

Hartismere School



Knowledge Booklet 2026 - 2027
Year 8



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. 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 throughout your time at Hartismere.

When you will use this booklet

You will use this booklet in a lesson where you may have a cover teacher, for some homework, at the start of lessons and to revise for tests 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 the 'Sharp Minds' sections.

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. Using 'look, cover, write, check' is an excellent way to remember information.

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. (If there are diagrams, treat each one as one thing)
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 (at the back of this booklet) or use your rough book or paper. Now **write down** as many words and definitions as you can remember in box 1 (or draw the diagram if that's what you've chosen).
5. Uncover the words or terms and **check** you 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. (This step is very important).
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 your rough book or paper. You will need to show your tutor the practice you have been doing.

Subject list

Page number	Subject
3-4	Art
5-6	Biology
7-8	Chemistry
9	Computer Science
10-11	Design & Technology
12-14	Drama
15-16	English
17-18	French
19-21	Geography
22-26	History
27-29	Maths
30-31	Music
32-34	PE
35-36	Physics
37-38	Religious Studies
39-41	Science
42-43	Spanish
44-48	Self-quizzing pages
49	Hart points record for 'Sharp Minds'

Sharp Minds

For almost every subject, you'll see a 'Sharp Minds' section like the one below. Your teachers have given you suggestions of things you can do to go above and beyond in your subjects. Which ones you do is up to you, but you should record them on page 49 and show your tutor. You'll get Hart points and a reward if you complete ten or more.



Sharp minds: where to look

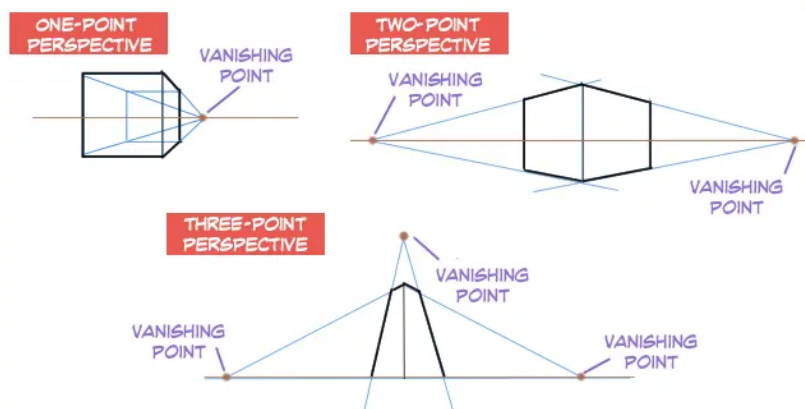
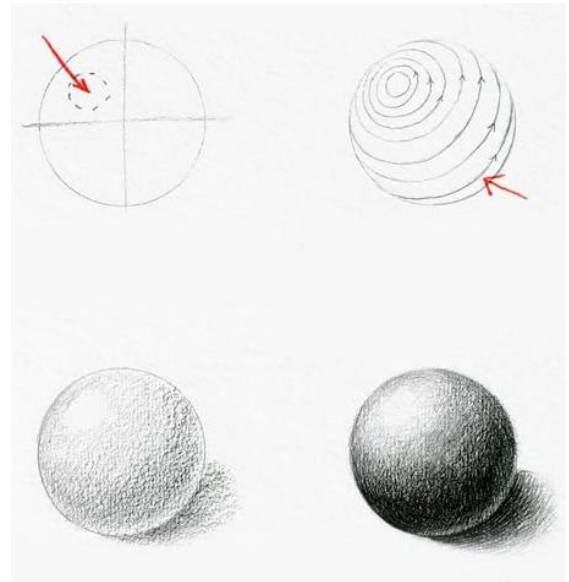
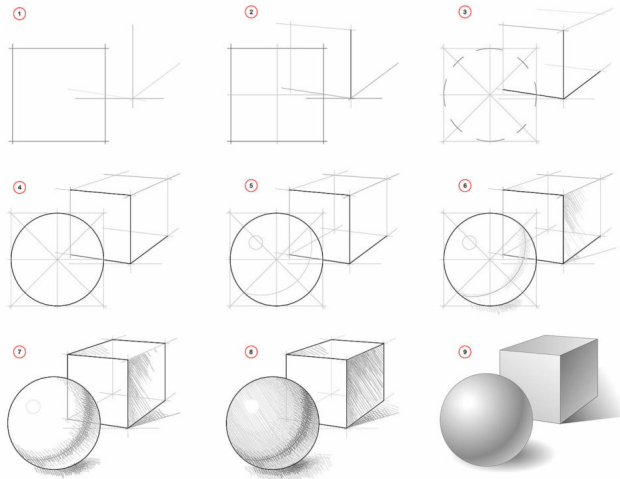
- Your teachers have made suggestions of all sorts of interesting things to do and places to explore.
- If there are links to websites, you can find this booklet on our school website under 'Sharp Minds'

Art

	Term or word	Definition
1	colour wash	A term used to describe the transparent layers of colour in a watercolour.
2	collage	Describes both the technique and the resulting work of art in which pieces of paper, photographs, fabric and other materials are arranged and stuck down onto a supporting surface
3	complementary colours	Red and green, yellow and purple, blue and orange. These colours lie opposite each other on the colour wheel.
4	composition	The arrangement of elements within a work of art.
5	context	The setting for an event, statement, or idea.
6	drypoint	A printmaking process in which a design is drawn on a plate with a sharp, pointed needle-like instrument.
7	digital art	Refers to art made or presented using digital technology.
8	en plein air	The French term for paintings completed out of doors.
9	expressive	Effectively conveying thoughts or feelings. Where the process and style of creation is emphasised rather than the final product. Expression in art might be seen in bold colour, or gestural mark making
10	focal point	The main or principal point of focus.
11	fresco	A technique of painting using water based paint onto damp or dry plaster.
12	impasto	The process or technique of laying on paint or pigment thickly so that it stands out from a surface.
13	maquette	A small scale model or rough draft of an unfinished sculpture.
14	negative space	The space around an object rather than the object itself.
15	plinth	Refers to the solid base or box on which a sculpture is placed.

