Hartismere School

Knowledge Booklet
Year 10

Name:_____ Form:_____

What this booklet is for

Your teachers have selected some of the most important and useful knowledge you need to succeed in your subjects at GCSE. They are in this booklet! Of course you will cover lots of other things in your lessons, but the knowledge in this booklet will help you to learn more effectively as you prepare for your exams.

When you will use this booklet

You will use this booklet in a lesson where you may have a cover teacher, for some homework and to revise for assessments and quizzes.

You can also use this booklet to go above and beyond your school work. Your teachers have made suggestions for places you can look and things to do to really test your brain. These are in the booklet under 'Sharp minds'.

How you will use this booklet

Each subject has a section with the important things you need to know. You are going to learn how to quiz yourself so that the things you need to know stay in your memory.

How will you do this?

1. Choose a subject (unless your teacher has chosen it for you)
2. Choose no more than 5 words or terms.
3. Read the words and say them over and over again in your head (without saying them aloud) for 2 - 3 minutes.
4. Now turn to your practice pages (from page 75). If you have used them all up, use your rough book or paper. Now write down as many words and definitions as you can remember in box 1.
5. Uncover the words and check your have spelled them correctly and your definitions are right. Make any changes in a different colour.
6. Spend 2-3 minutes reading the words again and saying them in your head.
7. Now cover up box 1 and write out the words again in box 2.
8. Now look at your work in box 2. Check you have got them right. Check your spelling. Make any changes in a different colour.
9. Repeat this process until you have got them all right. If you run out of space, use the back of your Citizenship book or lined paper. You will need to show your tutor the practice you have been doing.

Look out for sharp minds…

We call these things ‘supercurricular’ - they are outside of your usual curriculum, but they are the kind of things that really stretch your brain, and give you that ‘something extra’ that top employers and universities really look for. They are also the kinds of things that help you to start to shape your plans for the future.

The University of Cambridge produces a list of ‘supercurriculars’. These are suggestions of wider reading and thinking that students might do if they wanted to apply to Cambridge, which is one of the top universities in the world.

The list has interesting things for everyone - whether you’re thinking about university or not, so why not take a look?

https://www.undergraduate.study.cam.ac.uk/files/publications/super-curricular_suggestions.pdf

Or just Google ‘Cambridge university supercurriculars’.

You can access the links by going to the ‘Sharp Minds’ section of the website.

Subject list (put a line through the subjects you don't take)

Page number	Subject
4-5	Art
6-7	Biology
8-9	Business
10-11	Chemistry
12-15	Computer Science
16-17	Creative iMedia
18-19	Dance
20-21	Design & technology
22-24	Drama
25-30	English
31	Film
32-34	Food Preparation and Nutrition
35-37	French
38-39	Geography
40-43	History
44-49	Maths
50-51	Music
52-54	PE
55-56	Photography
57-58	Physics
59-60	Psychology
61-62	Religious Studies
63-65	Science
66-68	Spanish
69-72	Sport and coaching principles
73-77	Self-quizzing pages

Art

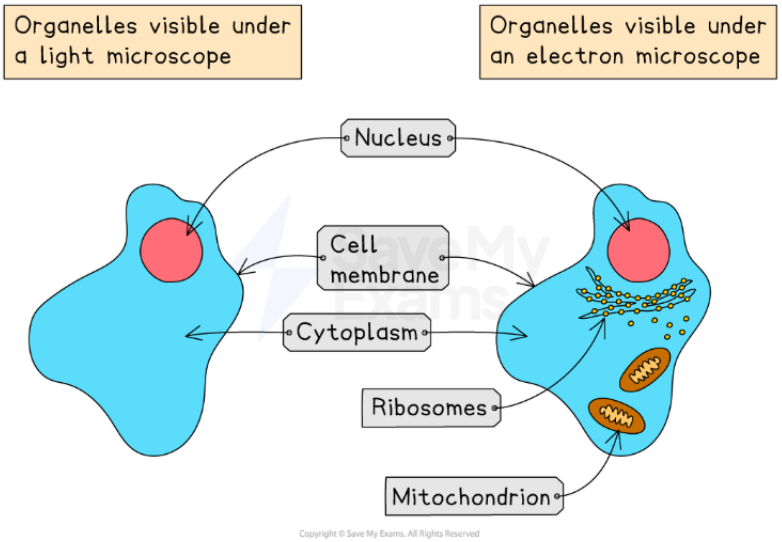
	Term or word	Definition
1	aperture	The hole behind the lens, through which light passes to strike the image sensor or film.
2	chiaroscuro	An Italian term which refers to the use of the dramatic contrast of light and dark in a painting.
3	conceptual	An art form in which the underlying idea or concept and the process by which it is achieved are more important than any tangible product.
4	contemporary	This refers loosely to art of the present day and of the relatively recent past, of an innovatory or avant-garde nature.
5	en plein air	The French term for paintings completed out of doors.
6	expressive	Effectively conveying thoughts or feelings and where the process and style of creation is emphasised rather than the final product. It might be seen in bold colour, or gestural mark making.
7	foreshortening	The technique of depicting an object or human body in a picture so as to produce an illusion of projection or extension in space.
8	hue	One of the three primary attributes of color. A hue is a variety of colours such as red, blue, green, or yellow.
9	Impressionism	A style of painting associated mainly with French artists of the late nineteenth century, such as Degas, Manet, Monet, and Renoir. It seeks to re-create the artist's or viewer's general impression of a scene.
10	maquette	A small scale model or rough draft of an unfinished sculpture.
11	medium	Can refer to both the type of art (painting, sculpture, printmaking) as well as the materials an artwork is made from.
12	minimalism	A style that uses pared-down design elements (uncomplicated, kept purposefully simple).
13	monochromatic	Having only one colour. Descriptive of work in which one hue, perhaps with variations of value and intensity, predominates.
14	montage	An assembly of images that relate to each other in some way to create a single work or part of a work of art.
15	negative space	The space around an object rather than the object itself.

16	perspective	Use of a mathematical system to represent three dimensional space on the two dimensional surface of a drawing or painting.
17	Post-Impressionism	An art movement at the end of the nineteenth century that followed on from Impressionism and included Cezanne, Gauguin and van Gogh.
18	still life	One of the principal genres of Western art – essentially, the subject matter of a still life painting or sculpture is anything that does not move or is dead.
19	typography	The art of arranging type – which includes letters, numbers, and symbols.
20	vanishing point	The point at which the receding lines in perspective appear to meet.

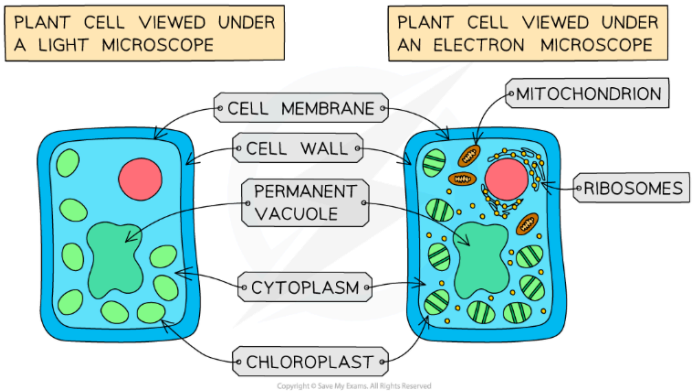
Sharp minds in art: where to look

- focus on demonstrating a clear process of development with varied experimentation in media and techniques, insightful artist research, and meaningful reflection.
- Show a coherent progression of ideas from initial mind maps and observational studies to refined final pieces, ensuring all your pages link together.
- Maintain a consistent visual style throughout your sketchbook while ensuring a clear, concise, and well-organised presentation that makes it easy for the examiner to understand your thought process.
- Visit art galleries and or their websites as often as possible to give you inspiration:
  https://www.tate.org.uk/
  https://www.npg.org.uk/
  https://www.saatchigallery.com/

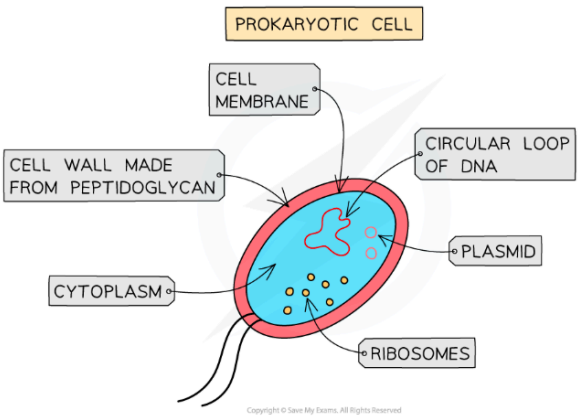
You need to know the components of an animal, plant and prokaryotic cell, and distinguish between a eukaryotic (animal & plant) and a prokaryotic cell.



STRUCTURE	FUNCTION
NUCLEUS	• CONTAINS THE GENETIC MATERIAL (DNA) WHICH CONTROLS THE ACTIVITIES OF THE CELL
CYTOPLASM	• A GEL–LIKE SUBSTANCE COMPOSED OF WATER AND DISSOLVED SOLUTES • SUPPORTS INTERNAL CELL STRUCTURES • SITE OF MANY CHEMICAL REACTIONS, INCLUDING ANAEROBIC RESPIRATION
CELL MEMBRANE	• HOLDS THE CELL TOGETHER, SEPARATING THE INSIDE OF THE CELL FROM THE OUTSIDE • CONTROLS WHICH SUBSTANCE CAN ENTER AND LEAVE THE CELL
RIBOSOMES	• FOUND IN THE CYTOPLASM • SITE OF PROTEIN SYNTHESIS
MITOCHONDRIA	• SITE OF MOST OF THE REACTIONS INVOLVED IN AEROBIC RESPIRATION, WHERE ENERGY IS RELEASED TO FUEL CELLULAR PROCESSES • CELLS WITH HIGH RATES OF METABOLISM (CARRYING OUT MANY DIFFERENT CELL REACTIONS) HAVE SIGNIFICANTLY HIGHER NUMBERS OF MITOCHONDRIA THAN CELLS WITH FEWER REACTIONS TAKING PLACE



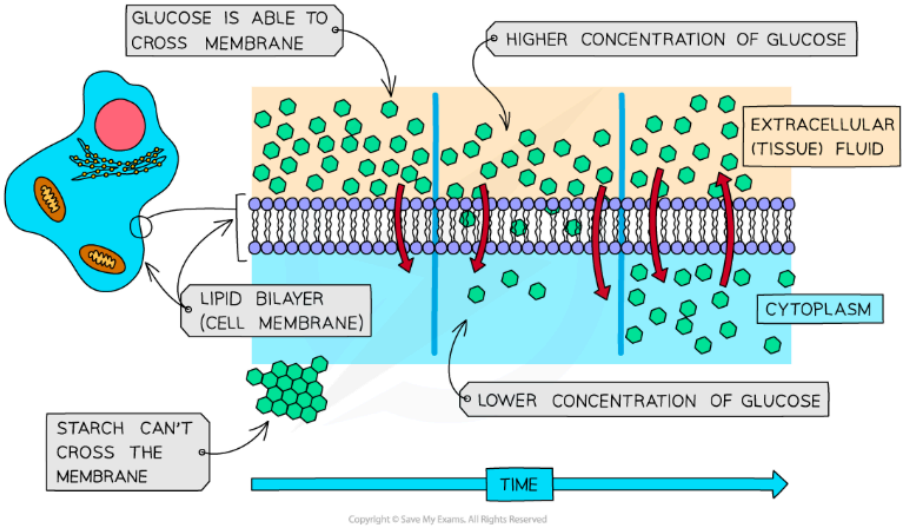
STRUCTURE	FUNCTION
CELL WALL	• MADE OF CELLULOSE (A POLYMER OF GLUCOSE) • GIVES THE CELL EXTRA SUPPORT, DEFINING ITS SHAPE
CHLOROPLASTS	• CONTAINS GREEN CHLOROPHYLL PIGMENTS (TO ABSORB LIGHT ENERGY) AND THE ENZYMES NEEDED FOR PHOTOSYNTHESIS
A PERMANENT VACUOLE	• CONTAINS CELL SAP; A SOLUTION OF SUGARS AND SALTS DISSOLVED IN WATER • USED FOR STORAGE OF CERTAIN MATERIALS • ALSO HELPS SUPPORT THE SHAPE OF THE CELL



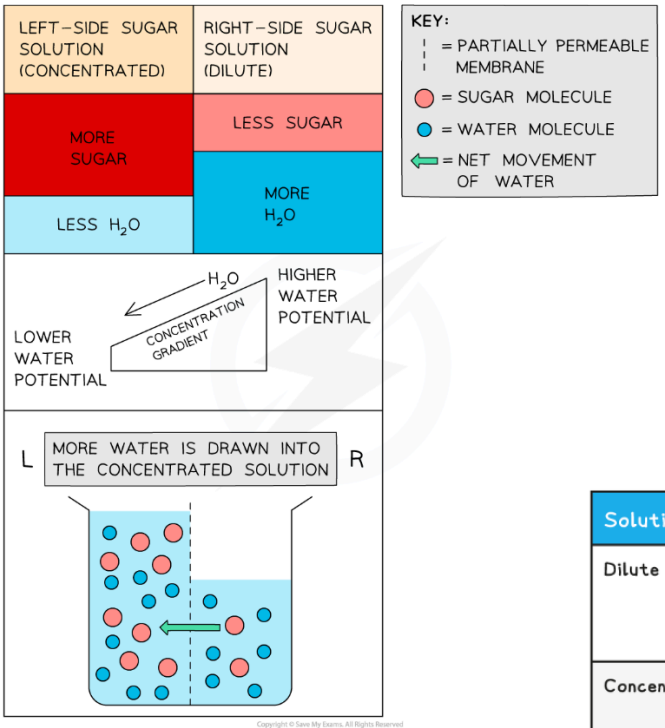
Component	Eukaryotes	Prokaryotes
Cell membrane	Y	Y
Cytoplasm	Y	Y
Genetic material	Y – in a nucleus	Y – in the cytoplasm
Nucleus	Y	N
Cell wall	Some types	Y – made from peptidoglycan

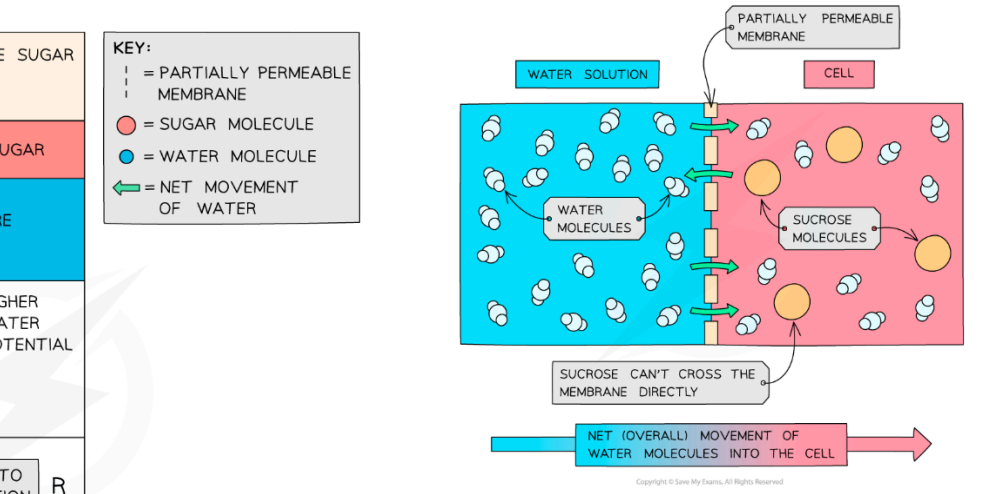
Substances move in and out of cells by diffusion, osmosis and active transport.

Diffusion



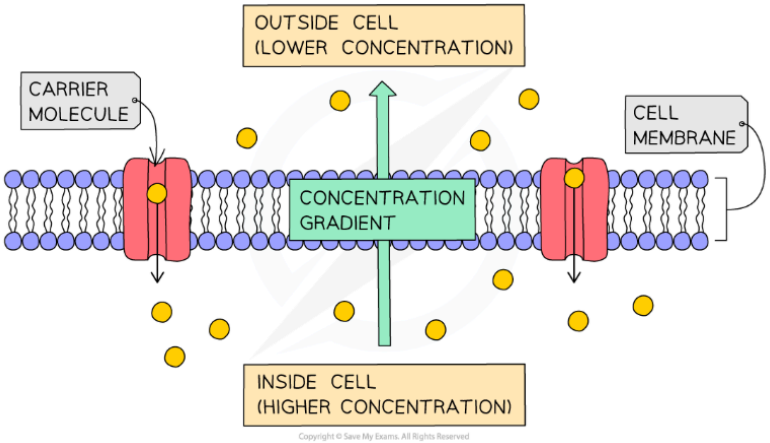
Osmosis





Solution	How it affects diffusion
Dilute	A solution with a high concentration of water molecules (high water potential) and a low concentration of solute molecules (lots of water, not a lot of solute)
Concentrated	A solution with a low concentration of water molecules (low water potential) and a high concentration of solute molecules (lots of solute, not a lot of water)

Active transport:



Business

	Term or word	Definition
1	entrepreneur	The person who takes the risk of starting and running a business enterprise. Characteristics are: determination, creativity, risk-taking and confidence.
2	business plan	A document that sets out the details of the product or service being sold, where the finance is going to come from, how the product/service is going to be marketed, and market research.
3	limited liability	Where the responsibility for the debts of a business is limited to the amount invested by the shareholder. A feature of private limited companies, public limited companies, and limited liability partnerships.
4	unlimited liability	Where the responsibility for all the debts of a business rests with the owners of the business. A feature of sole traders and partnerships.
5	unincorporated business	Sole traders - A business owned and controlled by one person. Partnerships - business owned by 2 or more people.
6	incorporated business	Incorporation is the process of turning a business into a company: Private Limited Company (LTD) are owned by at least two shareholders. Shares cannot be sold to the general public, so are usually sold to friends and family. Public Limited Company (PLC) are large businesses, where shares can be sold to the general public enabling vast sums of money to be raised to develop the company.
7	stakeholders	Groups or individuals who have an interest in a business. Internal stakeholders are within the business (e.g. employees or owners/shareholders, external stakeholders are outside the business (e.g. local community, suppliers, competitors, banks).
8	organic growth	Growth of a business internally by increasing sales. Either by selling more of the same thing; selling to a different market or by changing the product.
9	external growth	Growth of a business by takeover or merger. This can be vertical or horizontal or diversified.
10	marketing	Finding the needs of consumers and demonstrating how a business fulfils those needs in a way that increases sales.
11	target market	The group of customers to whom a business aims to sell its products. Usually categorised by age, gender, income, lifestyle or location.
12	primary research	Data collected first-hand. Sometimes called field research.
13	secondary research	Data collection using research or information provided by others. Sometimes called desk research.
14	4ps of the marketing mix	Price, Product, Place, Promotion.
15	pricing strategies	Competitor - When a price is set based on prices charged by competitor businesses for a similar product. Cost plus - A method that adds a percentage of profit to the total costs of making a product. This gives the selling price. Penetration - When a price is set lower than the competitor businesses. Often used by new businesses to break into a market. Skimming - A new product that is more advanced than competitors; price is set high as some customers are willing to pay higher prices to own the newest technology. Promotional - Where prices are reduced to give products a boost or sell off old stock.
16	product life cycle	The life of a product shown as a graph with four stages: introduction, growth, maturity and decline.

