeat
7	Hamartia	A fatal flaw or weakness
B: Context		
1	Divine Right of Kings	The idea that a monarch is chosen by God, not the people
2	The Great Chain of Being	A Christian belief that all beings are ranked in a hierarchy, with God at the top, to maintain natural order
3	Ambition	Strong desire to achieve something
4	Unnatural	Going against natural laws; abnormal
5	Supernatural	Something above and beyond natural laws that cannot be explained
6	Blasphemy	An act against God
7	Hallucination	A vision or image that is not real
8	Regicide	To kill a king or queen
9	Paranoia	Thinking and feeling like you are being threatened in some way, even if there is no evidence
10	Apparition	A ghostly figure

C: Quotations	
1	Captain: "Unseamed him from the nave to the chops"
2	Macbeth: "Stars, hide your fires, / Let not light see my black and deep desires"
3	Lady Macbeth: "Look like the innocent flower, but be the serpent under it"
4	Macbeth: "Is this a dagger which I see before me... Come, let me clutch thee"
5	Macbeth: "Will all great Neptune's ocean wash this blood / Clean from my hand?"
6	Macbeth: "O, full of scorpions is my mind, dear wife!"
7	The witches: "Be bloody, bold / none of woman born shall harm Macbeth."
8	Lady Macbeth: "Out, damned spot! out, I say!"
9	Lady Macbeth: "all the perfumes of Arabia will not sweeten this little hand."
10	Malcolm: "This dead butcher and his fiend like queen"

Year 10 – Cycle 2 – History – Elizabethan England

A: Elizabethan government		
1	Patronage	A system used by the monarch to reward loyalty
2	Factions	Rival groups with different political interests
3	JPs (Justices of the peace)	Members of the gentry who enforced law and order in each county
B: Lifestyles of the rich and poor		
4	Vagrant	An unemployed and homeless person that travelled the country in search of work
5	Impotent poor	Poor people who were viewed as being genuinely unable to work and deserving of charity
C: Popular entertainment		
6	Theatre companies	Groups of actors who were supported financially by wealthy noblemen
7	The pit	Area where the poor would stand in a theatre and watch a play
D: The Religious Settlement		
8	Religious settlement / Middle Way	Changes introduced by Elizabeth to provide a religious compromise between Protestants and Catholics
9	Church of England	The official name given to Protestantism in England

10	Royal injunctions	Instructions given to the clergy from the monarch
E: The Catholic Threat		
11	Recusants	Catholics who refused to attend Church of England services
12	Excommunication	Exclusion from the protection of the Catholic Church and entry to heaven
F: The Spanish Armada		
13	Privateers	Sailors that had permission from the monarch to capture goods from enemy ships
14	Beacon	a fire or light set up in a high position as a warning or signal
G: The Puritan Threat		
15	Puritan	Protestant sect that promoted a pure interpretation of the Bible
16	Presbyterians	Puritans that wanted to replace bishops with local elders
17	Propheying	Gatherings of Puritans to discuss the Bible and Puritan beliefs
18	Separatists	Extreme Puritans who wanted to break away from the Church of England

A: Sequences

1	Arithmetic or linear sequence	Has a constant difference between each term
2	n th term of arithmetic sequence	$an + b$
3	Fibonacci sequence	To find the next term, add the previous two terms together, for example 1, 1, 2, 3, 5, 8, 13, 21
4	Geometric sequence	A sequence made by multiplying by the same value each time

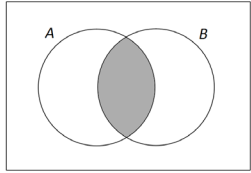
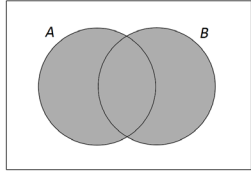
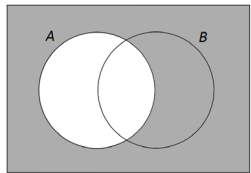
B: Percentages

1	Multiplier for increase of $n\%$	$100 + n$, then divide by 100
2	Multiplier for decrease of $n\%$	$100 - n$, then divide by 100
3	Percentage change	$\frac{\text{New} - \text{Original}}{\text{Original}} \times 100$
4	Compound growth and decay	Final amount = Starting amount \times multiplier ^{n} where n is a unit of time

C: Probability

1	Probability	$\frac{\text{Number of successful outcomes}}{\text{Total number of possible outcomes}}$
2	$P(A)$	Probability of event A
3	$P(\text{not } A)$ or $P(A')$	$1 - P(A)$
4	Predicted number of outcomes	Probability \times number of trials
5	If A and B are independent $P(A \text{ and } B)$	$P(A) \times P(B)$
6	If A and B are mutually exclusive $P(A \text{ or } B)$	$P(A) + P(B)$
7	Experimental probability	$\frac{\text{Frequency of event}}{\text{Total number of trials}}$