Art, continued.

Practise these shapes and forms



Sharp minds in art: where to look

Cubism: <https://www.tate.org.uk/art/art-terms/c/cubism>

Still Life: <https://www.tate.org.uk/art/art-terms/s/still-life>

Landscape: <https://www.hockney.com/home>

Drawing tutorials: <https://www.youtube.com/@RapidFireArt>

Science and art: <https://www.britishcouncil.org/voices-magazine/where-art-meets-science>

Biology

RESPIRATION

- The chemical process of cellular respiration releases energy
- The energy transferred supplies all the energy needed for living processes to occur within cells and organisms as a whole
- Organisms need energy for:
 - Chemical reactions to build larger molecules from smaller molecules
 - Muscle contraction to allow movement
 - Keeping warm (to maintain a constant temperature suitable for enzyme activity)
- Respiration in cells can take place **aerobically (using oxygen)** to transfer energy; glucose is reacted with oxygen in this process
- The equation that summarise the chemical reactions of respiration that release energy from glucose are:



Word equation for aerobic respiration

- Aerobic respiration uses oxygen and most of the reaction takes place in the mitochondria (these are shown above the arrow in the equations)
- Respiration in cells can take place **anaerobically (without oxygen)**, to transfer energy; it simply involves the incomplete breakdown of glucose into lactic acid
- This occurs when the body can't supply enough oxygen for aerobic respiration, such as during vigorous exercise

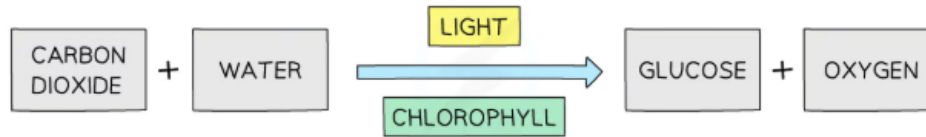


- Anaerobic respiration is represented by the equation:
- **Plants and yeast** can respire without oxygen as well, breaking down glucose in the absence of oxygen to produce ethanol and carbon dioxide
- **Anaerobic respiration in yeast cells is called fermentation**
- Fermentation is economically important in the manufacture of bread (where the production of carbon dioxide makes dough rise) and alcoholic drinks (as ethanol is a type of alcohol)

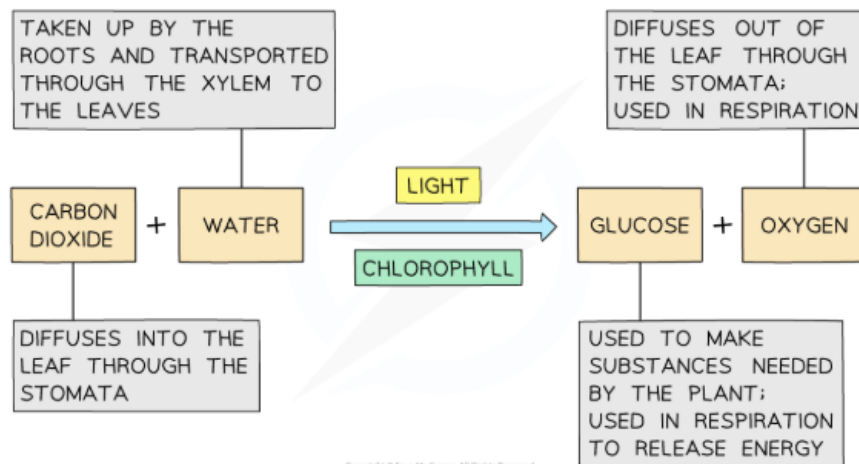


PHOTOSYNTHESIS

- Plants are autotrophs – this means that they can make their own food using light, water and carbon dioxide
- This is why they are called producers in food chains
- The sugars produced by photosynthesis are used to make all the substances a plant needs, as well as being used in respiration to release energy
- These reactions can be summarised into a simple equation



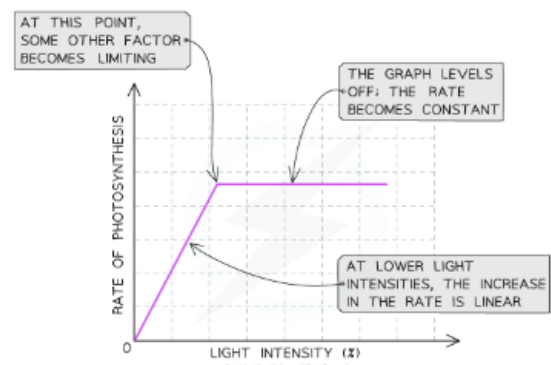
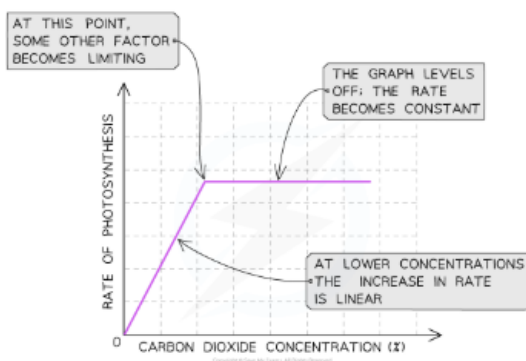
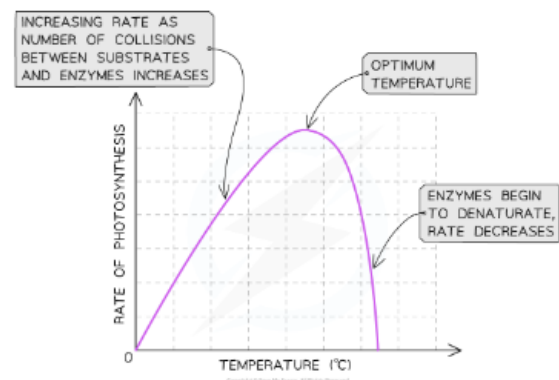
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The rate of photosynthesis is affected by three factors:

- The Temperature, because enzymes control photosynthesis
- Carbon dioxide concentration, because it is a reactant for photosynthesis.
- Light intensity, because this is the energy source for photosynthesis.