Business, continued

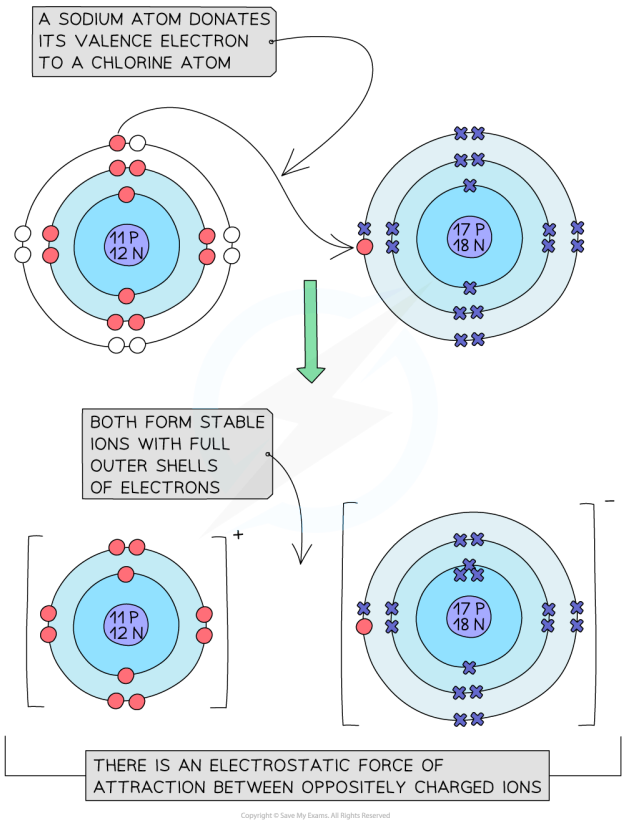
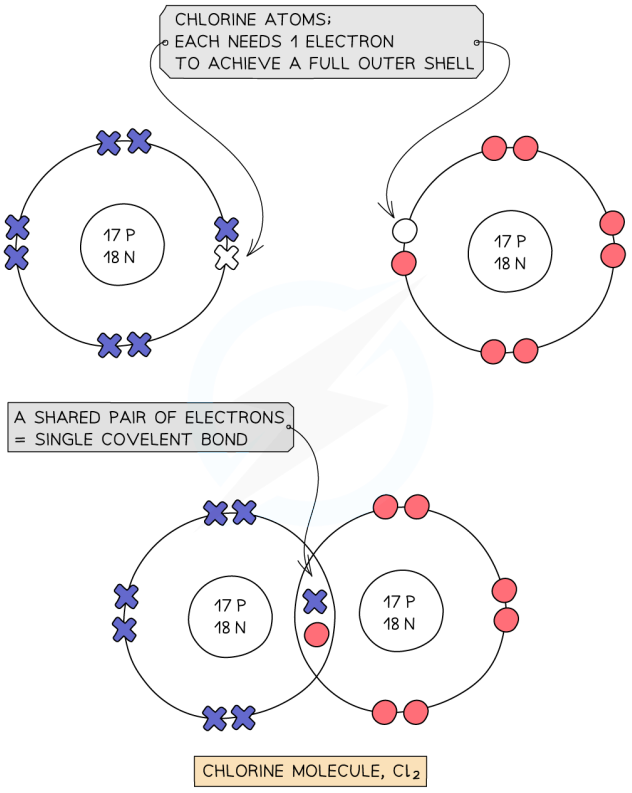
	Term or word	Definition
17	organisational chart or diagram	A diagram that shows how the workers are organised in a business and who is in charge of whom.
18	chain of command	The links in the levels of authority from those at the top with the most authority to those at the bottom with the least.
19	span of control	The number of subordinates who report directly to the line manager.
20	delegation	The process of a manager giving authority to a subordinate to make decisions for which that manager is responsible.
21	job description	A document that states the main duties or tasks or responsibilities of the worker.
22	person specification	A document that lists the qualities, qualifications and knowledge that a person should have to do a particular job.
23	induction training	Training to introduce a new worker to the business, place of work and their fellow workers as well as their job.
24	motivation	How workers are encouraged to work hard.
25	retention	When workers choose to stay in a firm rather than move elsewhere.
26	professional development	Includes both vocational and academic development.
27	apprenticeship	A long-term development programme for workers to learn job skills while they work through a mixture of on-the-job and off-the-job training and study.
28	employment legislation	Legal rules that support employment: Equality Act: this supports against discrimination (when an employee or applicant is treated differently from another for no acceptable reason) Working Time Directive: a statement of the maximum number of hours that a person can be asked to work

Sharp minds in Business: where to look

- Complete any of the extension activities from your homework booklet
- Sign up to a news app (BBC / Sky / The guardian)
- Choose a relevant video to watch on: https://www.twoteachers.co.uk/
- Update any notes or watch revision videos from GCSE Bitesize (make sure it is the OCR Spec): https://www.bbc.co.uk/bitesize/examspecs/zhrphbk
- Update any notes or watch revision videos from BusinessEd (make sure it is the OCR Spec): https://www.businessed.co.uk/index.php/home/theory/gcse/ocr-gcse-9-1-public
- Complete any Seneca activities - make sure you sign in to your Seneca account and class so that we can see this.

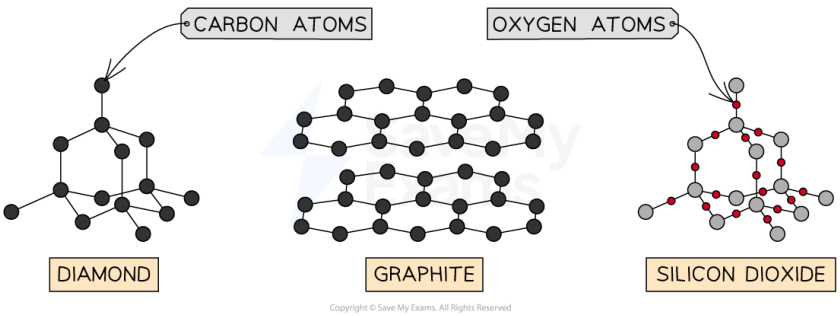
Chemistry

Practise reproducing these diagrams

Ionic bonding	Covalent bonding
	

Giant covalent structures

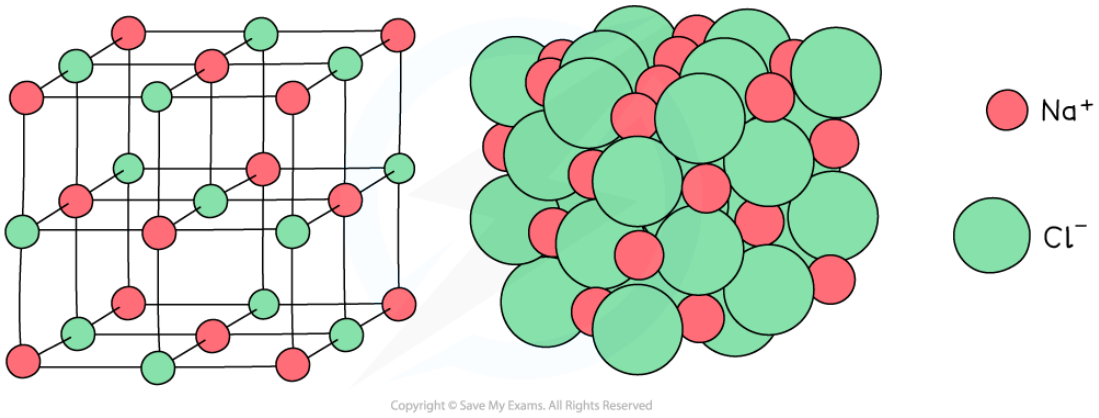
1	diamond and graphite	These are made from carbon atoms and have giant covalent structures.
2	silicon dioxide (silica)	This is made from silicon and oxygen atoms and has a giant covalent structure.
3	melting points	All giant covalent structures have high melting points because: • There are strong covalent bonds between atoms • These require lots of energy to overcome



Properties of ionic compounds

1	ionic compounds	are made of charged particles called ions which form a giant lattice structure
2	high melting and boiling points	Ionic compounds have high melting and boiling points because: • They have giant structures • There are strong electrostatic forces of attraction between oppositely charged ions in all directions • The forces need lots of energy to overcome them • The greater the charge on the ions, the stronger the electrostatic forces and the higher the melting point will be • For example, magnesium oxide consists of Mg^{2+} and O^{2-} so will have a higher melting point than sodium chloride which contains the ions, Na^+ and Cl^-

Practise reproducing these diagrams



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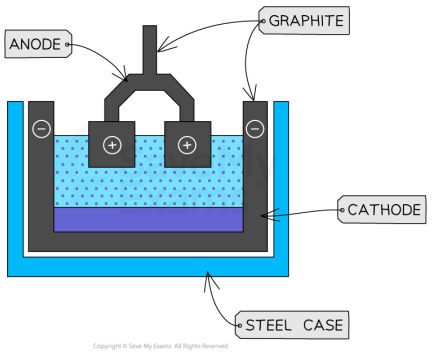
Extracting Aluminium



Bauxite is first purified to produce aluminium oxide, Al_2O_3. The aluminium oxide is then dissolved in molten cryolite.

This is because aluminium oxide has a melting point of over 2000°C which would use a lot of energy and be very expensive

The mixture is placed in an electrolysis cell, made from steel, lined with graphite which acts as the negative electrode, with large graphite blocks as the positive electrodes

Aluminium is produced at the cathode, and oxygen is produced at the anode.

Computer Science

1.1 Systems architecture		
1	systems architecture	Computer systems allow inputs to be made, which are processed in some way and an output produced. Architecture refers to the way an object is physically structured and designed.
2	fetch, decode execute cycle	The process the CPU uses to run instructions. It fetches an instruction from memory, decodes what it means, and then executes it. Based on the Von Neumann Architecture.
3	registers	Small, fast memory locations within the CPU that temporarily hold specific data and instructions.
4	program counter	Stores the address of the next instruction to be fetched from memory. What happens to the address stored every cycle?
5	Memory Address Register	Holds the address in memory where instructions or data are to be fetched from or where data is to be written to.
6	Memory Data Register	Holds the data or instruction that has been fetched from memory or the data to be written to memory.
7	accumulator	Stores the results of calculations carried out by the ALU.
8	Arithmetic Logic Unit	Carries out the arithmetic (e.g. addition) and logic (e.g. comparisons) operations.
9	control unit	Manages the activities of the CPU by directing the flow of data and instructions. Also decodes how to process instructions.
10	clock speed	The number of fetch, decode and execute cycles the CPU can carry out every second. Measured in Hz. 1000Hz = 1KHz. 1 million Hz (1000KHz) = 1MHz. 1 billion Hz (1000MHz) = 1GHz.
11	cache	A small, fast memory in the CPU that stores frequently used data and instructions to speed up processing as faster than RAM. Saves time fetching from RAM, which is much slower than the CPU.
12	cores	Independent processing units within a CPU. More cores allow more instructions to be processed at once. How many cores would a quad core have?
13	embedded system	A computer system built (on a single circuit board) into another device to control it, like a washing machine or microwave. Can you list other examples of embedded systems?
1.2 Memory and storage		
1	primary memory	Memory that the CPU can access directly, including RAM and ROM. All computer systems need these to operate.
2	RAM	Stores data and software (including the operating system) currently in use. It is volatile (data is lost when power is off).
3	ROM	Permanent memory that stores the boot up instructions. It is non-volatile.
4	secondary storage	Non-volatile storage used to hold data long-term, such as magnetic hard drives and solid state drives. Can you think of other types of storage media?
5	virtual memory	When secondary storage is used as additional memory when RAM is full. Why does overusing this cause the system to become unresponsive?
6	storage capacity	The amount of data a storage device can hold, measured in bytes (e.g. MB, GB, TB).
7	durability	How well a storage device can withstand damage or wear over time.
8	units of data storage	Bit (a single binary digit), nibble (4 bits), byte (8 bits), kilobyte (1KB=1000B), megabyte (1MB=1000KB), gigabyte (1GB=1000MB),

		terabyte (1TB=1000GB), petabyte (1PB=1000TB)
9	binary	A number system using only 0s and 1s. Used by computers to store and process data due to the CPU making use of tiny switches called transistors. Generate 5 binary values of 8 bits and convert to denary and hexadecimal.
10	denary	The standard number system we used (base 10) that uses digits 0–9. Generate 5 denary values below 255 and convert to binary and hexadecimal.
11	hexadecimal	A base-16 number system using digits 0 to F(15) that is sometimes used to represent data as it can show larger values using fewer digits than binary. Generate 5 hexadecimal values of 2 digits and convert to denary and binary.
12	character set	A collection of characters that a computer can recognise and use, such as ASCII or Unicode. Each character has a unique binary code. What is the difference between ASCII, ASCII Extended and Unicode?
13	bitmap image	An image made up of pixels. Each pixel has a binary value representing the colour. Each colour has a unique binary value. The range of colours is determined by the colour depth. The number of pixels used is determined by the resolution. Metadata is also stored with the image. What is metadata?
14	sound sampling	Converting analogue sound waves into digital data by measuring the amplitude at regular intervals. The number of intervals is determined by the sample rate. What is bit depth? How can sample rate, bit depth and duration impact file size?
15	compression	Reducing the file size in order to save storage space and reduce upload/download times. What is the difference between lossless and lossy compression?
1.3 Computer networks, connections and protocols		
1	network	Two or more computers connected to share data and resources. What resources can be shared using a network?
2	Local Area Network	A network in a small geographical area like a school or office. Uses privately owned/managed hardware/cables to connect devices. Can share hardware.
3	Wide Area Network	A network that covers a large area, often connecting multiple LANs (e.g. the Internet). Uses public communication lines to connect devices. Cannot share hardware and is less secure than LAN.
4	client-server network	A network where clients request services and servers provide them (e.g. file or print servers). The server allows for central management. What are the benefits of central management on a network?
5	peer-to-peer network	A network where all devices are equal and share resources directly without a server. What are the advantages of not having a central server?
6	router	Required to connect a network to a WAN (internet). Connects different networks together and directs data.
7	switch	A device that connects computers in a LAN and sends data only to the intended device. Usually in the centre of a star network. What is the difference between a switch and a hub?
8	domain name system	DNS. Translates Uniform Resource Locators (URL or web addresses) into IP addresses. Devices on the internet are identified by IP addresses so are required before communication can begin. Can you list the stages of DNS resolution?
9	hosting	Providing storage and services on a server for access over the Internet. Can you define terms such as 'the cloud' and software as a service?
10	topology	The physical layout of a network. Can you sketch a star topology and a mesh topology?

11	wired connection	A network connection using cables (Ethernet). Larger bandwidth, greater range and more secure than wireless.
12	wireless connection	A network connection using radio signals (e.g. Wi-Fi), allowing devices to connect without cables. Allows for a larger number of devices to be connected more easily than wired connection.
13	encryption	Using an algorithm to make data unreadable (cipher text) without the key to decrypt it. Why is encryption important on a wireless network?
14	IP Address	A unique address identifying a device on a network. Can be changed. It is made up of 4 numbers between 0-255 (4 x 1 byte = 32 bits) and is represented in denary. Used to identify devices over the internet.
15	MAC address	Uniquely identifies the network interface of a hardware device (e.g. network interface card). Is assigned when manufactured and cannot be changed. It is made up of 12 hexadecimal digits (48 bits). Used to identify devices within a LAN.
16	protocol	A set of rules and standards to govern how data is transmitted on a network. Can you list and describe the protocols you need to know about?
17	protocol layering (TCP/IP model)	Splits the functionality of network transmission into 4 independent layers (application, transport, internet, network access). This allows for changes to be applied to layers and new protocols to be added without affecting any other layers.
2.2 Programming fundamentals		
1	variable	A named location in memory used to store a value that can change while the program is running. A value is given to a variable using the assignment (=) operator.
2	data type	The kind of data a variable holds, e.g. integer, float, string, character, Boolean.
3	casting	Converting from one data type to another (e.g. string to integer). In python, what data type is the value returned from the INPUT function?
4	programming constructs	The structure of programming code used to control the flow of operation: sequence, branching and iteration. Can you describe all three?
5	arithmetic operator	Symbols used for calculations in programming: +, -, *, /, DIV, MOD. What do the operators DIV and MOD do?
6	comparison operator	Operators used to compare two values, often in an IF statement criteria. E.g. ==, !=, >, <, >=, <=. Results in a Boolean (true or false) value.
7	Boolean operator	Combining more than one comparison or Boolean value together using the operators AND, OR, NOT. E.g. if num1 >= 1 AND num1 <= 10.
8	array	A data structure that can store multiple values under a single identifier (name). Each value can be accessed using an index that starts at 0. What type of iteration is used to access all the values in an array?
9	sub program	An independent section of code written to perform a specific task that can be called from other sections of code. Will either be a procedure or a function. What is the difference between a procedure and a function?