D: Venn diagrams

1	$A \cap B$		A intersect B A and B
2	$A \cup B$		A union B A or B
3	A'		Complement of A Not A

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4	Geometric sequence	A sequence made by multiplying by the same value each time
5	Quadratic sequence	$an^2 + bn + c$, where the first difference is not equal, but the second difference is equal

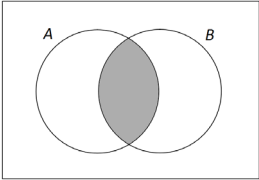
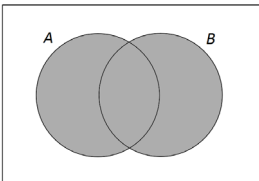
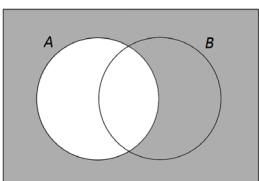
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4	Predicted number of outcomes	Probability \times number of trials
5	If A and B are independent $P(A \text{ and } B)$	$P(A) \times P(B)$
6	If A and B are mutually exclusive $P(A \text{ or } B)$	$P(A) + P(B)$

D: Venn diagrams

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2	$A \cup B$		A union B A or B
3	A'		Complement of A Not A

Year 10 – Cycle 2 – Science – Biology Topic 3: Diseases and Infections (Paper 1)

A: Pathogens and diseases

1	Salmonella	Caught by eating food that contains bacteria; symptoms are fever, stomach cramps and vomiting
2	Measles	A virus that spreads in the droplets released when a person coughs or sneezes, causes fever and a red rash
3	HIV	A virus that spreads through unprotected sex and drug use, attacks the immune system, leading to AIDS, treated with antiretroviral drugs
4	Malaria	Caused by a protist, which is spread by mosquitoes, causes potentially fatal fever

B: Disease prevention

1	Immune	If infected by the same pathogen again, the body quickly produces antibodies to kill the pathogen before it makes you ill
2	Preclinical trials	Drugs are tested on human cells and animals in the lab to check if they are toxic
3	Phase 1 clinical trials	Test low doses on healthy volunteers to check for side effects
4	Phase 2 clinical trials	Test on patients with the disease, comparing the effect of a placebo versus the drug

Year 10 – Cycle 2 – Science – Biology Topic 4: Bioenergetics (Paper 1)

1	Uses of glucose in plants	Respiration, making cellulose for cell walls, making amino acids and making lipids or starch for energy storage
2	Limiting factor	A factor that affects the rate of photosynthesis when in short supply
3	Sodium hydrogen carbonate	Used to increase the amount of carbon dioxide dissolved in water when investigating photosynthesis
4	Uses of energy	Chemical reactions, movement, maintaining constant body temperature
5	Exercise	More muscle contraction, more energy needed and greater rate of respiration
6	Oxygen debt	The amount of oxygen needed to break down the lactic acid that has built up during anaerobic respiration
7	Metabolism	The rate of all the chemical reactions in a cell or the body

Year 10 – Cycle 2 – Science – Chemistry Topic 2: Structure and Bonding (Paper 1)

1	High melting points in ionic compounds	This is because a large amount of energy is needed to break the strong electrostatic attraction between the ions
2	Ionic compounds conducting electricity	Ionic compounds conduct electricity when molten or dissolved in water, because the ions are free to move to carry a current
3	Low melting points in small molecule covalent compounds	This is because little energy is needed to overcome the weak intermolecular forces between the molecules
4	Diamond	Each carbon atom covalently bonded to four others; hard, very high melting point, does not conduct electricity
5	Structure of graphite	Each carbon atom covalently bonded to three others and forms layers of hexagonal rings
6	Properties of graphite	Weak forces between the layers, allowing them to slide over each other and has delocalised electrons, which allow it to conduct electricity
7	Metallic bonding	Rows of positive metal ions, surrounded by delocalised electrons which move through the structure
8	Properties of alloys	Harder than pure metals as different sized atoms distort the layers of atoms preventing the layers from sliding

A: Energy changes in reactions

1	Endothermic reaction	A reaction that takes in energy from the surroundings; temperature decreases
2	Exothermic reaction	A reaction that transfers energy to the surroundings, temperature increases
3	Activation energy	The minimum amount of energy that particles must have to react