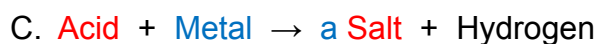
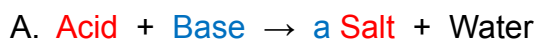


Chemistry

Neutralisation reactions

There are four equations you should try to remember, because they cover all of the neutralisation reactions we talk about.

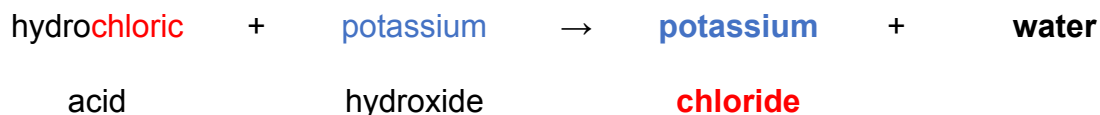
The four equations are:



To write these equations you need to know how to name salts...

- The FIRST name of a salt comes from the metallic element in the reaction.
- The SECOND name of a salt comes from the name of the acid in the reaction.

So...



Remember:

Hydrochloric acid makes chloride salts

Sulfuric acid makes sulfate salts

Nitric acid makes nitrate salts

Phosphoric acid makes phosphate salts

Write out these statements using 'look, cover, write, check'

The reactivity series

Metals can be placed in order from most reactive to least reactive.

We call this the metal reactivity series.

The metal reactivity series also includes two non-metals – carbon and hydrogen.

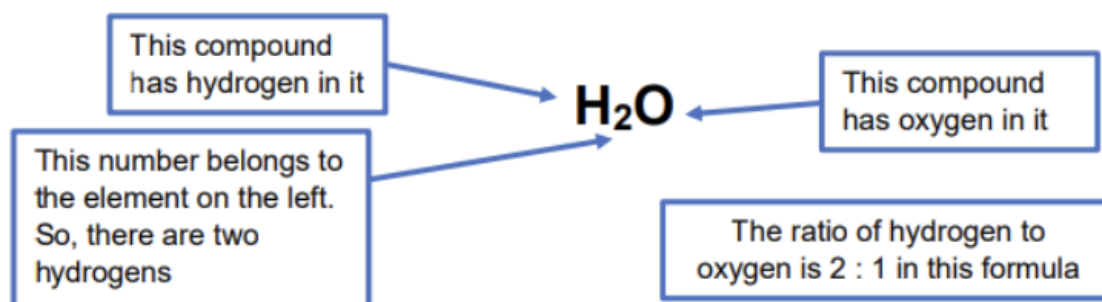
The reactivity series can help us to predict what will happen in a displacement reaction.

Most reactive  Least reactive	Potassium	K
	Sodium	Na
	Calcium	Ca
	Magnesium	Mg
	Aluminium	Al
	Carbon	C
	Zinc	Zn
	Iron	Fe
	Lead	Pb
	Hydrogen	H
	Copper	Cu
	Silver	Ag
	Gold	Au

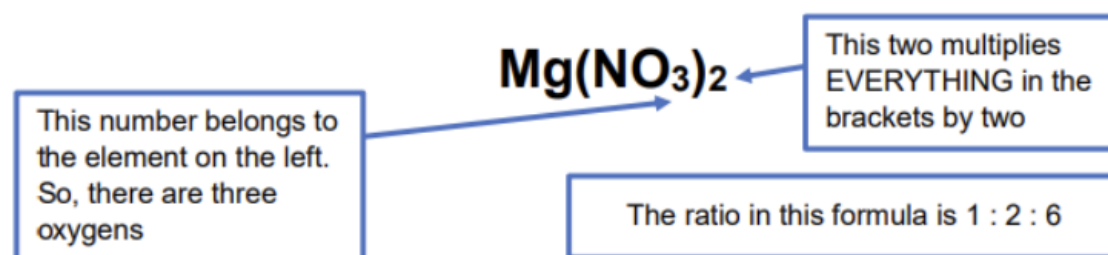
Reading chemical formulas

Symbol equations are just like word equations, but we've translated the words into chemical formulas. A chemical formula is a quick way to write down lots of information about a chemical. A chemical formula tells us which elements are in a substance, and how many atoms of each there are! A chemist can tell a lot about a substance from its formula.

Let's see what we can tell from a simple formula:



What about a more complicated formula?