Sharp minds in Computer Science: where to look

- Our course details: OCR GCSE Computer Science J277
- Remember to use the All-in-one revision document in Google Classroom
- Answer questions from the exam question packs and mark using the model answers: https://www.hartismere.com/33393
- If unsure on a topic/concept, make use of ADA Computer Science or Isaac Computer Science: https://adacomputerscience.org, https://isaaccomputerscience.org
- Get used to the exams by making use of past papers: https://www.hartismere.com/25078
- Complete any outstanding homework or class quizzes on Genie.
- If you have missed a topic or want to recap, check out the revision videos from Craig'n'Dave on YouTube: https://www.youtube.com/@craigndave

Creative iMedia

Purpose of Media Products

	Term or word	Definition
1	advertise or promote	To publicise information and encourage it.
2	inform	To give or tell someone facts and information.
3	educate	To give intellectual, moral and social instruction.
4	entertain	To provide amusement or enjoyment.
5	influence	To have an effect on someone or something.

Style, Content & Layout

6	conventions of genre	The specific elements or components linked to different genres.
7	formal or informal language	Based on the audience to suit their individual needs. Formal is professional and grammatically correct. Informal is slang and personal.
8	positioning of elements	The composition and style play a factor in positioning of elements.
9	style of audio representation	Audio varies depending on the audience, from advertisements to radio to jingles.
10	style of visual representation	Visuals vary depending on the audience. There may be a ‘house style’ or style guide to follow within an organisation.

Media Codes - Colour

11	hue	Hue is the colour itself and how it is seen by the eye.
12	saturation	This is how intense and bright each colour is.
13	brightness	This is how light or dark colour schemes are.
14	interactivity	This is about how the audience interacts with the product.
15	lighting	This is used to create texture, reveal or conceal elements within a frame.

Client Briefs: formats

16	commission	To order or authorise the production of something.
17	formal or informal brief	Formal briefs are done in accordance with convention or etiquette. Informal have a relaxed, friendly or unofficial style, manner or nature.
18	meeting or discussion	A gathering to talk about something in order to reach a decision or to exchange ideas.
19	negotiated	Reaching an agreement of compromise by discussion.
20	written	Something produced in writing - e.g. email; letter.

Client Briefs: requirements

21	type of product & content	To understand what the client wants you to produce, and consider what the client wants included in the product.
22	audience	The people you are aiming at, for example adults, children, an age-restriction or gender
23	client ethos	Making sure that the product you produce shows you care about the business and customers.
24	genre, style and theme	Genre is the category the product falls into, and depends on the type of product. The style of the product should be consistent with the client's other products and the theme will vary depending on purpose.
25	timescales	The deadline provided by the client which must be met.

Planning Documents

26	client	A person who gives you requirements for something that they want you to create for them.
27	requirements	The things a product needs to do (functional) and how it needs to do it (usability).
28	moodboard	A visual theme used to express colours and related concepts.
29	mindmap	A tool used to break a client brief down to show ideas and links between them.
30	visualisation diagram	A rough sketch or depictions of what the final product would look like.

Sharp minds in Creative iMedia: where to look

- KnowItAllNinja - R093 YouTube Revision Playlist
  Search 'R093 KnowItAllNinja' on YouTube
  R093: Creative iMedia in the Media Industry - YouTube
- Google Classroom; Knowledge Organiser; Lesson Presentations; PG Online Worksheets
- Revision Guides
  Search 'ClearRevise OCR Creative iMedia J834'
  Search 'CGP Creative iMedia J834'

Dance

	Term or word	Definition
1	professional practitioner	Someone in the performing arts who is paid for their expertise such as a choreographer.
2	creative intention	What the practitioner wants for the piece: the meaning communicated to give the piece purpose.
3	influence	Something that has an effect on you and your creative work such as culture or politics.
4	dynamics quality	How you perform a movement: made up of its speed and the amount of tension in the body such as fast, slow, heavy, light, sustained, suspended, collapsed, or vibratory.
5	performance processes	The series of actions that are taken as you prepare for, create, rehearse and perform a piece of dance or theatre.
6	theme	The main recurring 'big idea' throughout the work. There may be lots of other ideas but this is what the whole piece is about. The title of a piece is often a clue.
7	constituent features	The parts that make up the whole. The characteristics of choreography such as style, stimulus or music.
8	stimulus	Something that arouses activity in someone or something, a spur or incentive such as a word, a piece of music or story.
9	contextual influences	The outside factors that inspire or contribute to a piece such as events in history, politics, culture or society.
10	stylistic qualities	Defining a style by its dynamics. Hip-hop might be percussive or powerful, whereas ballet might be graceful or fluid.
11	stylistic features	Elements that make up the style of a piece such as relaxed posture or skate for Hiphop, or pulled up posture and turned-out feet for ballet.
12	style	A type of dance identified by its features such as ballet, hiphop or salsa.
13	repertoire	The steps, sequences or works that are choreographed by a professional for a particular performance.
14	interpretation	What an audience takes away from watching a piece of dance or theatre: their understanding.
15	choreographic process	How you create, select, refine, rehearse and perform from start to finish.

16	posture	To hold the correct stance: shoulders back, chin level, stomachs pulled in engaging core in order to reduce injury and improve the quality of actions.
17	balance	To be stable during stillness as well as movement to avoid injury, perform lifts safely and make movements more aesthetically pleasing.
18	alignment	The correct placement of joints: skeleton lined up from head to toe e.g. knees bent over toes, allow back to have natural curve, not forced
19	extension	Fully lengthening and stretching your limbs.
20	isolation	Moving an individual body part independently.

Sharp minds in Dance: where to look

- BTEC Dance Google Classroom: Component 1: read/watch interviews with the choreographers, dancers and designers and make notes on their way of working
- Use YouTube to watch different sections from the set repertoire - can you learn it from the video? Make notes about the stylistic features and the skills and techniques needed to perform it well

Design and technology

	Term or word	Definition
1	automation	The use of control systems for operating equipment such as machinery and processes in factories; this reduces human input.
2	client	The person/people/audience being designed for and whose needs are being met.
3	commercial process	Manufacturing method used to produce products in quantity.
4	commercial product	A product intended to make money.
5	conceptual stages (of design)	Use of models, sketches and computer-aided design (CAD) to show the design of a product as it develops.
6	continuous improvement	The identification of improvements and subsequent evolution of products.
7	co-operative	A group of people united to meet common social, economic or cultural need through a jointly-owned business.
8	crowd funding	A large number of people who raise money for a project or venture.
9	ecological	The consideration of the environment and the impact that design can have on it.
10	ethics	Moral decisions when designing and manufacturing.
11	fabricate	Using processes such as cutting, bending, joining and assembly to produce products.
12	finite	A material or source which will one day run out.
13	functionality	How well a product carries out its purpose.
14	fusibility	How well a material is converted by heat into a molten or liquid state dependent on its melting point.
15	iterative design	Design methodology based on a cyclical process of analysing, prototyping and testing to refine a product. Each iteration and result starts the process again.
16	lean manufacturing	Reducing and eliminating waste in a manufacturing process.
17	life cycle assessment	A technique used to assess the environmental impact of a product at all stages of its manufacture, use and disposal.
18	market pull	Products developed to meet the needs of society or a specific section of the market.
19	mechanical device	Mechanism which produces and/or changes movement.
20	nesting	The tessellation of shapes or nets on a material to minimise the amount of waste during manufacture.

21	physical properties	Properties that refer to the actual matter that forms the material (e.g. insulation, conductivity, fusibility).
22	planned obsolescence	Deliberately designing the lifecycle of a product to be short, forcing the user to update their products quickly.
23	primary source	Research collected first-hand by a designer to develop a product or idea.
24	primary source (of materials)	Where materials originate (polymers from oil etc) and the raw material that needs to be converted into a workable form.
25	product	Item or artefact developed for an intended audience to solve a problem or meet a need.
26	prototype	An early model or sample of a product used to test a concept.
27	schematic diagram	Graphic symbols or simplistic diagrams used to convey a system (e.g. an underground map).
28	social footprint	The impact a product or individual has on society.
29	social responsibility	The idea that a designer needs to evaluate the impact their product could have on society and take action to make this better.
30	stock form	The standard shape and size of materials as they are bought.
31	technology push	Technological discoveries used to drive the development of a product.
32	tolerance	The minimum and maximum measurements that can be accepted when manufacturing.
33	user	The person/people who make use of the product that has been developed by a designer.
34	user-centered design	Design development with the user at the centre of the focus. The designer tries to envisage how the product will actually be used, as opposed to focusing on other areas such as cost.
35	working properties	How a material reacts to external forces.

Sharp minds in design & technology: where to look

- Mr Design Technology. YouTube videos on most of the AQA curriculum content https://www.youtube.com/watch?v=eS7cpnHlPBg
- SketchUp tutorials on YouTube from beginner to advanced.
- Huge range of resources inc quizzes etc on the Oak National Academy website. Find Key stage 4 - Design & Technology - core principles
- Loads of fascinating videos, everything from wood joinery to biomimetic architecture on the BBC Teach website - look for ‘Design & Technology’
- DT TV on YouTube. A resource for Design and Technology students. Includes CAD and Sketching tutorials to really promote high quality skills plus process and H&S videos will ensure effective and safe practice.
- DTbase. GCSE revision material, NEA examples and notes.https://designandtechbase.com/
- Curriculum linked resources on SmartRevise

Drama

	Term or word	Definition
1	performance skills	Vocal, physical, space
2	EAT PIPPA P (Vocal skills)	Expression, Accent, Tone, Projection, Inflection, Pitch, Pace, Articulation, Pause
3	PEB FEGS (Physical skills)	Pace, Eyeline, Body language, Facial Expression, Gesture, Stance
4	SD BAP SALT (Staging)	Stage Directions, Blocking, Areas of the stage, Proximity, Spacial Awareness, Levels, Transition
5	point (statement)	Stating the skill/ theatrical aspect
6	Analysis (how)	Description of how the skill or theatrical aspect has been used
7	quotation	Use of the stage directions, or a phrase from a character's line of speech
8	evaluation (WHY)	Justification of what the skill or theatrical aspect demonstrates
9	non-verbal communication	Physical skills: everything you can see but not hear.
10	Arthur Birling	Business man. Arrogant, selfish and materialistic, possessive, patriarchal.
11	Gerald Croft	His family are upper-class business owners. Confident, charming. Ignorant. Had an affair with Eva
12	Sheila Birling	Engaged to Gerald. Naïve and childish. Becomes regretful, matures and accepts responsibility
13	Eric Birling	Lacks confidence. Alcoholic. Makes Eva pregnant. Stole money from his father's business
14	Sybil Birling	Cold-hearted, snobbish despite being part of local women's charity. Her uncaring nature leads to downfall
15	Inspector Goole	Investigates the family, reveals consequences of actions. Could be a ghostly or godlike figure. Socialist
Themes		
16	social duty	Priestley wants the audience to be more aware of the effect of their actions on others
17	the supernatural	Goole sounds like ghoul, insinuating the Inspector is a ghost
18	social class	The play is written from a socialist perspective; Gerald Croft is of a higher class than the Birlings
19	youth and age	The younger generation reflect hope and the ability to learn and change; older characters have stubbornly fixed opinions.
20	responsibility	When required to face responsibilities, the characters often find ways to justify their actions

Costume		
21	SML CHAMPS	Status, Material, Location, Colour, Hair, Accessory, Makeup, Practicality, Style
22	men - material	Satin lined suits - upper class. Wool with hints of stripes or checks - middle class
23	men - hair	Oiled look, centre and side parting
24	men - accessories	Bowler hat (businessman), Caps (lower class), Top hats (for events)
25	men - makeup	Beards - older men, Shaped moustaches - younger men
26	men - practicality and style	Narrow fitting 3 piece suits, Starched collar (uncomfortable), Knotted tie, Tailcoat for formal evenings
27	women - material	Chiffon - lightweight, Silk, satin, Elaborate Lace and beadwork, Embroidered
28	women - accessories	Expensive ring, Pearls, drop earrings
29	women - hair	Wavy curls, Low wispy bun
30	women - makeup	Pale look - face powder, rouge for cheeks and lips, Eyebrow pencil, kohl around eyes
31	women - practicality and style	Hobble skirt shaped dress (Narrow around the ankles) = difficult to walk in, High waistline dresses, tight corset which accentuates the figure
Lighting		
32	LIGHT TTACC	Location, Intensity, Gobo, Haze, Texture, Time, Type, Angle, Colour, Cue
33	intensity	How bright the light is: it may be brightly lit or dimly lit
34	cue	Fade; snap; crossfade; blackout
35	lighting type	Profile spotlight. Focused, or soft edged. For Gobo use, good for facelight wash
36	Fresnel	Used for evenly blended wash
37	angle	Uplight; downlight (top light); side light; backlight; front facing light
38	Gobo	Metal disc that creates patterns - e.g. chandelier shadow
39	haze	Water vapour creates smoke highlighting the beam of light rather than the object.
40	scrim	Looks like a solid curtain until lit from behind when it becomes transparent
41	cyclorama	A large curtain or wall at the back of the stage, used to project images
Sound		
42	DNSUV PRFSA	Diegetic Sound, Non-Diegetic Sound, Sound Cue, Underscore, Volume, Pitch, Reverb, Fade, Spot Sound, Ambient Sound
43	diegetic sound	Sound that originates from within the world of the play (e.g. a phone ringing on stage).
44	non-diegetic sound	Sound added for effect that the characters can't hear (e.g. background music to create tension).
45	sound cue	A signal for a sound to start or stop during a performance.
46	underscore	Music or sound played quietly beneath dialogue or action to enhance mood.
47	volume	How loud or soft a sound is.
48	pitch	The highness or lowness of a sound.
49	reverb	An effect that creates a sense of space or echo, often used to suggest location (like a cave or church).
50	fade	A gradual increase (fade in) or decrease (fade out) in volume.

51	spot sound	A specific, timed sound effect that matches a particular action on stage (e.g. a door slam).
52	ambient sound	Background sound that suggests the environment (e.g. birdsong, city traffic).
Set		
53	MSSPICES (Set)	Material, Status, Size, Practicality, Interior, Colour, Exterior, Symbolism
54	exterior - door	Black, shiny, animal head knocker, quaint metal number: symbolises importance in society
55	exterior - stage floor	Broken pavement, lifted, cracked: represents bombshell the Birlings are sitting on
56	interior - window and curtains	Large windows, big purple velvet curtains - luxurious and expensive, symbolic of upper class
57	interior - walls	Expensive paintings and lamps
58	practicality	Move around without tripping over it, step up onto different levels, move quickly and safely.
59	interior -table	Large, wooden, pattern engraved - expensive. Decorated with lace tablecloth, crystal decanter and candelabra
60	interior - cabinets	Large, wooden, displaying ornaments, crystal decanter - symbolising wealth and style, lavish
61	interior- fireplace	Big, grand, warming - sense of wealth
62	interior chairs	Grand, tall-backed dining chairs, arm chair: comfortable and expensive Wooden chair: cumbersome, plain, understated for maid - uncomfortable

Sharp minds in Drama: where to look

- Read and write a 200- word summary of An Inspector Calls by J.B. Priestley
- Watch and take notes:- An Inspector Calls - exclusive interviews from the cast about the BBC drama: https://www.youtube.com/watch?v=mm-GFtGNUYY
- A production of An Inspector Calls: https://www.youtube.com/watch?v=dMUHU-2lfZk
- Research online and present a power point for An Inspector Calls:
  - Costume design
  - Lighting design
  - Set design
  - Sound design

English Language and Literature

Grammar

	Term or word	Definition
1	noun	Nouns are typically words for people, places, animals and objects (e.g. doctor, Peter, Paris, dinosaur) and also many words for abstract things such as feelings, emotions and qualities (e.g love, hope, mystery).
2	verb	A word that usually conveys an action (read, walk, run), an occurrence (happen, become) or a state of being (be, exist).
3	adjective	A word that modifies (changes) a noun, e.g. the blue car; your cake is bigger than mine.
4	adverb	Adverbs typically modify (change) a verb, an adjective, another adverb or entire clause or sentence, e.g 'He wrote it down quickly'; 'The film ended too soon'.
5	pronoun	Pronouns replace nouns or noun phrases, for example, 'We like Tom' → 'We like him.' 'I like my new bike.' → 'I like it.' Personal pronouns usually refer to people or other living things.

Words we see in English exams

1	summarise	To express the most important facts or ideas about something in a short and clear form.
2	compare	To look at the similarities or differences between (usually) two things.
3	infer	To form an opinion or guess that something is true because of the information that you have.
4	structure	The way a story or poem is organised and how the ideas start, develop and end.
5	evaluate	To judge or work out the quality, importance, amount or value of something.

Purposes of writing

1	describe	To say or write what someone or something is like in detail.
2	explain	To make something clear or easy to understand by describing or giving information.
3	argue	To state a point of view using reasons for or against it.
4	persuade	To make someone do or believe something by giving them reasons or through argument.
5	story	A structured description, true or imagined, of a connected series of events.