B: Mass and reactions

1	Conservation of mass	Atoms can never be created or destroyed; the total mass of reactants always equals the total mass of products
2	Uncertainty of a measuring instrument	Plus or minus (\pm) half the smallest scale division; for a thermometer with a mark at every 1.0°C , the uncertainty is $\pm 0.5^{\circ}\text{C}$
3	Avogadro constant (HT only)	The value of the Avogadro constant is 6.02×10^{23} per mole

C: Concentration and solutions

1	Concentration	The mass of a substance in a volume of solution, measured in g/dm^3
2	Calculating concentration	$\frac{\text{mass of solute (g)}}{\text{volume of solvent (dm}^3\text{)}}$

A: Acids and alkalis

1	Acid	A substance which forms H ⁺ ions when aqueous, pH of 0-6
2	Alkali	A soluble base which forms OH ⁻ ions when aqueous, pH of 8-14
3	Base	An insoluble substance that neutralises an acid to make a salt and water

B: Reactions of acids and salts

1	Acids with metal oxides	Acid + metal oxide → salt + water
2	Acids with metal hydroxides	Acid + metal hydroxide → salt + water
3	Acids with metal carbonates	Acid + metal carbonate → salt + water + carbon dioxide
4	Acids with metals	Metal + acid → salt + hydrogen

C: Redox and electrolysis

1	Electrolysis	Splitting up an ionic compound using electricity, used to extract metals more reactive than carbon from their ores
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Year 10 – Cycle 2 – Science – Physics Topic 2: Electricity (Paper 1)

1	Current (Amps)	The rate of flow of electric charge, measured using an ammeter connected in series
2	Potential difference (Volts)	Energy transferred per coulomb of charge, measured using a voltmeter connected in parallel
3	Ohm's law	Current through a resistor at a constant temperature is directly proportional to the potential difference across a resistor
4	LDR	The resistance of a light dependent resistor decreases if light intensity increases
5	Thermistor	The resistance of a thermistor decreases if temperature increases
6	Series circuit rules	Potential difference is shared according to resistances, current is the same everywhere in the circuit
7	Parallel circuit rules	The potential difference across each component is the same, current is shared according to resistance
8	National Grid	A nationwide network of cables and transformers transferring electricity from power stations to homes

Year 10 – Cycle 2 – Science – Physics Topic 3: Particles (Paper 1)

1	Movement of particles in solid	Vibrate about fixed positions
2	Movement of particles in liquid	Move in random directions at low speeds
3	Movement of particles in gas	Free to move, travel in random directions at high speeds
4	Internal energy	Total energy stored by particles in the kinetic and potential energy stores
5	Specific latent heat of fusion	Energy needed to change 1kg of a solid into a liquid, without changing its temperature
6	Specific latent heat of vaporisation	Energy needed to change 1kg of a liquid into a gas, without changing its temperature
7	Effect of increasing temperature on gas pressure	Faster particles → More frequent collisions and larger force per collision → pressure increases as $\text{pressure} = \text{force}/\text{area}$

1	Random decay	We cannot predict which nuclei will decay and when a specific nucleus will decay
2	Activity	Number of unstable atoms that decay per second (measured in Becquerels)
3	Half-life	Average time it takes for half of the radioactive atoms in a sample to decay
4	Alpha particle	Made of two protons and two neutrons, with a charge of +2
5	Beta particle	Made of one electron, with a charge of -1
6	Penetrating power	How easily the type of radiation can pass through materials – the most penetrating is gamma
7	Irradiated	When an object is exposed to ionising radiation but does not become radioactive
8	Contaminated	When unwanted radioactive atoms get onto an object they release radiation and may cause harm

Year 10 – Cycle 2 – Geography

A: Changing Landscapes			B: Changing Cities		
1	Fetch	Distance the wind pushes the waves	1	Urban areas	Built-up areas like towns and cities
2	Prevailing wind	Main wind direction	2	Urbanisation	Increase in proportion of people living in towns and cities
3	Destructive waves	High-energy waves that remove beach material	3	Rural areas	Countryside with few homes and low population density
4	Constructive waves	Low-energy waves that build up beach material	4	Industrialisation	Shift towards an economy based on manufacturing
5	Coastal recession	Retreat of the coast due to erosion	5	Natural increase	Birth rates are higher than death rates so population goes up
6	Transpiration	Evaporation of water from vegetation	6	Site	Physical characteristics of a place
7	Surface run-off	Flow of water along the surface of the land	7	Situation	Location of a settlement in relation to other settlements and features
8	Infiltration	Filtering of water through soil	8	Suburbs	An area of low-density, semi-detached housing away from the city centre
9	Percolation	Filtering of water through rock	9	Rural-urban fringe	The edge of the city with out-of-town shopping centres and green spaces