Computer Science

Internal Computer Hardware		
	Term or word	Definition
1	CPU	Often called the "brain" of the computer. It performs the calculations and comparisons needed to process code.
2	RAM / Memory	High-speed, temporary memory that stores the data and programs currently in use. When you turn the power off, this data is lost.
3	graphics card	A specialised circuit designed to quickly process and render images, animations, and videos to be sent to your monitor. Needed for most modern games.
4	HDD	Hard Disk Drive. A magnetic storage device used for long-term data. It has moving parts and is usually cheaper for large amounts of storage.
5	SSD	Fast, long term, storage with no moving parts. It uses flash memory to save your files but is a little more expensive than HDD.
E Safety: Online Gaming		
1	gaming addiction	When gaming begins to negatively impact a person's daily life, sleep, health or relationships because they cannot stop playing.
2	online grooming	When someone uses the internet to build a relationship with a young person to trick, manipulate, or harm them.
3	personal information	Data that can identify you, such as your full name, home address, school, or phone number. You should keep this private.
4	masquerading	A type of cyber attack where someone pretends to be someone else (like a friend, young person, a trusted company) to steal data or money, or form a relationship.
5	microtransactions	Small financial transactions made within a game, often to buy "skins", extra lives or virtual currency.
Basic Processor Architecture		
1	Boolean logic	Where all values are either true or false. A CPU works by turning tiny switches (called transistors) on or off.
2	binary	Base-2 number system that only uses 2 digits: 0 and 1. All data in a computer is stored and processed in binary form.
3	AND gate	A Boolean logic gate that accepts two inputs and only outputs true (1) if both inputs are true. The output is false (0) for all other input combinations.
4	OR gate	A Boolean logic gate that accepts two inputs and outputs true (1) if either or both of the inputs are true. Only outputs false (0) if both inputs are false.
5	NOT gate	A Boolean logic gate that accepts just one input and inverts (flips) the input. If true is the input, false is the output. If false is the input, true is the output.



Sharp minds in Computer Science: where to look

- All lessons can be accessed from Google Classroom - even if you miss a lesson!
- Remember that homework in year 8 will always be on Genie:
<https://genie.hartismere.com>
- If you have any problems seeing the screen, with the brightness, with the colours, finding homework, with the equipment, or anything else, talk to your teacher - they can probably help!

Design Technology

Designing		
1	design brief	A statement describing the design problem.
2	specification	A list of requirements the product must meet.
3	client	The person requesting the product.
4	user	The person who will use the product.
5	target audience	The intended group of users.
6	function	What a product does.
7	form	The appearance or shape of a product.
8	prototype	An early version used for testing.
9	model	A representation of a design.
10	evaluation	Judging how successful a design is.
11	accuracy	Working to the correct measurement.
12	precision	Producing work with a high level of care.
13	tolerance	The acceptable variation in size.
14	quality control	Checking products during manufacture.
15	cad	Computer Aided Design.
16	cam	Computer Aided Manufacture.
17	laser cutter	A computer-controlled machine that cuts materials.
18	vector	A line that can be scaled without losing quality.
Materials and Manufacture		
1	hardwood	Timber from slow-growing deciduous trees.
2	softwood	Timber from fast-growing conifer trees.
3	manufactured board	Board made by bonding wood together.
4	MDF	Medium Density Fibreboard.
5	wood grain	The direction of the wood fibres.
6	knot	A circular mark where a branch grew.
7	butt joint	Two pieces joined edge to edge.
8	lap joint	One piece overlaps another.
9	dowel joint	Uses wooden dowels for strength and alignment.
10	finger joint	Interlocking rectangular fingers.
11	dovetail joint	Interlocking wedge-shaped joint used in boxes.
12	try square	Checks and marks 90° angles.
13	steel rule	A steel rule measures accurately.
14	marking gauge	This marks parallel lines on timber.
15	chisel	A chisel cuts and shapes wood.

16	mallet	A mallet must be used safely with a chisel.
17	rasp	A rasp removes wood quickly.
18	bradawl	This makes pilot holes for screws.
19	abrasive	A material used for smoothing surfaces.
20	wax finish	This protects timber and enhances appearance.
21	varnish	A tough protective coating.
22	stain	This changes the colour of timber.
23	jesmonite	A casting material made from powder and liquid.
Graphic Design		
1	graphics	Visual communication using images and text.
2	brand identity	The visual appearance of a product or company.
3	logo	A symbol representing a brand.
4	font	The style of printed text.
5	packaging	This protects and promotes a product.
6	colourway	A combination of colours used in a design.
7	biomimicry	Design inspired by nature.
8	anthropometrics	Human body measurements.
9	ergonomics	Designing for comfort and efficiency.
10	primary user	The main person using the product.
11	isometric drawing	A 3D drawing using 30° lines.
12	rendering	Adding tone and colour to a drawing.
13	scalpel	A precision cutting knife.
14	scissors	Used for cutting paper and card.
15	score	Cutting part-way through material to help folding.
16	collage	Images combined to communicate ideas.

Drama

Dramatic style and form: melodrama		
	Key term or word	Definition
1	melodrama	A style of theatre with exaggerated characters, clear heroes and villains, and very dramatic emotions.
2	hero	The good character in the story who the audience wants to succeed.
3	villain	The bad character who causes problems and tries to stop the hero.
4	heroine	The main female hero who often needs help or saves the day.
5	stock characters	Stereotypical characters that appear often in melodrama (like the hero, villain, and damsel).
6	damsel in distress	A female character who is in danger and usually needs rescuing.
7	exaggeration	Making actions, emotions, and movements bigger and more dramatic so the audience can clearly understand them.
8	gesture	Big physical movements' actors use to show emotion without needing many words.
9	facial expression	Using the face (eyes, mouth, eyebrows) to clearly show emotions like fear, anger, or happiness.
10	audience interaction	When actors directly involve the audience, such as booing the villain or cheering the hero.