Writers' methods

1	consonance	The repetition of similar-sounding consonants in close proximity.
2	alliteration	The occurrence of the same sound at the beginning of adjacent or closely connected words.
3	assonance	A similarity of sound between syllables of nearby words, arising particularly from the rhyming of vowels.

4	sibilance	A type of alliteration that relies on the repetition of soft consonant sounds.
5	onomatopoeia	The formation of a word from a sound associated with what it describes.

1	simile	The comparison of one thing with another thing using ‘like’ or ‘as’.
2	metaphor	A figure of speech in which a word or phrase is applied to an object or action to which it is not literally applicable.
3	extended metaphor	A comparison between two unlike things that continues throughout a series of sentences in a paragraph or lines in a poem.
4	personification	Giving a personal nature or human characteristics to something that is not human.
5	symbolism	The use of symbols to represent ideas or qualities.

1	hyperbole	Exaggerated statements or claims not meant to be taken literally.
2	protagonist	The main or leading character
3	antagonist	The main or leading character who is an opposing force to the protagonist.
4	irony	A rhetorical device, literary technique or event in which what appears to be the case on the surface, differs radically from what is real.
5	tone	
6	semantic field	A set of worlds that relate to a similar theme or topic.
7	anthropomorphism	When writers portray animals, gods and objects as if they are human in appearance, character or behaviour.

1	narrator: first, second or third person	First person is when a story is told using ‘I’ or ‘we’. Second person is a story told using ‘you’. Third person is told using ‘he’, ‘she’ or ‘they’.
2	omniscient narrator	The narrator knows everything and can give us access to their private thoughts, feelings or hidden events.
3	limited narrator	The narrator only knows the thoughts and feelings of one character.
4	perspective	The point of view of a narrator or character.
5	narrative arc	The structure of a typical story, often: exposition, rising action, climax, falling action and resolution.
6	juxtaposition	When two contrasting or opposing ideas are presented.

Poetic terms

1	stanza	Similar to a paragraph, but in a poem. Can be very short or long.
2	sonnet	A 14 line poem, often about love, written in iambic pentameter and usually ending in a rhyming couplet.
3	caesura	A pause in the middle of a line or poem.

4	rhyme scheme	The pattern of rhyme in a poem, or example AABB, ABAB etc.
5	enjambment or run-on line	When a sentence continues from one line into another without punctuation.
6	volta	The moment in a story or poem when everything changes, usually in the middle.

Concepts

1	sublime	A high degree of moral and spiritual purity usually inspired by nature.
2	The Enlightenment	A European intellectual movement emphasising reason and individualism over tradition.
3	hubris	Excessive pride or arrogance that results in the downfall of the protagonist of a tragedy.
4	oppression	When those in authority are cruel to the people they rule over.
5	Romanticism	A movement beginning in 1770 characterised by a belief in the power of nature and freedom from society's rules.
6	Industrial Revolution	From the late 1770s, many factories were built. Many people moved to cities for jobs and often lived in terrible conditions.
7	ephemeral	Something that lasts for a short time.
8	allegory	A text that can be interpreted to reveal a hidden meaning, typically a moral or political one.

Year 10 English literature: quotations

Macbeth: quotations

Act & scene	Quotation
Act 1 scene 1	Witches: "Fair is foul and foul is fair"
Act 1 scene 4	Macbeth: "Let not light see my black and deep desires"
Act 1 scene 5	Lady Macbeth: "Look like th'innocent flower/But be the serpent under't"
Act 2 scene 2	Macbeth: "Will all great Neptune's ocean wash this blood/Clean from my hand?"
Act 5 scene 9	Malcolm: "This dead butcher and his fiend-like queen"

Much Ado about Nothing: quotations

Act & scene	Quotation
Act 1 Scene 1	Beatrice: "Has Signor Mountanto returned from the wars or no?"
Act 4 Scene 1	Claudio: "Give not this rotten orange to your friend."
Act 4 Scene 1	Beatrice: "Kill Claudio." Benedick: "Ha! Not for the wide world!"
Act 5 Scene 2	Benedick: "Thou and I are too wise to woo peaceably."
Act 5 Scene 4	Hero: "One Hero died defiled, but I do live, And surely as I live, I am a maid."

Romeo and Juliet: quotations

Act & scene	Quotation
Prologue	Chorus: ‘star-crossed lovers‘/ ‘death mark’d love’
Act 1 scene 1	Romeo: ‘O brawling love, O loving hate!’
Act 2 scene 1	Juliet: ‘What's in a name? that which we call a rose By any other name would smell as sweet’
Act 3 scene 1	Mercutio: ‘A plague o' both your houses!’
Act 5 scene 3	Juliet: ‘O happy dagger!’

An Inspector Calls: quotations

Act	Quotation
Act 1	Arthur Birling: “unsinkable, absolutely unsinkable”
Act 1	Arthur Birling: “I’m speaking as a hard-headed, practical man of business”
Act 1	Sheila Birling: “But these girls aren’t cheap labour - they’re *people*.”
Act 2	Mrs Birling: “girls of that class -”
Act 3	Inspector Goole: “We are members of one body. We are responsible for each other.”
Act 3	Inspector Goole: “Fire and blood and anguish”

Dr Jekyll and Mr Hyde:quotations

Chapter	Quotation
Story of the Door	Enfield describes Hyde as “really like Satan”.
Search for Mr Hyde	Utterson could hear the “low growl of London”.
The Carew Murder Case	Utterson observed the fog “was like a great chocolate coloured pall lowered over heaven”.
The Last Night	Hyde seemed a “masked thing, like a monkey”
Henry Jekyll’s full Statement of the Case	Jekyll: “man is not truly one, but truly two”.

A Christmas Carol:quotations

Stave	Quotation
1	Scrooge is described as “solitary as an oyster”.
1	Ghost of Jacob Marley: “I wear the chain I forged in life”
1	"If they would rather die," said Scrooge, "they had better do it, and decrease the surplus population."

2	Belle ends her relationship with Scrooge, saying, “Another Idol has replaced me… A golden one.”
3	Ignorance and Want are described as “Yellow, meagre, ragged, scowling, wolfish”
5	Scrooge: "I am as light as a feather, I am as happy as an angel, I am as merry as a school-boy."

Power and conflict poetry: quotations

	Poem	Quotation
1	Ozymandias	“Round the decay/ of that colossal wreck, boundless and bare The lone and level sands stretch far away.”
2	London	“In every voice…the mind-forged manacles I hear”.
3	The Prelude: Stealing the Boat	“O’er my thoughts there hung a darkness”.
4	My Last Duchess	“She had/ a heart - how shall I say? - too soon made glad”.
5	The Charge of the Light Brigade	“Forward the Light Brigade!/Was there a man dismay’d? Not tho’the soldier knew/Someone had blundered”
6	Exposure	“Pale flakes with fingering stealth come feeling for our faces”.
7	Storm on the Island	“The flung spray hits the very windows/Spits like a tame cat turned savage”.
8	Bayonet Charge	“King, honour, human dignity etcetera/Dropped like luxuries in a yelling alarm”.
9	Remains	“He’s here in my head when I close my eyes/dug in behind enemy lines”.
10	Poppies	“Sellotape bandaged round my hand/I rounded up as many white cat hairs/ as I could”.
11	War Photographer	“A stranger’s features/Faintly start to twist before his eyes,/a half-formed ghost”
12	Tissue	“Trace a grand design/ with living tissue, raise a structure/never meant to last”.
13	The Emigrée	“I am branded by an impression of sunlight”.
14	Kamikaze	“Boats strung out like bunting”.
15	Checkin’ Out Me History	“I checking out me own history/I carving out me identity”.

Sharp minds in English: where to look

- You could explore the English department suggestions for students at the University of Cambridge: https://www.english.cam.ac.uk/admissions/undergraduate/students.htm
- Listen to a podcast about the Shakespeare play you're studying: https://podcasts.ox.ac.uk/series/approaching-shakespeare
- Explore some new poetry with the Poetry Society: https://poetrysociety.org.uk/

Cinematography

CAMERAWORK

ANGLES

•HIGH	The camera is above the subject
•LOW	The camera is below the subject
•CANTED	The subject appears tilted
•EYE LEVEL	Camera is level with subject's eyes
•BIRD'S EYE	Camera is high in the air
•WORM'S EYE	Camera is low on the ground

SHOT SIZE

•EXTREME LONG SHOT (XLS)	Subject is far away
•LONG SHOT (LS)	Whole subject can be seen
•MEDIUM LONG SHOT (MLS)	Top of head to thighs
•MEDIUM/MID SHOT (MS)	Top of head to waist
•MEDIUM CLOSE-UP (MCU)	Top of head to chest
•CLOSE-UP (CU)	Top of head & shoulders
•BIG CLOSE-UP (BCU)	Whole head
•EXTREME CLOSE-UP (ECU)	A part of the head

MOVEMENT

•PAN	Camera moves left or right-shaking
•TILT	Camera moves up and down-nodding
•PED	Camera looks forward, sliding up or down
•DOLLY	Camera moves forward, fixed position
•TRACK	Smooth sideways shot. Aka, 'crab'
•ZOOM	Camera lens moves forward or back
•CRANE	Not placed on tripod, held 'in hands'
•STEADICAM	From perspective of a person
•POV	

MISE-EN-SCENE

SETTINGS & PROPS

Where the scene is, when the scene is and the objects used to show this.

COSTUME, HAIR & MAKE-UP

Clothes worn & style of hair.

FACIAL EXPRESSION & BODY LANGUAGE

How people move their body and faces

LIGHTING & COLOUR

The brightness, colour, position and size of light. The overall colour, tone or temperature of a scene.

EDITING

•JUMP CUT	Sudden cut from one shot to another
•FADE-OUT	A fade from one scene to another
•DISSOLVE	Gradual fade as the image dissolves
•CUT AWAY	Film cuts to something else off screen.
•WIPE	Image wipes to reveal a new image.
•MATCH-ON ACTION	Is a cut that shows two views of the same action.
•GRAPHIC MATCH	One object is matched by one of a similar shape on the next shot.

SOUND

EFFECTS

DEAFENING	BANG	HOWL
HARSH	BUZZ	ECHOING
LOUD	CRACKLING	GROWL
SUBTLE	SCREECH	WHIMPER
BRASH	SNAPPING	RUMBLE
MUFFLED	THUD	ROAR
MELODIOUS	RUSTLE	VOCIFEROUS

TYPES

DIEGETIC	Sound the characters can hear
NON DIEGTEIC	Sound the characters cannot hear
CONTRAPUNTAL	Sound that is in contrast to the images
PARALLEL	Sound that is similar to the images

SOUNDTRACK

BOMBASTIC	CRAWLING	SPRITELY
DRAMATIC	PIERCING	IMPOSING
MOVING	SHRILL	PACEY
SWEEPING	PLAYFUL	REGAL
EVOCATIVE	DELICATE	LANGUID
PULSING	CHILLED	GLOOMY
FAST	SOARING	SCARY

I

Sharp minds in Film Studies: where to look

- Visit Studio Binder on YouTube

Food Science

Principles of Nutrition

	Term or word	Definition
1	nutrient	Substances in food essential for nourishment and life.
2	macronutrient	Nutrients needed in large quantities such as protein, carbohydrates, and fats.
3	micronutrient	Nutrients required in small amounts such as vitamins and minerals.
4	dietary fibre (NSP)	Indigestible plant carbohydrates important for digestion.
5	amino acids	Building blocks of proteins; essential amino acids must come from the diet.
6	HBV proteins	High Biological Value proteins that contain all essential amino acids.
7	LBV proteins	Low Biological Value proteins lacking one or more essential amino acids.
8	protein complementation	Combining two LBV proteins to obtain all essential amino acids.
9	saturated fats	Typically from animal sources; can raise cholesterol levels.
10	unsaturated fats	Healthier fats found in plants and oily fish; improve cholesterol balance.
11	essential fatty acids	Omega-3 and Omega-6 fats that must be consumed through the diet.
12	energy balance	Balance between energy intake from food and energy expenditure.

Diet and Health

1	allergies	Immune system reaction to certain foods such as nuts or shellfish.
2	intolerances	Non-immune digestive reactions to foods, e.g., lactose intolerance.
3	energy balance	Balance between energy consumed and energy used; affects body weight.
4	dietary needs through life	Nutritional requirements differ across life stages: children need nutrients for growth; elderly may need more vitamin D and calcium.
5	anaemia	Iron-deficiency condition causing fatigue and pale skin due to fewer red blood cells.
6	Coronary Heart Disease (CHD)	Narrowing of heart arteries often linked to high fat diets.
7	obesity	Excess body fat caused by long-term energy imbalance; linked to health risks.
8	diabetes (Type 2)	Body becomes resistant to insulin or doesn't produce enough; linked to obesity and high sugar diets.
9	bone health	Requires calcium and vitamin D to prevent rickets and osteoporosis.

Food Science

1	aeration	Incorporating air into a mixture to make it light and fluffy, e.g., whisking egg whites.
2	caramelisation	The process where sugar is heated and melts, then browns, creating a sweet, nutty flavour.
3	coagulation	The setting of proteins when heated, e.g., eggs turning solid when cooked.
4	denaturation	The chemical structure of proteins unfolds due to heat, acid, or agitation.
5	dextrinisation	The browning of starch when exposed to dry heat, giving a sweet flavour, e.g., toast.
6	emulsion	A mixture of two liquids that do not usually mix, such as oil and water.
7	emulsifier	A substance that helps stabilise an emulsion, e.g., lecithin in egg yolk.
8	gelatinisation	When starch granules swell and burst in liquid when heated, thickening the liquid.
9	plasticity	The ability of fats to be spread and shaped, due to different melting points of fats.

Food Spoilage

1	ambient food	Foods that can be safely stored at room temperature, e.g., canned goods.
2	cross contamination	Transfer of harmful bacteria from one food or surface to another.
3	enzymes	Natural proteins in foods that speed up chemical reactions, e.g., ripening.
4	high risk food	Foods that support rapid bacterial growth, e.g., cooked meat, dairy products.
5	mould	A type of fungus that grows on food, sometimes producing harmful toxins.
6	pasteurization	Heat treatment that kills bacteria in foods like milk, without affecting quality.
7	pathogenic	Microorganisms that cause disease in humans.
8	preservative	Substance added to foods to prevent spoilage by microorganisms.
9	danger zone	Temperature range (5°C–63°C) where bacteria multiply rapidly.
10	yeasts	Microorganisms used in bread making, brewing, but can also spoil foods.

1	additive	Substance added to food to improve flavour, texture, appearance, or shelf life.
2	carbon footprint	The total greenhouse gas emissions caused by producing and transporting food.
3	intensive farming	Farming that uses modern technology and high levels of input for maximum yield.
4	food miles	The distance food travels from production to consumer.
5	food poverty	When people cannot afford or access nutritious food for a healthy diet.
6	food security	Having reliable access to sufficient, safe, and nutritious food.
7	fortification	Adding nutrients to foods to improve their nutritional value, e.g., vitamin D in margarine.
8	free range	Farming method where animals have access to outdoor space and natural conditions.
9	genetically modified (GM)	Foods from organisms whose DNA has been altered for specific traits.
10	organic	Food produced without synthetic pesticides or fertilizers, often to higher welfare standards.
11	seasonal	Foods eaten when they are naturally in season and at their best quality.