Commedia Dell'arte		
	Key term or word	Definition
1	Commedia dell'arte	A style of Italian theatre that uses masks, improvisation, and funny stock characters.
2	improvisation	Acting without a full script, where performers make up dialogue and actions during the performance.
3	mask	A half-face mask worn by many characters to show their personality and exaggerate their features.
4	lazzi	Short, funny routines or comic bits of physical comedy performed during the play.
5	physical comedy	Humour created through exaggerated movement, actions, and body language.
6	Zanni	Silly or clever servant characters who often create chaos or trick their masters.
7	Pantalone	A greedy, rich old merchant character who is often foolish and easily tricked.
8	Il Dottore	A character who pretends to be very intelligent but actually talks nonsense most of the time.
9	Arlechino	(Harlequin) – A playful and acrobatic servant character who is clever, energetic, and loves food.
10	Columbina	A smart and confident servant woman who is usually the voice of reason and often outwits other characters.

Stanislavski and Naturalism		
	Key term or word	Definition
1	naturalism	A style of theatre that aims to show life as realistically as possible, with believable characters and everyday situations.
2	Stanislavski	A theatre practitioner who developed a system to help actors create realistic and truthful performances.
3	given circumstances	The facts about a character and situation in the play (who they are, where they are, and what is happening).
4	objective	What a character wants or is trying to achieve in a scene.
5	super-objective	The character's main goal that drives them throughout the whole play.
6	magic if	When an actor asks "What would I do if I were in this situation?" to help them understand the character.
7	emotion memory	Using personal memories of feelings to help portray emotions realistically on stage.
8	subtext	The hidden meaning or thoughts behind what a character says.
9	concentration	Staying fully focused in the role and blocking out the audience to make the performance believable.
10	realism in acting	Performing in a natural way so characters seem like real people rather than exaggerated theatre characters.

Brecht and non-naturalism		
	Key term or word	Definition
1	non-naturalism	A style of theatre that does not try to look realistic and may use symbolism, narration, or direct audience address.
2	Brecht	A German theatre practitioner who wanted audiences to think about social and political issues instead of becoming emotionally absorbed in the story.
3	epic theatre	Brecht's style of theatre that focuses on ideas and messages rather than realistic storytelling.
4	breaking the fourth wall	When actors speak directly to the audience instead of pretending the audience is not there.
5	narration	When a character or performer explains events or comments on the story to the audience.
6	placards	Signs or projections used on stage to give the audience information about a scene or message.
7	alienation effect	(Verfremdungseffekt) – Techniques used to remind the audience they are watching a play so they think critically about the message.
8	multi-roling	When one actor plays several different characters in the same performance.
9	minimal set	Using simple or symbolic staging instead of detailed realistic scenery.
10	gestus	A clear physical action or gesture that shows a character's social status or attitude.



Sharp minds in drama: where to look

- Join a drama club or theatre group: practice acting, teamwork, and improvisation. Try different roles, experiment with physicality, and build confidence in front of an audience.
- Attend workshops or masterclasses: many local theatres offer short courses in voice, movement, or improvisation. Workshops give focused guidance and techniques from experienced actors or directors.
- Participate in performance competitions or festivals: events like one-act plays, monologue competitions, or drama festivals push students to perform under pressure, develop stage presence, and receive constructive feedback.

English

Writers' methods

	Term or word	Definition
1	alliteration	The repetition of the same initial consonant sounds e.g. "From forth the fatal loins of these two foes"
2	personification	A device where human qualities are given to inanimate objects or ideas.
3	rhetorical question	A question asked in order to create a dramatic effect or make a point, rather than to get an answer.
4	direct address	Direct address is when you talk directly to the reader, using the pronouns 'we', 'you' or 'us'. It can be very persuasive.
5	trope	A figurative figure of speech (like a metaphor or irony) or a recognizable, recurring theme, character type, or plot device used in storytelling

Word classes

1	dynamic verb	A verb that refers to continued or progressive action
2	adjective	A word that modifies (changes) a noun, e.g. the <u>blue</u> car; your cake is <u>bigger</u> than mine.
3	imperative verb	A 'command' or 'bossy' verb e.g. <u>sit</u> down, <u>stop</u> .
4	inclusive pronoun	A pronoun which includes the speaker and the listener, e.g. <i>We are all in this together.</i>
5	adverb	Adverbs typically modify (change) a verb, an adjective, another adverb or entire clause or sentence, e.g 'He wrote it down <u>quickly</u> '; 'The film ended <u>too</u> soon'.

Punctuation and grammar

1	apostrophe	Used to indicate a) the omission of letters as in can't or b) possession as in Michaela's pen
2	comma ,	Used to signal a natural pause in a line.
3	full stop .	Used to indicate the end of a sentence.
4	dash -	Used to indicate strong breaks, emphasis or abrupt changes of thought.
5	semi-colon ;	A punctuation mark that shows a pause, typically between two main clauses. It could be replaced by a full stop to create two separate sentences, e.g 'It was the best of times; it was the worst of times'.

Key vocabulary for the 'gothic' unit

	Word or term	Definition
1	foreboding	A feeling that something bad will happen
2	insidious	Stealthily treacherous or deceitful
3	trepidation	A feeling of fear or anxiety about something that may happen
4	malevolent	Wishing evil or harm to another or others
5	dilapidated	In a state of disrepair or ruin as a result of age or neglect

Key vocabulary for the 'nature' unit

1	ethos	In rhetoric, ethos refers to the use of a speaker or writer's credibility, character and authority to persuade an audience.
2	logos	In rhetoric, logos (which means 'word' or 'reason' in Greek), is the appeal using logic. It persuades using clear structure, reasons and evidence to support claims.
3	pathos	In rhetoric, pathos is a technique that appeals to an audience's emotions rather than their intellect or reason.
4	civilisation	<i>abstract noun</i> : human society with its well developed social organizations, or the culture and way of life of a society or country at a particular period in time.
5	anthropocentric	<i>adjective</i> : considering humans and their existence as the most important and central fact in the universe.



Sharp minds in English: where to look

- In English, there is a sure-fire way to improve, and that's to read as much as you can. We know it's hard, with so many other things to distract you, but reading is fun and improves your work in all subjects, not just English.
- You could visit the library and speak to the librarian about the kind of books you enjoy. Try some new writers. If you don't like reading so much, tell her - we have books specifically for you!
- You could use the 'Good Reads' website to search for new ideas and recommendations
- You could join the HARRT (Hartismere Avid Readers Recommendations Team!) if you really enjoy reading - get together with other people and talk about all things books!
- You could watch a film of a favourite book
- Visit the theatre and cinema
- Explore poetry online using poets.org
- You could use your Lexia login (if you have one) to complete another 20 minutes or your Wordshark login (if you have one) to complete another 20 minutes.

French

	Topic 1: descriptions	
1	Je m'appelle... et j'ai ans.	I am called and I am years old.
2	J'ai les yeux bleus /verts /marron	I have blue /green /brown eyes
3	J'ai les cheveux bruns /blonds /noirs longs / courts frisés / raides	I have brown / blonde / black hair longs / short curly / straight
4	Je suis grand(e) /petit(e) /gros(se) / mince	I am tall /short /fat /thin
5	Je suis sympa / amusant(e) / patient(e) / travailleur(euse)	I am nice / fun / patient / hard-working
6	Je suis timide /barbant(e) / méchant(e) / paresseux(euse)	I am shy / boring / mean / lazy

	Topic 2: free time	
1	Je joue au foot /tennis /badminton /basket	I play football / tennis / badminton / basketball
2	Je fais du vélo /de la natation /du sport /mes devoirs	I do biking / swimming / sport / homework
3	Je regarde la télé / un film / les dessins- animés / les informations	I watch TV / a film / cartoons / the news
4	J'écoute de la musique /la radio	I listen to music /to the radio
5	Je mange une pizza /un hamburger	I eat a pizza /a burger
6	Je vais au cinéma/ restaurant / parc / centre de sport	I go to the cinema /restaurant /park / sport centre

Topic 3: my town		
1	J'habite à Eye /Paris /Londrès	I live in Eye / Paris
2	Il y a / Il n'y a pas	There is /isn't
3	un stade / théâtre / marché / musée / château	A stadium /theatre / market /museum
4	une bibliothèque / église / piscine	A library / church / swimming pool
5	des magasins	Some shops
Topic 4: going out with friends		
1	Je porte un pantalon /jean /pull	I wear trousers / jeans /a jumper
2	Je porte une chemise /jupe /robe	I wear a shirt / skirt / dress
3	Je porte des baskets /chaussures	I wear trainers / shoes
4	Je voudrais acheter	I would like to buy
5	Il fait chaud / froid / beau/ mauvais	The weather is hot /cold /good / bad
6	Il pleut /neige	It's raining / snowing

Giving Opinions	
Positive	Negative
amusant - fun intéressant - interesting drôle /rigolo - funny génial - great fantastique - fantastic merveilleux- marvellous/wonderful	ennuyeux /barbant- boring fatigant - tiring nul- rubbish affreux - awful horrible/terrible – horrible /terrible embêtant - annoying



Sharp minds in French: where to look

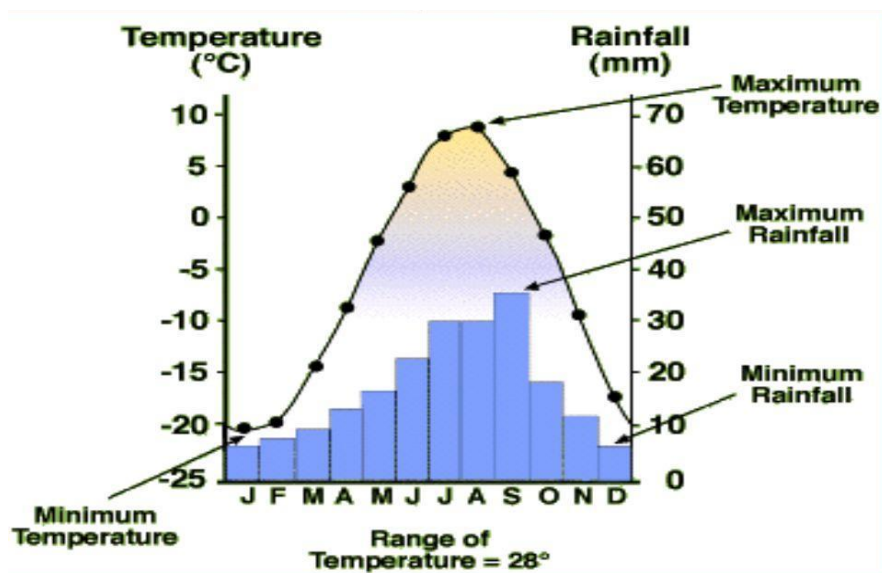
- Create mind maps/ flash cards of key vocabulary.
- Watch a French film on Netflix
- Make your own online flashcards using - <https://quizlet.com/>
- Use BBC Bitesize -<https://www.bbc.co.uk/bitesize/subjects/zgdqxb>

Geography

Contrasting Ecosystems

	Term or word	Definition
1	ecosystem	A community of plants and animals, and the environment in which they live
2	biome	Large ecosystem characteristic of a specific part of the world
3	food chain	Producers and consumers linked within an ecosystem
4	food web	Interconnected food chains that make up a large ecosystem
5	flora	Plant life
6	fauna	Animal life
7	tropical rainforest	Large expanses of lush forest growing in the tropics in high temperatures and very high rainfall
8	emergent	Highest layer of the rainforest reaching up to 40-60m height
9	canopy	Second layer of rainforest (20-40m) where most of the animals live
10	under-canopy	Third layer of the rainforest where trees only grow up to 10m high and there is little sunlight
11	shrub layer	Bottom layer of the rainforest, where it is very dark and not much grows
12	adaptation	The process where a plant or animal becomes better suited to its environment so its chance of survival is improved
13	deforestation	The clearing of trees to transform forest into cleared land
14	savannah	Tropical grassland with warm temperatures all year round and two distinct seasons for precipitation
15	desertification	The spread of desert-like conditions into dry grassland areas
16	subsistence farming	When farmers grow crops and animals to feed their own families
17	sustainable management	Economic, social and environmental development to meet peoples' needs without compromising the ability of future generations to meet their needs
18	ecotourism	Travel that aims to conserve the natural environment and local communities