Sharp minds in Food Science: where to look

- Watch the 2025 series of the Culinary Careers Sessions which looks at roles, sectors and pathways into the industry each attended by talented and passionate chefs. Each session builds on the last to provide an overview of culinary careers. https://futurechef.uk.net/careers/
- Use Seneca to revise topics as they are completed in lessons

French

Key verbs in three tenses

Past tense	Present tense	Future tense
J'ai joué = I played	Je joue = I play	je vais jouer = I am going to play
J'ai mangé = I ate	Je mange = I eat	Je vais manger = I am going to eat
J'ai regardé = I watched	Je regarde = I watch	je vais regarder = I am going to watch
J'ai écouté = I listened	J'écoute = I listen	Je vais ecouter = I am going to listen
J'ai visité = I visited	Je visite = I visit	je vais visiter = I am going to visit
J'ai fait = I did	Je fais = I do	Je vais faire = I am going to do
Je suis allé = I went	Je vais = I go	Je vais aller = I am going to go
C'était = it was	C'est = it is	Ça sera = it will be
		Je voudrais = I would like

Opinions

Opinion phrase	Positive	Negative
À mon avis = in my opinion	amusant = fun/funny	barbant / ennuyeux = boring
Je pense que = I think that	intéressant = interesting	affreux = awful
Selon moi = according to me	génial = great	difficile = difficult
je trouve que = I find that	fantastique = fantastic	pénible = annoying
je dirais que = I would say that	utile - useful	fatigant = tiring
	sensass = sensational	désagreable = unpleasant
	inoubliable = unforgettable	insupportable = unbearable

Family and relationships

1	Je m'entends bien avec	I get on well with
2	Je m'entends mal avec	I get on badly with
3	Je me dispute avec	I argue with
4	Je m'amuse avec	I have fun with
5	Mon (beau) père	My (step) dad
6	Ma (belle) mère	My step mum
7	Il/Elle est bavard(e)	He/She is chatty
8	Il/Elle est méchant(e)	He/She is mean
9	Il/Elle est sympa	he/She is nice
10	Il/Elle est drôle	He/She is funny

Healthy living and lifestyle

1	Je suis malade	I am ill
2	J'ai mal à la tête	I have a headache
3	Je suis en bonne santé	I am in good health
4	je suis sain(e)	I am healthy
5	Je mange des légumes / de la viande	I eat vegetables / meat
6	Je ne mange jamais de gâteau / de chocolat	I never eat cake / chocolate
7	Je bois de l'eau	I drink water
8	Je fais de l'exercice	I do exercise
9	Je dors bien	I sleep well
10	je ne fume pas	I don't smoke

Education and work

1	J'aime le français / l'histoire	I like French/history
2	Ma matière préférée c'est…	My favourite subject is…
3	À l'avenir je voudrais…	In the future I would like…
4	aller au lycée	to go to college /sixth form
5	aller à l'université	to go to university
6	travailler	to work
7	faire un apprentissage	to do an apprenticeship
8	voyager	to travel
9	me marier	to get married
10	être professeur / chanteur/se	to be a teacher / singer

Free-time activities

1	Je joue au foot / au rugby / au basket	I play football / rugby / basketball
2	Je joue aux jeux vidéo / aux cartes	I play video games / cards
3	Je joue de la guitare / du piano	I play the guitar / the piano
4	Je fais du vélo / de la natation	I go biking / swimming
5	Je fais du shopping / du sport	I do shopping / sport
6	Je regarde la télé / les films	I watch TV / films
7	J'écoute de la musique / la radio	I listen to music / the radio
8	Je mange au restaurant / une pizza	I eat at a restaurant / a pizza
9	Je lis des livres / des magazines	I read books / magazines
10	Je visite le musée / le château	I visit the museum / the castle
11	Je vais au cinéma / en ville	I go to the cinema / to town

Customs, festivals and celebrations

1	Noël / le jour de l'An / Pâques	Christmas / New Year's Day / Easter
2	Je mange du gâteau / du chocolat	I eat cake / chocolate
3	Je passe du temps avec ma famille	I spend time with my family
4	Je donne / reçois des cadeaux	I give / receive presents
5	Je bois du champagne	I drink champagne
6	Je fais la fête	I celebrate / have a party
7	Je vais au festival de musique	I go to the music festival
8	Je chante	I sing
9	Je danse	I dance
10	Il y a des feux artifices	There are fireworks

Sharp minds in French: where to look

- BBC Bitesize : https://www.bbc.co.uk/bitesize/examspecs/zp838p3
- Quizlet – make revision cards and learn vocabulary
- Lingo Clip – listen to music and improve your French : https://lingoclip.com/fr
- Watch French films and television programmes on Netflix, having subtitles in English is absolutely fine. I can recommend Lupin (15+)!
- Lawless French – grammar points, reading practice and more: https://www.lawlessfrench.com/

Geography

Changing Climate

UK **IMPACTS** of CLIMATE CHANGE	**Social impacts** - how climate change has impacted the way we live (health, education, homes etc) **Environmental Impacts -** how climate change has impacted the physical surroundings and ecosystems **Economic Impacts** - how climate change has impacted the money we need to spend or the ability of businesses to make profits **BIG PICTURE IMPACTS** - **c**oastal erosion/flooding More extreme weather events - storms/heatwaves/droughts	**2**018 heatwave and drought - farmers yields 30% lower 7 million people had hosepipe ban Wildfire (saddleworth moor near Manchester - burned for 3 weeks - cost economy £21 million) £120 billion worth of infrastructure at risk from coastal flooding 30% of UK population live with 10 miles of the coast
WORLDWIDE **IMPACTS** OF CLIMATE CHANGE	**Social impacts** - how climate change has impacted the way we live (health, education, homes etc) **Environmental Impacts -** how climate change has impacted the physical surroundings and ecosystems **Economic Impacts** - how climate change has impacted the money we need to spend or the ability of businesses to make profits **BIG PICTURE** Less farmland due to sea level rise (salinisation) - increased migration to cities in LIDCs Reduced crop yields due to less rainfall More extreme weather events (typhoons are more frequent and more intense - stronger winds etc)	Tuvalu under water by 2050 - high tide mark increasing by 5mm a year Lake Chad only 10% its original size - impacting 30 million people (rainfall reduced by 5-10 mm a year Crop yields in Sub -saharan Africa could be at least 22% less by 2050 Typhoon Haiyan in the Philippines - winds of 315 km per hour - 90% of the city of Tacloban destroyed, over 6300 people died, $2.866 billion in damage.. Less sea ice in Arctic (reduced by 13% every 10 years since 1979) - impacting Krill (keystone species - impacting whole food web)

GLOBAL HAZARDS

When does extreme weather become a hazard? Case studies of two contrasting natural weather hazard events arising from extreme weather conditions. For each chosen hazard event, study the place-specific causes	**TROPICAL STORM = TYPHOON HAIYAN, Philippines, 2011**	**Causes** Sea temperature over 26.5 degrees, ocean over 60 metres deep at 7 degrees latitude, winds over 315km per hour, storm surges over 6 metres **Consequences** 6300 died, 1/2 million people made homeless $2.86 billion damage caused, 77% of farmers lost their income -crops destroyed, barge released 85 000 litres of oil - 90% of city of Tacloban destroyed **Responses** **Short term - emergency response -** WHO - sent in healthcare workers Australia - $28 million package - medicines, water containers, shelters etc. **Long term aid** Seeds for 44 000 families, Replanting mangroves, Repairing infrastructure (by 2014 1500 km roads were repaired, Cash for work schemes

(including the extreme weather conditions which led to the event), consequences of and responses to the hazard.	**Heatwave - 2018, UK**	**Causes** Jet stream was weaker and got stuck north of the UK Enhanced greenhouse effect has caused heatwaves to be longer/more frequent and more intense **Consequences** 7 million people impacted by a hosepipe ban Wildfire broke out on Saddleworth Moor (burned for 3 weeks - cost £21 million Farmers yields were 30% lower / shortage of foods like lettuce Older people impacted by heat - increase in hospital admissions **Responses** 150 people were evacuated from homes close to Saddleworth Moor Farmers got permits to take water from rivers Hosepipe ban - Gritted roads to prevent tarmac melting/ trains reduced speeds
How can tectonic movement be hazardous? A case study of a tectonic event that has been hazardous for people, including specific causes, consequences of and responses to the event.	**Nepal Earthquake 2015**	**Causes** Collision plate boundary - Indian plate moving towards the Eurasian plate - plates snag - sudden jolt Shallow focus 15km depth - 7.8 richter scale **Consequences** 8600 died - $10 billion damage, 180 buildings destroyed in Kathmandu 547 landslides (destruction of villages/farmland) Tourist numbers decreased (for 3 years) **Responses** India sent in 10 tonnes blankets, 50 tonnes of water, 22 tonnes of food **Long term**- cash for work scheme – local people paid to help rebuild British government gave £33 Million to help rebuild hospitals

Sharp minds in geography: where to look

- https://senecalearning.com/en-GB/blog/free-ocr-b-geography-gcse-revision/ Revision quizzes on all the topics studied are available here.

- Books to broaden your horizons
  - The Carbon Diaries, Saci Lloyd
  - On Fire, Naomi Klein
  - Walking the Amazon, Ed Stafford
  - The Making of the British Landscape, Nicholas Crane

History

Medicine Through Time

General Concepts

	Word or term	Definition
1	cause	What people believed made people ill (e.g. God, miasma, germs).
2	prevention	Actions taken to stop illness before it happens (e.g. quarantine, vaccination).
3	treatment	How people tried to cure illness (e.g. herbal remedies, surgery, antibiotics).
4	public health	Government and society actions to keep people healthy (e.g. sewers, clean water).
5	continuity	When ideas or practices stay the same over time.
6	change	When ideas or practices develop or improve over time.

🏰 Medieval Period (c.1250–1500)

	Word or term	Definition
1	four humours	Belief that illness was caused by imbalances in blood, phlegm, black and yellow bile.
2	Hippocrates	Ancient Greek doctor who developed the theory of the Four Humours.
3	Galen	Roman doctor who built on Hippocrates' ideas and influenced medieval medicine.
4	miasma	Belief that bad air caused disease.
5	Church	Controlled learning and promoted Galen’s ideas – discouraged new theories.
6	bloodletting	Common treatment based on balancing the humours.
7	leper houses	Places where lepers were isolated – an early public health measure.

🏛️ Renaissance Period (c.1500–1700)

	Word or term	Definition
1	Andreas Vesalius	Studied anatomy and proved Galen wrong by dissecting human bodies.
2	William Harvey	Discovered how blood circulates around the body.
3	printing press	Allowed medical ideas to spread more quickly.
4	The Royal Society	Group promoting scientific knowledge and sharing discoveries.
5	continuity	Most people still believed in miasma and the Four Humours.

History

🏙️ 18th & 19th Century (c.1700–1900)

	Word or term	Definition
1	Edward Jenner	Developed the first **vaccine** (against smallpox) in 1796.
2	germ theory	Discovered by **Louis Pasteur** (1861): disease is caused by **microbes**.
3	Robert Koch	Identified specific bacteria that caused diseases (e.g. TB, cholera).
4	anaesthetic	Pain relief in surgery (e.g. ether, chloroform).
5	antiseptic	Joseph Lister used carbolic acid to prevent infection during surgery.
6	Public Health Acts	Laws (1848, 1875) to improve sanitation, housing, and health.
7	John Snow	Proved cholera was spread through water, not miasma (Broad Street pump, 1854).

🧪 Modern Period (c.1900–Present)

	Word or term	Definition
1	Penicillin	First antibiotic, discovered by **Alexander Fleming** (1928).
2	NHS	National Health Service set up in 1948 – free healthcare for all in the UK.
3	DNA	Discovered in 1953 by Watson & Crick – helps understand genetic diseases.
4	magic bullets	Targeted drugs to kill bacteria (e.g. Salvarsan 606 for syphilis).
5	lifestyle factors	Smoking, diet, and exercise linked to modern diseases like cancer and diabetes.
6	vaccinations	Used to prevent disease (e.g. polio, HPV, COVID-19).
7	high-tech medicine	Use of technology (MRI scans, keyhole surgery, transplants, etc.).

🩺 Medicine Through Time – Timeline (Edexcel GCSE)

🏰 Medieval Period (c.1250–1500)

- **c.460–c.370 BC** – **Hippocrates** develops the Theory of the Four Humours.
- **c.130 AD** – **Galen** expands on Hippocrates' work; his ideas dominate medieval medicine.
- **1348** – **Black Death** hits England; believed to be caused by miasma, sin, and alignment of planets.
- **Medieval treatments** – Bloodletting, purging, praying, herbal remedies.
- **Hospitals** mostly run by the Church; focus on care, not cure.

🏛️ Renaissance Period (c.1500–1700)

- **1543** – **Andreas Vesalius** publishes *"The Fabric of the Human Body"*; disproves some of Galen's ideas.
- **1575** – **Ambroise Paré** publishes *"Works on Surgery"*, promoting new surgical techniques.
- **1628** – **William Harvey** publishes his discovery of **blood circulation**.
- **1665** – **Great Plague**; similar responses to the Black Death, showing **continuity** in beliefs.
- **Printing Press** (c.1440, spreads by 1500s) – allows wider sharing of medical knowledge.

🏙️ 18th & 19th Century (c.1700–1900)

- **1796** – **Edward Jenner** successfully tests the **smallpox vaccine**.
- **1842** – **Chadwick's Report** exposes poor urban living conditions.
- **1847** – **James Simpson** uses **chloroform** as an anaesthetic.
- **1854** – **John Snow** links cholera to contaminated water (Broad Street pump).
- **1861** – **Louis Pasteur** publishes **Germ Theory**.
- **1865** – **Joseph Lister** uses **carbolic acid** as an antiseptic.
- **1875** – **Second Public Health Act** makes health improvements compulsory.
- **1882** – **Robert Koch** identifies the bacteria causing tuberculosis.

🧪 Modern Period (c.1900–Present)

- **1909** – **Paul Ehrlich** develops first **magic bullet** (Salvarsan 606) for syphilis.
- **1928** – **Alexander Fleming** discovers **penicillin**.
- **1942–43** – **Florey and Chain** mass-produce penicillin for WW2.
- **1948** – The **NHS** (National Health Service) is founded.
- **1953** – **Watson and Crick** discover the **structure of DNA**.
- **1960s–Present** – Development of **high-tech medicine** (MRI scans, keyhole surgery, organ transplants).
- **21st Century** – Vaccinations, lifestyle campaigns, and digital healthcare become central to public health.

📌 Key Turning Points

- **Renaissance** – Start of scientific approaches (Vesalius, Harvey).
- **Germ Theory (1861)** – Transforms understanding of disease.
- **Public Health Acts** – Government takes more responsibility.
- **NHS (1948)** – Healthcare becomes free at point of use.

Sharp minds in history: where to look

- Explore articles in ‘History Today’ https://www.historytoday.com/
- Explore Cambridge University’s online atlas https://www.campop.geog.cam.ac.uk/research/projects/occupations/onlineatlas/
- Explore the BBC’s history content https://www.bbc.co.uk/history/british/

List of Facts and Formulae to Memorise: Foundation Tier

This document lists the facts and formulae that will not be provided in your maths GCSE exam. Keep testing yourself until you get them right every time. This is not a full revision list – it only covers facts and does not list all the skills and procedures you also need to know.

Number Facts

- First fifteen square numbers: 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225
- First five cube numbers: 1, 8, 27, 64, 125
- Powers of 2: 2, 4, 8, 16, 32, 64, 128, ...
- Powers of 3: 3, 9, 27, 81, ...
- Powers of 4: 4, 16, 64, ...
- Powers of 5: 5, 25, 125, 625, ...
- Powers of 10: 10, 100, 1000, 10000, ...
- The triangular numbers: 1, 3, 6, 10, 15, 21, 28, ...
- The Fibonacci sequence: 1, 1, 2, 3, 5, 8, 13, 21, ...
- Primes: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, ...

Index Laws

$a^m \times a^n = a^{m+n}$

$a^m \div a^n = a^{m-n}$

$(a^m)^n = a^{m \times n} = a^{mn}$

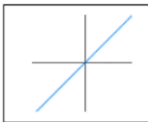
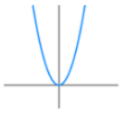
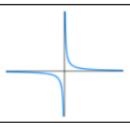
$a^{-m} = \frac{1}{a^m}$

$a^0 = 1$

Types of Sequence

- Arithmetic: add the same amount each time
- Geometric: multiply by the same amount each time
- Quadratic: common second difference
- Fibonacci: add the previous two terms

Standard Graph Shapes

	LINEAR	$y = mx + c$
	QUADRATIC	$y = x^2$
	CUBIC	$y = x^3$
	RECIPROCAL	$y = \frac{1}{x}$

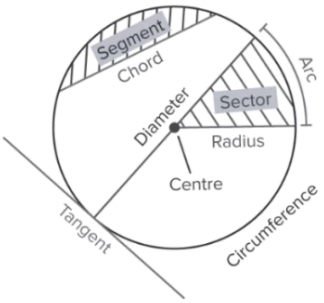
Exact Trig Values

	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	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	X

Metric Unit Conversions

- Length: 10mm in 1cm, 100cm in 1m, 1000m in 1km
- Mass: 1000mg in 1g, 1000g in 1kg, 1000kg in 1 tonne
- Capacity 1000ml in 1l, 100cl in 1l

Parts of a Circle



Area

- Area of rectangle, square and parallelogram = base x perpendicular height
- Area of triangle = ½ x base x perpendicular height

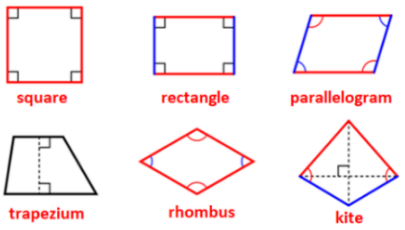
Sectors and Arcs

- Area of sector (radius r, angle x): $\frac{x}{360}\pi r^2$
- Length of arc (diameter d, angle x): $\frac{x}{360}\pi d$

Types of Angle

- Acute: Between 0° and 90°
- Right: 90°
- Obtuse: Between 90° and 180°
- Reflex: Between 180° and 360°

Quadrilaterals



Triangles

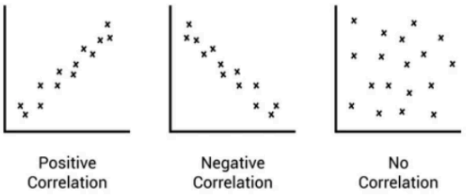
Type of Triangle	Angle property	Diagram
Isosceles	The two base angles are equal	
Right angle	One angle is equal to 90°	
Equilateral	All three angles are equal to 60°	
Scalene	Three different angles (with no angle equal to 90°)	

Maths Foundation Tier continued

Averages and Spread

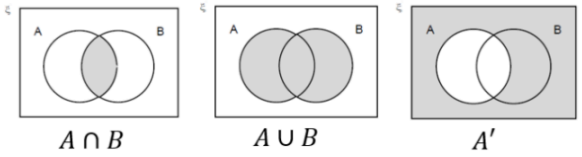
- Mode = most frequent value
- Median = middle value (when ordered)
- Mean = sum the values and divide by how many there are
  [from a grouped frequency table, estimate the mean using the midpoint of each class]
- Range = maximum value minus minimum value

Scatter Graphs



- Interpolation: making a prediction within the range of the data [using a line of best fit]
- Extrapolation: making a prediction outside the range of the data [unreliable]

Sets Notation



Linear Graphs

$$y = mx + c$$

m: gradient; c: y-intercept

- $m = \frac{change\ in\ y}{change\ in\ x}$
- Parallel lines have the same gradient
- $y = c$ is a horizontal line
- $x = a$ is a vertical line

Compound Measures

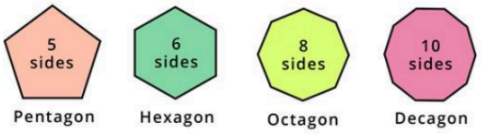
Speed = Distance ÷ Time

Density = Mass ÷ Volume

Fractions, Decimals and Percentages

0.5	50%	$\frac{1}{2}$
0.25	25%	$\frac{1}{4}$
0.1	10%	$\frac{1}{10}$
0.01	1%	$\frac{1}{100}$
0.2	20%	$\frac{1}{5}$
0.75	75%	$\frac{3}{4}$

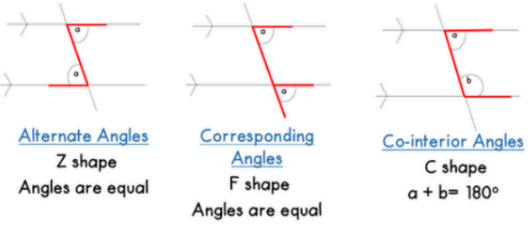
Polygon Names



Angle Facts

- Angles around a point sum to 360°
- Adjacent angles on a straight line sum to 180°
- Vertically opposite angles are equal
- Interior angles in a triangle sum to 180°
- Interior angles in a quadrilateral sum to 360°
- Opposite angles in parallelograms are equal

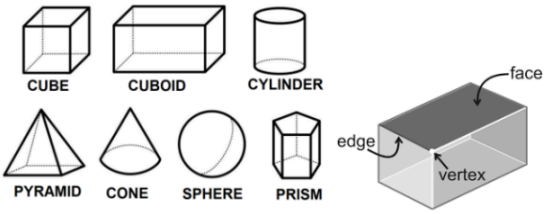
Angle in Parallel Lines



Angles in Polygons

- Sum of the interior angles of an n-sided polygon is $180(n - 2)$
- Sum of the exterior angles of any polygon is 360°
- interior angle + exterior angle = 180°

3D Shapes



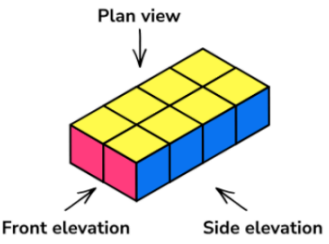
Describing Shape Transformations

Reflection: Line of reflection
Rotation: Centre, angle and direction
Translation: Vector
Enlargement: Centre and scale factor

Bearings

Measure from the north, measure clockwise and give three figures

Plans and Elevations



Maths Higher Tier

List of Facts and Formulae to Memorise: Higher Tier

This document lists the facts and formulae that will not be provided in your maths GCSE exam. Keep testing yourself until you get them right every time. This is not a full revision list – it only covers facts and does not list all the skills and procedures you also need to know.

Number Facts

- First fifteen square numbers: 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225
- First five cube numbers: 1, 8, 27, 64, 125
- Powers of 2: 2, 4, 8, 16, 32, 64, 128, ...
- Powers of 3: 3, 9, 27, 81, ...
- Powers of 4: 4, 16, 64, ...
- Powers of 5: 5, 25, 125, 625, ...
- Powers of 10: 10, 100, 1000, 10000, ...
- The triangular numbers: 1, 3, 6, 10, 15, 21, 28, ...
- The Fibonacci sequence: 1, 1, 2, 3, 5, 8, 13, 21, ...
- Primes: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, ...

Index Laws

$a^m \times a^n = a^{m+n}$

$a^m \div a^n = a^{m-n}$

$a^0 = 1$

$(a^m)^n = a^{m \times n} = a^{mn}$

$a^{-m} = \frac{1}{a^m}$

$a^{\frac{m}{n}} = \sqrt[n]{a^m}$

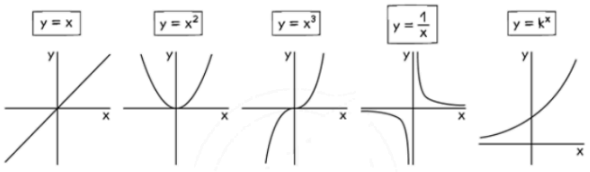
Inequalities

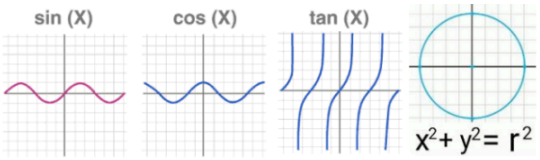
	Not included	Included
On a number line	o	●
Graphical	Dashed line	Solid line

Linear Graphs

- In $y = mx + c$, m is the gradient and c is the y-intercept
- $m = \frac{change\ in\ y}{change\ in\ x}$
- Parallel lines have the same gradient
- Perpendicular gradient = negative reciprocal
- $y = c$ is a horizontal line
- $x = a$ is a vertical line

Standard Graph Shapes





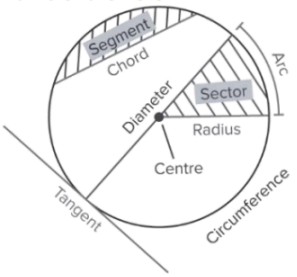
Graph Transformations

- $y = f(x + a)$: translate a units left
- $y = f(x) + a$: translate a units up
- $y = -f(x)$: reflect in x axis (vertical)
- $y = f(-x)$: reflect in y axis (horizontal)

Metric Unit Conversions

- Length: 10mm in 1cm, 100cm in 1m, 1000m in 1km
- Mass: 1000mg in 1g, 1000g in 1kg, 1000kg in 1 tonne
- Capacity 1000ml in 1l, 100cl in 1l

Parts of a Circle



Area

- Area of rectangle, square and parallelogram = base x perpendicular height
- Area of triangle = ½ x base x perpendicular height

Sectors and Arcs

- Area of sector (radius r, angle x): $\frac{x}{360}\pi r^2$
- Length of arc (diameter d, angle x): $\frac{x}{360}\pi d$

Describing Shape Transformations

Reflection: Line of reflection
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Invariance: When a point or shape remains in the same place after a transformation has been applied.

Types of Angle

- Acute: Between 0° and 90°
- Right: 90°
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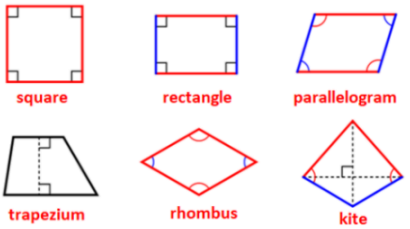
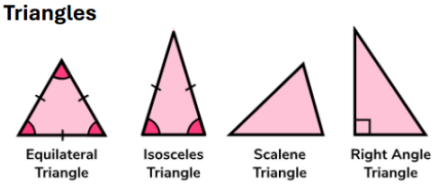
- Reflex: Between 180° and 360°

Quadrilaterals



Triangles



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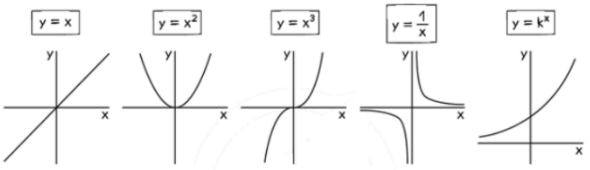

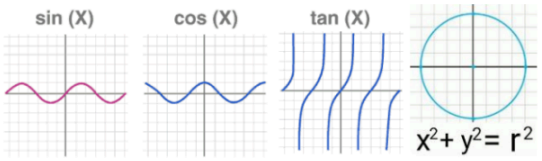

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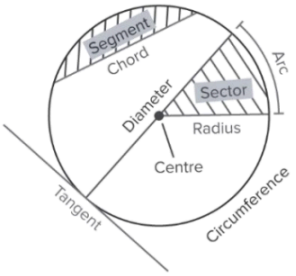

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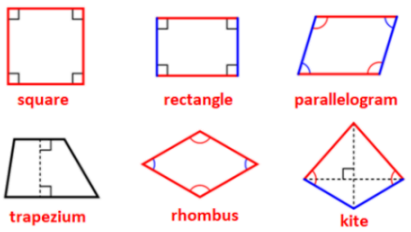

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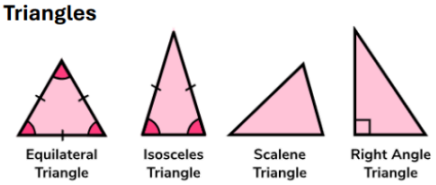


Proportion Formulae

- y is directly proportion to x: $y = kx$
- y is inversely proportional to x: $y = \frac{k}{x}$

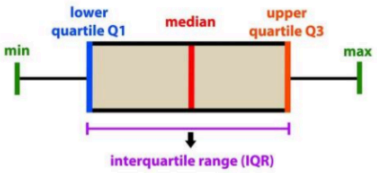
Exact Trig Values

	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	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	X

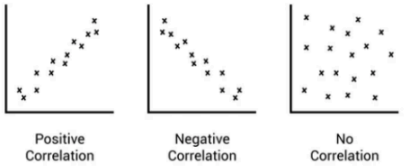
Averages and Spread

- Mode = most frequent value
- Median = middle value (when ordered)
- Mean = sum the values and divide by how many there are [from a grouped frequency table, estimate the mean using the midpoint of each class]
- Range = maximum value minus minimum value
- Interquartile range = upper quartile minus lower quartile

Box Plots



Scatter Graphs

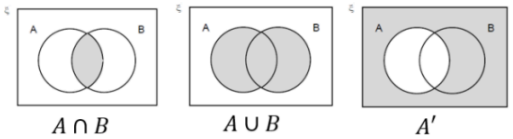


- Interpolation: making a prediction within the range of the data [using a line of best fit]
- Extrapolation: making a prediction outside the range of the data [unreliable]

Histograms

$$Frequency\ density = \frac{frequency}{class\ width}$$

Set Notation



Types of Sequence

- Arithmetic: add the same amount each time (common difference)
- Geometric: multiply by the same amount each time (common ratio)
- Quadratic: common second difference
- Fibonacci: add the previous two terms

Polygon Names

Angle Facts

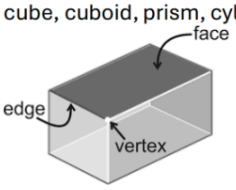
- Angles around a point sum to 360°
- Adjacent angles on a straight line sum to 180°
- Vertically opposite angles are equal
- Interior angles in a triangle sum to 180°
- Alternate angles in parallel lines are equal
- Corresponding angles in parallel lines are equal
- Co-interior angles in parallel lines sum to 180°
- Opposite angles in parallelograms are equal
- Interior angles in a quadrilateral sum to 360°
- Sum of the interior angles of an n-sided polygon is $180(n - 2)$
- Sum of the exterior angles of any polygon is 360°
- interior angle + exterior angle = 180°

Circle Theorems

- The angle at the centre is twice the angle at the circumference
- The angle in a semicircle is a right angle
- Angles in the same segment are equal
- Opposite angles of a cyclic quadrilateral sum to 180°
- A tangent meets a radius at 90°
- Tangents from an external point are equal in length
- The perpendicular from the centre to a chord bisects the chord
- The angle between a tangent and a chord is equal to the angle in the alternate segment

3D Solids

cube, cuboid, prism, cylinder, pyramid, cone and sphere



Similarity

- Length scale factor = k
- Area scale factor = k^2
- Volume scale factor = k^3

Bearings

Measure clockwise from the north and give three figures.

Congruency Proofs

- SSS: Side, Side, Side
- SAS: Side, Angle, Side (must be the included angle)
- ASA: Angle, Side, Angle
- RHS: Right Angle, Hypotenuse, Side

Compound Measures

Speed = Distance ÷ Time

Density = Mass ÷ Volume

Sharp minds in maths: where to look

- Parallel Maths by Simon Singh https://parallel.org.uk/
  This contains a selection of problem-solving and rich maths tasks.

- Corbett Maths https://corbettmaths.com/
  This contains video clips and worksheets (with answers) for every module in maths.

- Sparx Maths
  Try completing the Booster XP questions in your Sparx Maths

- Brilliant.org
  A selection of problem-solving and rich maths tasks

- https://nrich.maths.org/students/secondary
  Lots of challenging problem-solving activities designed by Cambridge University for secondary school students

Music

1	MAD TT SHIRT	Stands for: **M**elody - **A**rticulation - **D**ynamics - **T**empo - **T**exture - **S**tructure - **H**armony - **I**nstrumentation - **R**hythm - **T**onality			
2	consonant	Harmony where all the notes ‘fit together’			
3	dissonant	Harmony where the notes ‘clash’			
4	allegro / vivace	Fast	5	Allegretto	Quite fast
6	moderato / andante	At a moderate pace	7	Adagio / lento	Slow
8	accelerando (accel.)	Gradually getting faster			
9	ritardando (rit.) / rallentando (rall.)	Gradually getting slower			
10	rubato	Flexible tempo: sometimes speeding up and sometimes slowing down			
11	pianissimo (pp)	Very quiet	12	Mezzo piano (mp)	Moderately quiet
13	mezzo forte (mf)	Moderately loud	14	Fortissimo (ff)	Very loud
15	sforzando (sfz)	A sudden strong accent (emphasis) on a note			
16	conjunct	When the melody moves mostly by step			
17	disjunct	When the melody includes leaps			
18	arpeggio	A broken chord (the notes of a chord played in order up or down)			
19	sequence	The repetition of a musical idea but at a higher or lower pitch			
20	interval	The distance between 2 notes			
21	fanfare	A short piece of music, typically played on brass instruments to announce an important event			
22	metre	The number of beats per bar; can be described as duple, triple or quadruple			
23	simple time signature	Eg. 2/4, 3/4 or 4/4			
24	compound time signature	Eg. 6/8, 9/8 or 12/8			
25	pizzicato	Plucking on a string instrument normally played with a bow, eg. violin			
26	arco	Performed with the bow			
27	slurred	Notes joined together smoothly (all in one bow on a string instrument, or without tonguing on a wind instrument)			
28	glissando	A slide between notes			
29	vibrato	Rapid fluctuation in pitch to warm up the sound (achieved by wobbling your finger on the fingerboard in the case of a string instrument!)			
30	falsetto	Male vocal technique used to extend into a higher range than usual			
31	rate of harmonic change	How often the chords change, eg. one chord per bar			

32	syllabic	One note per syllable			
33	melismatic	More than one note per syllable			
34	driving rhythm	An energetic rhythm that pushes the music forwards			
35	perfect cadence	V - I	36	Plagal cadence	IV - I
37	imperfect cadence	Something - V	38	Interrupted cadence	V - VI
39	walking bass	A bass line in on-the-beat crotchets, common in blues			
40	swing rhythms	Unequal quavers, giving a triplet feel; common in jazz			
41	a cappella	Unaccompanied vocal music			
42	monophonic	A single line of unaccompanied melody			
43	homophonic	A melody plus chords			
44	polyphonic	A number of melodies weaving around each other			
45	imitation	When a musical idea is copied in another part			
46	call and response	When a phrase in one part is followed by a responding phrase in another			
47	Baroque	Musical period from 1600 - 1750; composers include Bach			
48	Classical	Musical period from 1750 - 1810; composers include Mozart			
49	Romantic	Musical period from 1810 - 1910; composers include Chopin			
50	basso continuo	A Baroque accompaniment style consisting of a bass line on an instrument such as cello, and chords on an instrument such as harpsichord			
51	string quartet	2 violins, one viola and one cello; a popular ensemble in the Classical period			
52	trill	An ornament; rapid alternation between a note and the note above			
53	anacrusis	An upbeat (a note or notes before the first strong beat)			
54	drone / pedal	A repeated or held note or notes			
55	alberti bass	A type of (Classical) broken chord accompaniment			
56	binary	AB			
57	ternary	ABA			
58	rondo	ABACA			
59	theme and variations	A A^1 A^2 A^3 etc.			

Sharp minds in music: where to look

- Attend an extra-curricular music club for at least a term
- Take part in the school production
- Attend a concert or production, either within or outside school
- Spend extended time outside of class practising and composing

PE

	Chapter 4: Sports Psychology	
	Word or term	**Definition**
1	ability	Inherited, stable traits that determine an individual's potential to learn or acquire a skill.
2	arousal	A physical and mental (physiological and psychological) state of alertness/readiness, varying from deep sleep to intense excitement/alertness.
3	closed skill	A skill which is not affected by the environment or performers within it. The skill tends to be done the same way each time.
4	direct aggression	Aggressive act which involves physical contact with others, eg a punch.
5	externally-paced skill	The skill that is started because of an external factor. The speed, rate or pace of the skill is controlled by external factors, eg an opponent.
6	extrinsic feedback	Received from outside of the performer, eg from a coach.
7	extrovert	Sociable, active, talkative, out-going personality type usually associated with team sports players.
8	feedback	Information a performer receives about their performance. Feedback can be given during and/or after performance.
9	fine movement (skill classification)	Small and precise movement, showing high levels of accuracy and coordination. It involves the use of a small group of muscles.
10	goal setting (SMART goals)	A method to increase motivation and reduce anxiety. Goals should be SMART: • specific – specific to the demands of the sport/muscles used/movements used • measurable – it must be possible to measure whether they have been met • accepted – they must be accepted by the performer and others involved, eg coach • realistic – they are actually possible to complete • time bound – over a set period of time.
11	goal types (performance goals and outcome goals)	Performance goals: Personal standards to be achieved. Performers compare themselves against what they have already done or suggest what they are going to do. There is no comparison with other performers. Outcome goals: Focus on end result/winning.
12	gross movement (skill classification)	Using large muscle groups to perform big, strong, powerful movements.
13	guidance	A method to convey information to a performer. Guidance methods: • visual (seeing) • verbal (hearing) • manual (assist movement – physical) • mechanical (use of objects/aids).
14	indirect aggression	Aggression which does not involve physical contact. The aggression is taken out on an object to gain advantage, eg hitting a tennis ball hard during a rally.
15	information processing	Making decisions. Gathering data from the display (senses), prioritising the most important stimuli to make a suitable decision. Input- Decision making- Output- Feedback
16	intrinsic feedback	Feedback given to yourself. See Kinaesthetic feedback.
17	introvert	A quiet, passive, reserved, shy personality type, usually associated with individual sports performance.
18	kinaesthetic feedback	It's a type of intrinsic feedback, received via receptors in the muscles. Sensations that are felt by the performer, providing information from movement.
19	mental rehearsal/ visualisation/imagery	Cognitive relaxation techniques involving control of mental thoughts and imagining positive outcomes.
20	motivation	The drive to succeed or the desire (want) to achieve something/to be inspired to do something. This can be: • intrinsic – the drive that comes from within (eg for pride, satisfaction, a sense of accomplishment, self-worth) or • extrinsic – the drive to perform well or to win in order to gain external rewards (eg prizes, money, praise).