Interpreting a Climate Graph



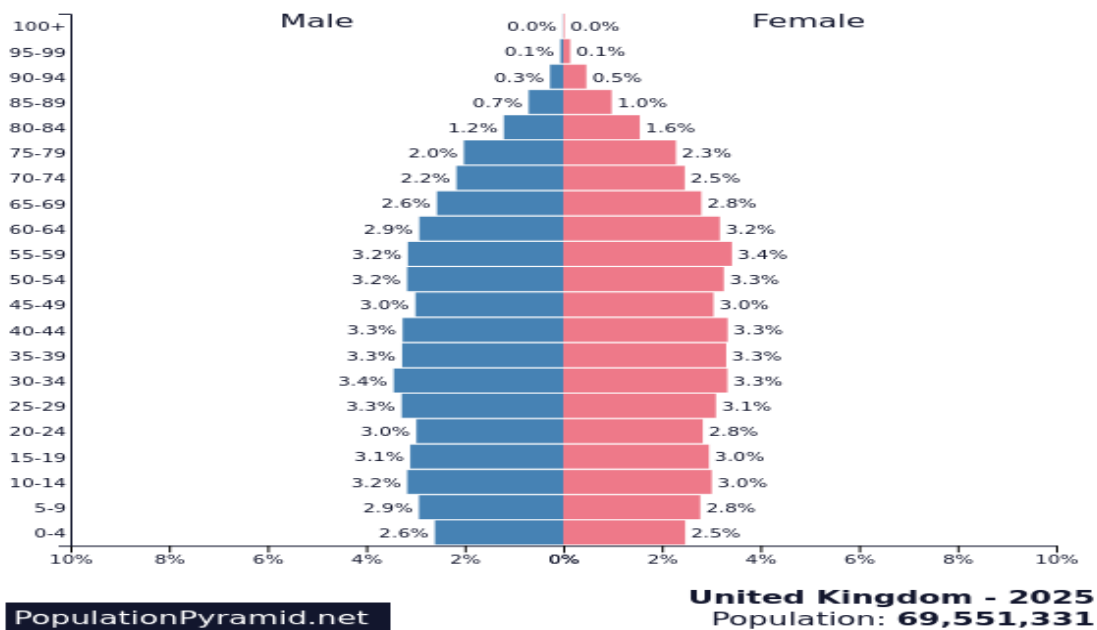
- Can you calculate the temperature range?
- Can you calculate the rainfall range?
- Can you describe the climate of the place?

Interpreting Population Pyramids

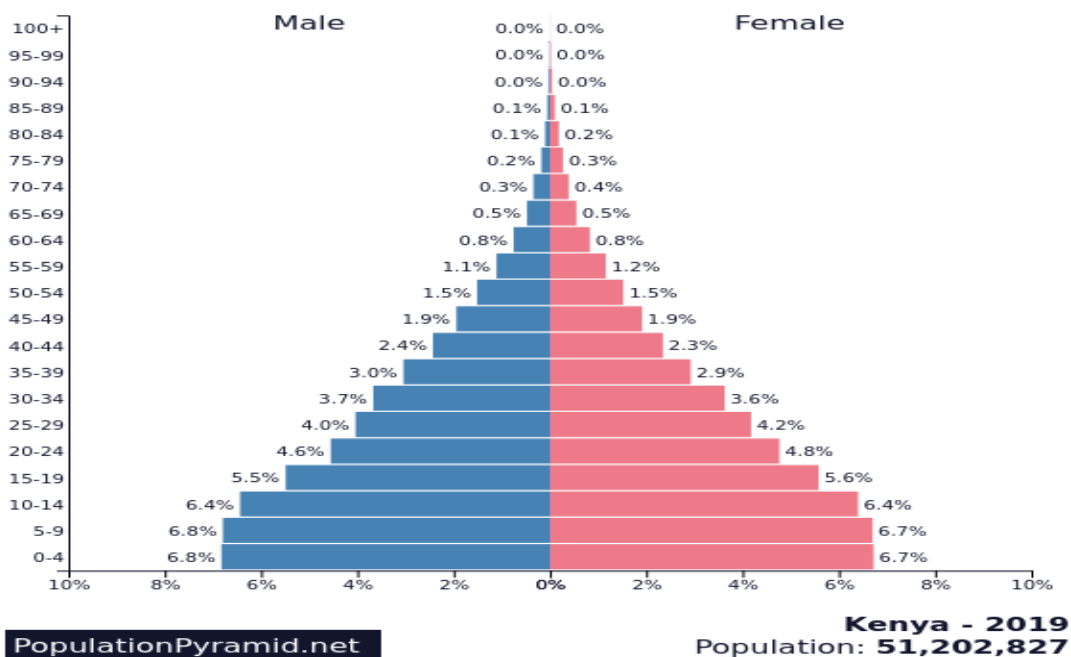
Population pyramids show the structure of a population:

- the pyramid is split with one side for female and one side for male
- each horizontal bar represents a different age group - youngest at the bottom, oldest at the top
- the width of each bar shows the size of the population in each age group
- the population in each age group can be shown as a percentage of total population or as the number of people

The UK is an AC - it has a low birth rate (narrow base) and is tall and is shaped like a beehive - showing a large working population with a long life expectancy and an aging population)



Kenya is an LIDC - it has a high birth rate (wide base). It is triangular in shape as it has a low life expectancy



You could work out what % of the population are over 60 in Kenya and the UK and what % of the population are under 15 for both the UK and Kenya.
What other comparisons can you make?