21	open skill	A skill which is performed in a certain way to deal with a changing or unstable environment, eg to outwit an opponent.
22	positive self-talk	Developing cognitive positive thoughts about your own performance.
23	self-paced skill	The skill is started when the performer decides to start it. The speed, rate or pace of the skill is controlled by the performer.
24	skill	A learned action/learned behaviour with the intention of bringing about predetermined results, with maximum certainty and minimum outlay of time and energy.
25	skill classification	Categorisation of sporting skills in accordance with set continua. These include: • simple/complex continua • open/closed continua • self-paced/externally-paced continua • gross/fine continua.
26	tangible	Something that can be seen and touched, eg a trophy.

	Chapter 5 Socio-cultural Influences	
1	anabolic steroids	Artificially produced male hormones mimicking testosterone. They promote muscle and bone growth, and reduce recovery time. Often used by power athletes, eg sprinters.
2	beta blockers	Drugs that are used to steady nerves by controlling heart rate. They have a calming and relaxing effect.
3	commercialisation	To manage or exploit (an organisation, activity, etc) in a way designed to make a profit. The specification refers to commercialised activity as being sponsorship and the media only.
4	contract to compete	Unwritten agreement to follow and abide by the written and unwritten rules.
5	diuretic drugs	Drugs that remove fluid from the body, elevating the rate of bodily urine excretion.
6	erythropoietin (epo)	A type of peptide hormone that increases the red blood cell count.
7	etiquette	A convention or unwritten rule in an activity. It is not an enforceable rule but it is usually observed.
8	gamesmanship	Attempting to gain an advantage by stretching the rules to their limit, eg time wasting.
9	hooliganism	Disorderly, aggressive and often violent behaviour by spectators at sporting events.
10	home field advantage	Gaining an advantage in a sporting event from being in familiar surroundings, with the majority of the spectators supporting you.
11	media	Diversified technologies which act as the main means of mass communication. These include: • printed media (eg newspapers) • broadcast media (eg TV and radio) • internet/social media (eg Facebook) • outdoor media (eg billboards).
12	narcotic analgesics	Drugs that can be used to reduce the feeling of pain.
13	peptide hormones	Drugs that stimulate the production of naturally occurring hormones (eg EPO), which increase red blood cell count/oxygen carrying capacity.
14	role model	A person looked to by others as an example to be imitated.
15	sponsor	An individual or group that provides financial support to an event, activity, person, or organisation.
16	sponsorship	Provision of funds or other forms of support to an individual or event in return for some commercial return.
17	sportsmanship	Conforming to the rules, spirit and etiquette of a sport. Static stretching Holding a stretch still/held/isometric.
18	stimulants	Drugs that have an effect on the central nervous system, ie they increase mental and/or physical alertness.

	Chapter 6: Health, Fitness & Well-being	
1	balanced diet	It is defined as eating: • the right amount (for energy expended) • the right amount of calories • according to how much you exercise • different food types to provide suitable nutrients, vitamins and minerals.
2	body composition	The percentage of body weight which is fat and non-fat (muscle and bone).
3	calorie	A unit which measures heat or energy production in the body, normally expressed as Kcal.
4	carbohydrate	The body's preferred energy source.
5	dehydration	Excessive loss of body water interrupting the function of the body. Hydration Having enough water to enable normal functioning of the body. Rehydration Consuming water to restore hydration.
6	ectomorph	A somatotype characterised by being tall and thin. Individuals with narrow shoulders and narrow hips.
7	endomorph	A somatotype, characterised by a pear shaped body/fatness. Individuals with wide hips and narrow shoulders.
8	health	A state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity
9	mesomorph	A somatotype, characterised by a muscular appearance. Individuals with wide shoulders and narrow hips.
10	obese	A term used to describe people with a large fat content, caused by an imbalance of calories consumed to energy expenditure. A body mass index (BMI) of over 30 or over 20% above standard weight for height ratio.
11	sedentary lifestyle	A lifestyle with irregular or no physical activity.
12	somatotype	A method of classifying body type. Body types: • ectomorph • endomorph • mesomorph
13	vitamins	Organic substances that are required for many essential processes in the body, eg Vitamin A for structure and function of the skin.

Sharp minds in PE: where to look

- GCSE PE ' google classroom- You will find all lesson materials here (powerpoints / handouts) + 'stuck' videos, past paper questions & coursework guidance.
- Sky Sports news / BBC Sport & watching LIVE sports -Keep up to date with all sporting events. This will help you when preparing for AO2 based questions (applying your knowledge to sporting examples).
- AQA GCSE PE specification- Refer to this when preparing for your practical moderation, look specifically at the 5 key skill areas for each sport and what is required in the competitive component of the assessment.
- BBC bitesize (https://www.bbc.co.uk/bitesize/examspecs/zp49cwx)- Use this website when learning or, revisiting a topic

Photography

	Word or term	Definition
1	ambient	Another term for ‘natural light’, meaning light only from the sun.
2	aperture	The opening in the lens that lets light through. This can be made wider or smaller and is measured in F-Stops (see below). The wider the aperture, the more light is let in.
3	artificial light	Any light created that isn’t naturally occurring, via mains power or battery.
4	blur	When a photo is not sharp. The subject of the photo may be hazy, unclear or out of focus.
5	burst mode	Usually you take one photo at a time but you can take multiple images in a row using burst mode. When in burst mode the camera will keep taking images at a set frame rate until you release the shutter. Particularly useful when capturing moving objects.
6	candid	A photo of a person that isn’t posed. Most often the person won’t know their photo is being taken and it will therefore be more natural.
7	composition	The composition is how and where elements of your photograph are put together.
8	exposure	How much light hits the sensor. The higher the exposure, the brighter the image.
9	filter	A glass or plastic ring attached to your lens to create a certain effect. (See also ND filter)
10	fish eye	The term is used when a wide angle is so extreme it creates a panoramic or hemispherical image, resulting in distortion which creates a ‘bulging’ effect.
11	golden hour	The time of day right before sunset or right after sunrise when the sun is at it’s lowest on the horizon. Considered by many as the best time for flattering natural light photography.

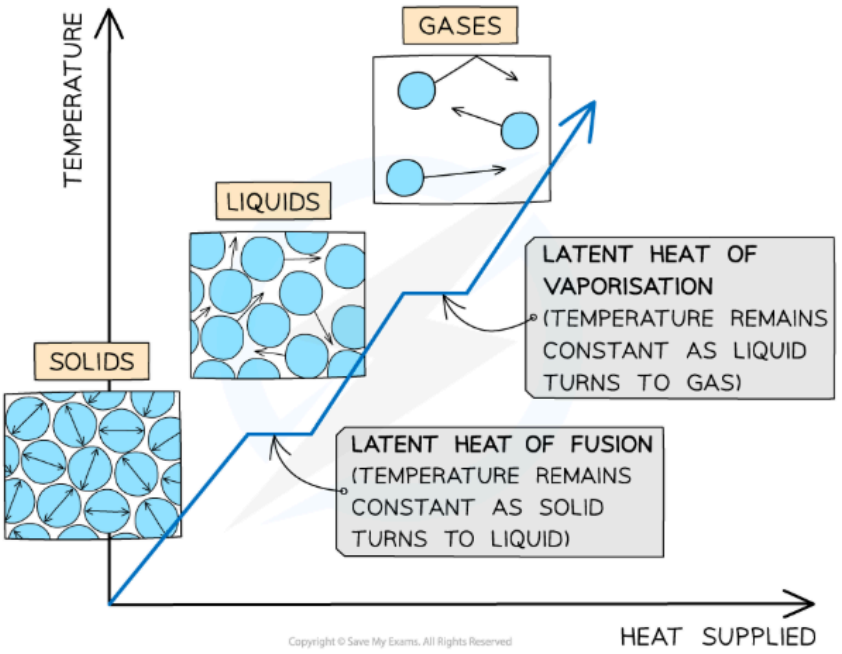
12	lens	An optical lens made of glass, used in conjunction with a camera body to make images. It can be permanently fixed to a camera or it can be interchangeable. Different lenses have different focal lengths and apertures, and therefore will affect how the light hits the sensor in your camera.
13	macro	Macro lenses have the ability to focus to 1:1 magnification, so the size of the image in real life can be the same size as it's reproduced on the sensor. They also allow you to be able to focus a lot closer to your subject than normal lenses would.
14	resolution	The measurement of the quality of an image or screen, characterised in pixels squared. For example, high definition (HD) resolution is described as 1080 x 1920 pixels. Therefore, the lower the resolution, the more pixelated an image becomes. Uploading an image to the internet or using it in any digital capacity usually requires the image to be a minimum resolution.
15	saturation	Saturation means the colour intensity of an image.
16	shooting	Slang which refers to the practice of taking a photo by pointing and aiming your camera.

Sharp minds in photography: where to look

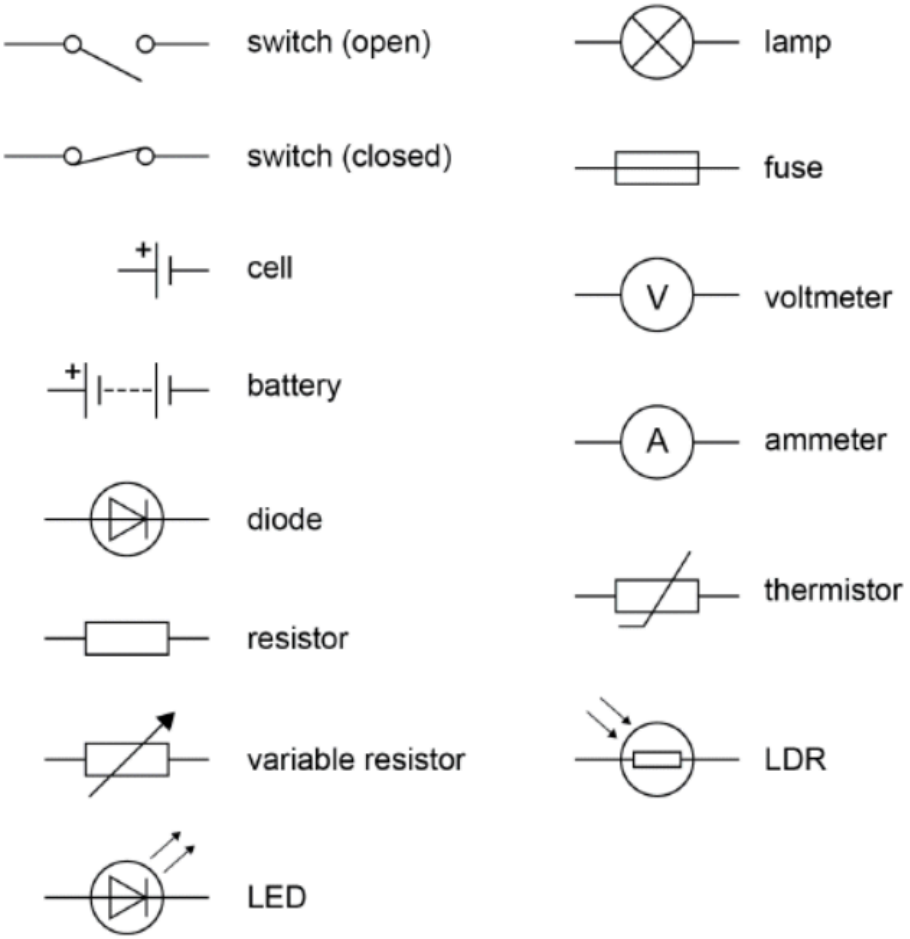
- Focus on demonstrating a clear process of development with varied experimentation, insightful artist research, and meaningful reflection.
- Show a coherent progression of ideas from initial mind maps and photoshoots to refined final pieces, ensuring all your digital sketchbook links together.
- Stay well-organised making sure that your presentation makes sense and it is easy for the examiner to understand your thought process.
- Visit galleries and or their websites as often as possible to give you inspiration:
    - https://thephotographersgallery.org.uk/
    - https://www.tate.org.uk/
    - https://www.npg.org.uk/
    - https://www.saatchigallery.com/

Physics

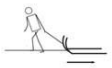
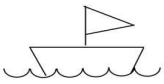
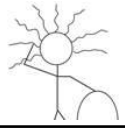
Learn this graph and add to it with the names of the changes in state, which aspect of internal energy changes and where specific heat capacity is relevant.



Here are the circuit symbols you need to know to study electricity:



Physics continued

Force name	Explanation/description	Contact/ non contact?
Weight – also known as the gravitational force	The gravitational force acts between all objects with mass. The gravitational force on an object is called the object's "weight".	Non Contact
The normal force (and the normal reaction force)	Because the book is touching the desk, the book is exerting a "normal force" on the desk: the book is pushing on the desk. It is called the normal force because it is at right angles to the surface.	Contact
tension 	A pulled or stretched object exerts the tension force on the object pulling it. So, a stretched spring pulls on the weight with the tension force.	Contact
friction 	Friction always acts in the direction opposite to the motion. It happens because the two surfaces are not completely smooth, but have bumps and dips which mesh together	Contact
air resistance 	When an object moves through air, the normal force between molecules in the air and the surface of the object means the air pushes on the object against the direction of motion.	Contact
water resistance 	When an object moves through water, the normal force of the water particles on the object acts in opposition to the motion of the object.	Contact
upthrust 	If an object is placed in water, then the water molecules will exert a normal force on the object. The normal force on the bottom of the object is directed upwards.	Contact
force from engine/ thrust 	Objects such as rockets and cars make use of an engine to provide a forwards force. We can call this force the thrust.	Contact
magnetism	Magnetism acts between magnets and magnetic materials. It is attractive or repulsive depending on the poles concerned.	Non Contact
electrostatic force 	Electrostatically charged objects will attract or repel each other depending on if the charges are like or opposite.	Non Contact

* Sharp minds can be found under 'Science'.

Psychology

Criminal Psychology

	Word or term	Definition
1	extraversion	Sociable, assertive, excitable personality trait
2	neuroticism	Poor emotional control; anxious, moody
3	psychoticism	Aggressiveness, hostility, lack of empathy
4	positive reinforcement	Strengthens a behaviour by reward
5	punishment	Consequence that reduces a behaviour
6	role model	Individual whose behaviour is imitated
7	deterrent	Discouraging behaviour via punishment/fear

Development

1	assimilation	The process of making new information fit into existing mental frameworks or schemas
2	accommodation	The process where an individual modifies their existing schemas, to incorporate new information or experiences that don't fit their current understanding
3	object permanence	Knowing objects exist even when unseen
4	conservation	Understanding quantity remains the same despite changes in appearance
5	fixed mindset	Belief that abilities cannot be changed
6	growth mindset	Belief that abilities can develop with effort
7	reductionism	Viewing human behaviour from a simple perspective and ignoring other factors, such as the influence of people around us
8	holism	The view that human behavior and experience should be studied as a whole, integrated system rather than being broken down into separate, simpler parts

Psychological Problems

1	biological theory of schizophrenia	Too many d2 receptors cause too much dopamine transmission, leading to hallucinations and delusions.
2	social drift theory of schizophrenia	Having schizophrenia causes a ‘downward spiral’ for the individual in society (rather than vice versa), leading to disengagement and rejection from society.

3	ABC model of depression	The theory that it is not a negative event itself that causes unhealthy emotional consequences like depression, but rather a person's irrational beliefs about that event.
4	social rank theory of depression	An evolutionary theory suggesting that when individuals consistently fail to meet goals or suffer a ‘defeat’ it may trigger a "shutdown strategy" – the core components of depression e.g. isolation and withdrawal – to prevent further conflict and loss.
5	stigma	Negative attitudes about mental illness.
6	discrimination	Unfair treatment due to mental health condition.
7	free will	Having the ability to make our own decisions and act of our own accord.
8	determinism	The idea that our behaviour is controlled by internal or external forces rather than our own free will.

Research Methods

1	Independent variable (IV)	Variable manipulated in an experiment.
2	Dependent variable (DV)	Variable measured as the outcome.
3	extraneous variables	Uncontrolled variables that may affect results.
4	co-variables	Variables tested for correlation.
5	independent measures design	Different participants in each condition.
6	repeated measures design	Same participants in all conditions.
7	target population	Group the researcher wants to study.
8	sample	Participants chosen from population.
9	reliability	Consistency of measurement or results.
10	validity	Accuracy of results and conclusions.
11	demand characteristics	When participants change behaviour due to study awareness.
12	bias	Systematic errors (gender, cultural, experimenter, observer bias).

Sharp minds in psychology: where to look

- Watch the revision videos on the Hartismere Psychology youtube channel https://www.youtube.com/@hartismerepsychology4673
- There are also excellent revision videos on a channel called PsychSpace PsychSpace - YouTube
- You could practise past exam questions OCR GCSE Paper 1 Psychology Past Papers - PMT
- Listen to the ‘Speaking of psychology’ podcast Podcast: Speaking of Psychology - YouTube

Religious Studies

Christianity

	Word or term	Definition
1	omnipotent	All-powerful: God has unlimited power.
2	omniscient	All-knowing: God knows everything.
3	omnibenevolent	All-loving: God's nature is completely good and loving.
4	omnipresent	God is present everywhere at all times.
5	Trinity	God as three persons: Father, Son, and Holy Spirit.
6	incarnation	God becoming human in the form of Jesus.
7	resurrection	Jesus rising from the dead on Easter Sunday.
8	crucifixion	The method of Jesus' execution on the cross.
9	ascension	Jesus' return to Heaven 40 days after the resurrection.
10	salvation	Being saved from sin and its consequences.
11	literalist	Someone who believes the Bible is 100% factually true.
12	non-literalist	Someone who interprets Bible stories symbolically or metaphorically.

Relationships & families

	Term	Definition
1	cohabitation	Living together in a sexual relationship without being married.
2	natural contraception	Methods that involve timing (e.g. rhythm method) to avoid pregnancy.
3	artificial contraception	Man-made methods (e.g. condoms, the pill) to prevent pregnancy.
4	extended family	A family including more than just parents and children (e.g. grandparents).
5	nuclear family	A basic family unit of parents and children.
6	step family	A step-family formed after remarriage.
7	polygamy	Having more than one spouse at the same time (illegal in the UK).

Sharp minds in religious studies: where to look

BBC bitesize:

- https://www.bbc.co.uk/bitesize/topics/z382xbk/articles/zrn6ywx#zbhqp9q
- https://www.bbc.co.uk/bitesize/guides/z683rwx/revision/1
- https://www.bbc.co.uk/bitesize/guides/zrpqmsg/revision/1

Seneca:

- You have been added to a seneca classroom with topics and assignments that will help you with keywords and exam practice.

Google classroom:

- There are lots of resources to use on the Google Classroom. Here you will find booklets and powerpoints.

Science

	Word or term	Definition
1	accuracy	Results are considered accurate if they are close to the true value.
2	anomaly	A result which does not fit with the pattern seen in the rest of the results
3	data	Information collected in an experiment
4	evidence	Information collected by observation or measurement that supports a scientific prediction or hypothesis.
5	error	The difference between a measured value and the true value.
6	random error	Readings spread about the true value. These can be larger or smaller and cannot be corrected but can be reduced.
7	systematic error	Readings vary by the same amount each time. Can be removed or corrected by repeating with a new technique or equipment.
8	zero error	Occurs when a system displays a false reading when the true value is zero.
9	hazard	Something that could cause harm
10	hypothesis	A prediction based on scientific reasoning.
11	interval	The quantity or space between readings.
12	mean	A type of average. Calculated by adding all the values up and then dividing by the number of values
13	prediction	A statement suggesting what will happen in the future.
14	precaution	Something that reduces the risk of harm
15	precision	If repeat measurements do not vary much around the mean value they are precise. If there is a large spread in repeat readings precision is low..
16	range	The maximum and minimum values of the variables.
17	risk	How likely harm is to be caused
18	repeatable	When repeating an experiment the same scientist gets the same results with the same method and equipment.

19	reproducible	When a different scientist or a different method or equipment gets the same results or trend.
20	resolution	Smallest change in what is measured that gives a detectable change on the measuring equipment..
21	true value	Value that would be obtained in an ideal measurement.
22	uncertainty	Interval within which the true value can be expected to lie. For example a measurement of a leaf of 3.5 +/- 0.2 cm means the length could be anywhere between 3.3cm and 3.7cm.
23	validity	Suitability of an experiment to answer the question being asked.
24	valid data	An experiment in which only the independent variable affects the dependent variable.
25	valid conclusion	A conclusion supported by valid data from an appropriate experiment.
26	categoric variable	Variables with values that are labels or set categories. For example, eye colour
27	continuous variable	Variables with values that are measured or counted and take and value. For example temperature or time.
28	control variable	Something that could affect the outcome and should be kept constant.
29	dependent variable	Variable that is measured.
30	independent variable	The variable that is being changed in an investigation

Sharp minds in Science: where to look

- **Activity: IOP "Do Try This at Home"**
  The Institute of Physics offers simple but impressive physics experiments to try at home, such as making a cloud in a bottle or exploring momentum with eggs.
  Website: iop.org/explore-physics

- **Website: BBC Bitesize – GCSE Science**
  Interactive revision guides, quizzes, and videos for all three sciences, tailored to the GCSE syllabus. Ideal for extending classroom knowledge.
  Website: bbc.co.uk/bitesize/subjects

- **Book: "The Science Book" by DK**
  Part of DK's Big Ideas series, this book explains key scientific concepts and discoveries with clear graphics – great for building background knowledge.

- **YouTube Channel: Physics Girl**
  Hosted by Dianna Cowern, this channel explores fascinating physics concepts and questions in an accessible and often surprising way.

- **Podcast: "Science Vs"**
  This podcast compares scientific facts to popular myths and opinions on topics like climate change, vaping, and fast food – ideal for developing critical thinking.

Spanish

Key verbs in three tenses

Past tense	Present tense	Future tense
Jugué = I played	Juego = I play	Voy a jugar = I am going to play
Comí = I ate	Como = I eat	Voy a comer = I am going to eat
Vi = I watched	Veo = I watch	Voy a ver = I am going to watch
Escuché = I listened	Escucho = I listen	Voy a escuchar = I am going to listen
Visité = I visited	Visito = I visit	Voy a visitar = I am going to visit
Hice = I did	Hago = I do	Voy a hacer = I am going to do
Fui = I went	Voy = I go	Voy a ir = I am going to go
Fue = it was	Es = it is	Será = it will be
		Me gustaría = I would like

Opinions

Opinion phrase	Positive	Negative
En mi opinión = in my opinion	divertido = fun/funny	aburrido = boring
Pienso que = I think that	interesante = interesting	terrible = awful
A mi parecer = according to me	genial = great	difícil = difficult
Creo que = I believe that	fantástico = fantastic	molesto = annoying
Diría que = I would say that	útil - useful	agotador = tiring
	guay = cool	desagradable = unpleasant
	inolvidable = unforgettable	insoportable = unbearable

Family and relationships

1	Me llevo bien con	I get on well with
2	Me llevo mal con	I get on badly with
3	Me peleo con	I argue with
4	Me divierto con	I have fun with
5	Mi padrastro	My (step) dad
6	Mi madrastra	My step mum
7	Es hablador/a	He/She is chatty
8	Es antipático/a	He/She is mean
9	Es simpático/a	he/She is nice
10	Es divertido/a	He/She is funny

Healthy living and lifestyle

1	Estoy enfermo	I am ill
2	Me duele la cabeza	I have a headache
3	Estoy en forma	I am in good shape
4	Estoy sano/a	I am healthy
5	Como verduras / carne	I eat vegetables / meat
6	Nunca como pastel / chocolate	I never eat cake / chocolate
7	Bebo agua	I drink water
8	Hago ejercicio	I do exercise
9	Duermo bien	I sleep well
10	No fumo	I don't smoke

Education and work

1	Me encanta el español / la historia	I love Spanish/ History
2	Mi asignatura favorita es …	My favourite subject is…
3	En el futuro me gustaría…	In the future I would like…
4	Hacer bachillerato / formación profesional	to go sixth form / college
5	Ir a la universidad	to go to university
6	trabajar	to work
7	Hacer un aprendizaje	to do an apprenticeship
8	viajar	to travel
9	casarme	to get married
10	Ser profesor(a) / cantante	to be a teacher / singer

Free-time activities

1	Juego al rugby / al fútbol / al baloncesto	I play football / rugby / basketball
2	Juego a los videojuegos / a las cartas	I play video games / cards
3	Toco la guitarra / el piano	I play the guitar / the piano
4	Hago ciclismo / natación / deporte	I go biking / swimming / sport
5	Voy de compras	I go shopping
6	Veo la tele / películas	I watch TV / films
7	Escucho música / la radio	I listen to music / the radio
8	Como en un restaurante / una pizza	I eat at a restaurant / a pizza
9	Leo libros / revistas	I read books / magazines
10	Visito el museo / es castillo	I visit the museum / the castle
11	Voy al cine / al centro	I go to the cinema / into town

Customs, festivals and celebrations

1	Navidad / Año Nuevo / Pascua	Christmas / New Year / Easter
2	Como pastel / chocolate	I eat cake / chocolate
3	Paso tiempo con mi familia	I spend time with my family
4	Doy / recibo / abro regalos	I give / receive / open presents
5	Bebo cava	I drink champagne
6	Celebro con una fiesta	I celebrate with a party
7	Voy a un festival de música	I go to the music festival
8	Canto	I sing
9	Bailo	I dance
10	Hay fuegos artificiales	There are fireworks

Sharp minds in Spanish: where to look

- BBC Bitesize : https://www.bbc.co.uk/bitesize/examspecs/zjgpg2p
- Quizlet – make revision cards and learn vocabulary
- Lingo Clip – listen to music and improve your Spanish https://lingoclip.com/es
- Watch Spanish films and television programmes on Netflix, having subtitles in English is absolutely fine.
- Conjuguemos - practise verb conjugations and grammar points https://conjuguemos.com/activities/spanish/grammar/1

  https://conjuguemos.com/activities/spanish/verb/1

Sport and Coaching Principles

	Unit 1: Fitness for Sport	
1	abduction	A movement away from the midline of the body.
2	adduction	A movement towards the midline of the body.
3	aerobic energy system	Produces energy using glycogen obtained from carbohydrates. Oxygen is used in the production of energy. Suited to low/moderate aerobic activity over a long period of time. Provides energy indefinitely.
4	anaerobic energy system	Produces energy using two different systems (ATP-CP and lactic acid) without the presence of oxygen. Suited to high-intensity exercise over a short period of time. Provides energy for approximately 90 seconds. Lactic acid is a by-product of this system and causes fatigue.
5	antagonist	The opposite muscle to the agonist; it relaxes when the agonist contracts.
6	atp-cp energy system	ATP-CP energy system – Supplies energy faster than the other energy systems. Suited to explosive, high-intensity exercise of short duration without the presence of oxygen. Provides energy for approximately 10-15 seconds.
7	cardiac output	The volume of blood pumped out of the heart per minute (HR x Stroke volume).
8	cardio-respiratory system	Made up of the heart, lungs and the blood vessels. Its main function is to transport oxygen from the air we breathe into the body and remove carbon dioxide and other waste products out of the body.
9	cardio-vascular system	Made up of the heart and blood vessels. Its main functions are to transport oxygen to the working muscles, remove carbon dioxide and other waste products from the body and maintain appropriate body temperature.
10	circumduction	A circular movement at a joint that involves flexion, extension, abduction and adduction.
11	extension	Straightening a joint. This occurs when the angle of a joint increases.
12	fast twitch/type ii muscle fibre	Muscle fibres with a good blood supply which contract quickly and with a
13	flexion	Bending a joint. This occurs when the angle of a joint decreases.
14	gaseous exchange	The transfer of oxygen from inhaled air into the blood and of carbon dioxide from the blood into exhaled air.
15	heart rate	The number of times the heart beats per minute (bpm).
16	hypertrophy	An increase in muscle size. It is one of the long-term effects of exercise on the body.
17	minute ventilation	The volume of air breathed in and out per minute.
18	muscular-skeletal system	Made up of the skeletal system and the muscular system. Allows different types of the body's movement patterns to take place.
19	prime mover/agonist	The muscle that controls the body movement.
20	rotation	A twisting movement at a joint.
21	slow twitch/type i muscle fibre	Muscle fibres with a poor blood supply, that contract slowly and with a low force. Suited to low- or moderate-intensity aerobic exercise over a long period of time.
22	stroke volume	The volume of blood pumped out of the heart per beat.
23	synovial joints	Freely moveable joints containing synovial fluid that allow a wide range of movement to take place. Different types of joint allow different types of movement.
24	tidal volume	The volume of air inhaled or exhaled per breath.
25	training zones	Intensities of training based on heart rates in which aerobic improvement (60-80% of maximum heart rate), anaerobic improvement (80-90% of maximum heart rate) and maximal effort (above 90% of maximum heart rate) take place.
26	vasoconstriction	The closing of the blood vessels.
27	vasodilation	The opening of the blood vessels.

Sport and Coaching Principles continued

	Unit 2 - Improving Sporting Performance	
1	agility	The ability to change direction at speed.
2	anxiety	A feeling of unease that can cause a lack of focus and an increased level of tension and nerves. Anxiety can have somatic (physical) effects or cognitive (mental) effects on an athlete.
3	balance	The ability to maintain the stability of the body's centre of gravity above the base of support.
4	body composition	The ratio between body fat and muscle tissue and the impact of this on body weight.
5	body type	Also known as somatotype. Refers to the idea that there are three predetermined body types: endomorph, ectomorph and mesomorph.
6	cardio-vascular endurance	The ability to exercise for a sustained period of time.
7	continuous training	Training without rest periods (continually) at submaximal levels for a long period of time using the aerobic system. An example of this would be jogging.
8	co-ordination	The ability to move two or more body parts at the same time.
9	energy balance	The relationship between energy consumed and energy expended in terms of exercise.
10	feedback	Any information an athlete receives about an aspect of their performance. The information can come from inside the athlete(intrinsic) or from an external source (Extrinsic). Knowledge of performance (KP) focuses on the quality of a performance while knowledge of results (KR) focuses on the outcome of a performance
11	fitness tests	Methods of measuring and assessing the components of health and fitness. Offers a baseline of data.
12	flexibility	The range of movement around a joint.
13	health tests/screening	Procedures for measuring and assessing body composition, blood pressure and heart rate.
14	imagery/mental rehearsal	A strategy that involves the athlete imagining themselves successfully completing parts of or their whole sporting performance.
15	interval training	Training at high intensity for a short period of time and then resting before exercising again. Examples include circuit training and plyometric training.
16	motivation	The drive and desire to perform to the best of your ability. It can come from within the athlete (intrinsic motivation) or from outside sources (extrinsic motivation).
17	muscular endurance	The ability to exercise a specific muscle or muscle group for a sustained period of time.
18	muscular strength	The maximum force a muscle can generate against a resistance.
19	notational analysis	Watching a sporting performance and recording key pieces of information about it. The data recorded is usually quantitative.
20	nutrition plan	A structured series of meal plans, drinks and supplements put together to ensure a sports performer receives the nutrients they need to maximise their performance.
21	power	Speed multiplied by strength.
22	principles of training	The principles that must be applied to any training programme if it is to be effective and efficient. These principles are specificity, progression, overload and variance.
23	qualitative data	Unmeasurable data based on opinion, thoughts or feelings.
24	quantitative data	Measurable data based on empirical or numerical figures and statistics.
25	reaction time	The time taken to respond to a stimulus.

26	reliability	The extent to which a test produces the same result when repeated. Fitness tests must be administered accurately to be reliable and for comparisons with normative data to be accurate.
27	self-talk	A strategy that involves the athlete repeating key messages to themself before and during their sporting performance to reduce levels of anxiety and stress and to focus on the key elements of their technique, skills or strategies.
28	SMART goals and target setting	SMART goals and target setting – Processes that can be used to focus an athlete's efforts and increase their motivation by providing them with long-term SMART goals and short-term targets to aim for.
29	speed	The ability to move the body, or a body part, as quickly as possible from point A to B.
30	strategies/game plans	Overall plans involving teams or individual players put in place by players or coaches to maximise the chances of winning. Considered in these plans will be the strengths and weaknesses of the individual or team themselves and the opposition along with various other factors. It is difficult to change a strategy/game plan during a performance.
31	subjective	Opinion, thoughts or feelings describing qualities or characteristics.
32	tactics	Methods of play put in place to facilitate the strategy/game plan. They will look to utilise the individual's or team's skills to the best possible advantage.
33	techniques	Particular methods of carrying out movements associated with different sporting activities. They can be changed quickly during a performance if needed.
34	training programme	A structured series of training sessions designed to improve specific elements of an individual's or team's performance.
35	types of guidance	These are the different ways in which a coach can provide guidance for an athlete. The types of guidance they can provide are verbal, visual, mechanical and manual. The most appropriate type of guidance for a coach to use will depend on the ability and experience of the individual or team and the specific sporting activity being developed
36	types of practice	These are the different types of practice that a coach can use during coaching sessions. The types of practice they can use will vary, and the most appropriate to use will depend on the ability and experience of the individual or team and the specific sporting activity being developed.
37	validity	Fitness tests must measure the required component of health or fitness in order to be valid.

	Unit 3 - Coaching Principles	
1	aims	What you hope to achieve. These are often in the form of long term goals.
2	conditioned/small-sided/competitive elements and practices	Different types of activity of different levels of intensity and competition that can be included during a coaching session to develop skills, techniques, strategies/game plans or tactics.
3	cool down	The final component of a coaching session. It consists of activities designed to remove waste products from the muscles and to return the heart rate to normal.
4	drills	Exercises or activities designed to improve a skill or technique that can be repeated during a coaching session.
5	health and safety	Regulations and procedures intended to prevent accidents or injuries.
6	professional conduct	Professional conduct – The ethics, morals and standards of behaviour expected of someone in a position of responsibility (such as a sports coach).
7	responsibility	Having a duty to deal with something.
8	risk assessment	The systemic process of identifying and evaluating the potential hazards and risk factors involved in planned activities.
9	safeguarding	Appropriate measures and procedures put in place to try and protect people, particularly children, from harm or damage.

10	skill	The ability to do something well and demonstrate expertise.
11	stages of learning	The three stages that a sports performer moves through as they become more skilled and proficient at their sporting or physical activity. These stages are the cognitive or preparation phase, the associative or practice phase and the autonomous or automatic phase.
12	SWOT analysis	A method used to identify internal strengths and weaknesses and external opportunities and threats.
13	transitions/progressions	Movements and developments between the different drills and components that make up a coaching session.
14	warm-up	The first component of a coaching session. It is intended to raise the heart rate and increase blood circulation, mobility and mental focus.

For Sharp Minds, please see ‘PE’

Quizzing pages **Subject:**

Give it three goes and see how well you remember the terms and definitions.

	Word or term	Definition
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Cover up this box for your next go!

Attempt 2

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Attempt 3

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Quizzing pages **Subject:**

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Attempt 2

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Attempt 3

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Quizzing pages **Subject:**

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Attempt 2

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Cover up this box for your next go!
Attempt 3

	Word or term	Definition
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References

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