Sharp minds in Geography: where to look

- Books: Horrible Geography: Earth shattering Earthquakes; Raging Rivers, Anita Ganeri
- Rocks and Fossils by Struan Reid
- The Carbon Diaries by Saci Lloyd
- Documentaries to watch: David Attenborough and Simon Reeve have presented a wide range of documentaries on different topics and places

History

The British Slave Trade

	Term or word	Definition
1	David Olusoga	An historian who specialises in Black history in Britain.
2	Olaudah Equiano	A former enslaved person who bought his freedom and began to write letters and books about abolishing slavery.
3	Thomas Clarkson	He campaigned to abolish slavery by showing people African culture. When that failed he showed torture devices used on enslaved people.
4	William Wilberforce	A British MP who campaigned for years to abolish slavery.
5	Busa	A slave who led a rebellion against the British.
6	1562	The first recorded British involvement in the African slave trade begins when John Hawkins brings enslaved Africans to the Americas.
7	1640s	British sugar plantations start to grow in the Caribbean, increasing the need for enslaved labour.
8	1700s	The transatlantic slave trade reaches its peak; Britain becomes one of the largest traders of enslaved people.
9	1816	Bussa's rebellion
10	1833	The Slavery Abolition Act is passed, freeing enslaved people in most British colonies
11	abolish	To get rid of something: in this case, slavery.
12	boycott	To deliberately avoid using something.
13	Cottonopolis	Nickname for Manchester after it got very rich from cotton picked by enslaved people in the USA.
14	empire	A series of colonies that are all controlled by one larger country.
15	middle passage	The journey between West Africa and the Caribbean. Conditions were awful.
16	resistance	Resisting ownership subtly, like singing native songs or talking in code.
17	plantations	Large areas owned by wealthy men with numerous enslaved people working there.
18	slave auction	Where enslaved people would be bid for and bought by local wealthy men.
19	triangular trade	The triangle of journeys between Europe, West Africa and the Americas.

The Industrial Revolution

	Term or word	Definition
1	Emma Griffin	A modern historian who argues that working class people gained a wide variety of opportunities at this time.
2	Florence Nightingale	She revolutionised nursing by insisting on clean sheets, clean spaces and fresh air. She made nurses pass exams to qualify.
3	George Peabody	He set up large new blocks of flats that were clean and spacious and reasonably priced. They were built on top of a slum and tenants were forced to keep them clean.
4	1750	The approximate start date of the Industrial Revolution.
5	1832	The Great Reform Act gave more men and lots more cities representation.
6	1833	The Factory Act added much stricter limits as to what work children could do.
7	1900	The approximate end date of the Industrial Revolution.
8	Chartists	A political protest group that submitted a 'Charter' (list) of demands to Parliament for more political and voting rights.
9	domestic service	A role often held by women before they got more rights. They were limited to jobs in cooking, cleaning and helping around a house.
10	industrial	Working with machines.
11	reform	To change something.
12	revolution	A sudden and significant change in society.
13	slums	A poor, cramped area of a town or city.
14	workhouse	Where poor, unemployed people were sent in order to work. It was deliberately horrible to encourage people to avoid going there.

The First World War

	Term or word	Definition
1	Archduke Franz Ferdinand	Heir to the throne of Austria-Hungary. His assassination sparked a chain of events that led to the start of the First World War.
2	Carrel-Dakin method	A method invented to greatly reduce infections in surgeries.
3	Harrold Gillies	He invented a method of plastic surgery that involved skin grafts.
4	28 June 1914	The First World War starts.
5	1915	The first use of poisoned gas in battle.
6	1916	Battle of the Somme
7	1917	The first blood transfusion in No Mans Land.
8	1917	The first plastic surgery for wounded soldiers.
9	11 November 1918	The formal end of the First World War
10	ammunition	Bullets. i.e. something that would be fired from a gun or cannon.
11	colony	A country in an empire that is under the control of another country.
12	conscription	To force people to join the army.
13	No Man's Land	The area between two opposing trenches; usually very muddy and extremely dangerous.
14	Pals Battalions	Groups in the army where people could sign up and fight alongside their friends.
15	propaganda	When someone tries to convince people of something, usually in a speech, picture, video or radio.
16	trench	A very long ditch dug into the ground. Soldiers in WW1 lived in them throughout the war.
17	Western Front	The conflict / front line of WW1 that took place in Western Europe (France and Belgium)
18	gas masks	A mask that allowed you to breathe normally during a gas attack
19	Thomas splint	A type of metal and leather cast that kept your leg straight if you had broken bones.
20	Brodie helmets	A standard metal helmet issued to all men during the war. Greatly reduced the number of fatal head wounds.

Suffolk at War 1939 - 1945

	Term or word	Definition
1	Adolf Hitler	The leader of Germany during the Second World War.
2	Winston Churchill	The Prime Minister of Britain during the Second World War.
3	Glen Miller	A musician who toured army bases with his band to boost morale.
4	1939	In September, Britain declared war on Germany.
5	1939	Evacuation began under Operation Pied Piper.
6	1939-1940	Over 3 million children, mothers, and teachers were evacuated from cities to the countryside.
7	1940	The Blitz began, increasing the importance of evacuation.
8	1940	Rationing was introduced to make sure food was shared fairly.
9	1940-1945	Foods like butter, meat, sugar, and eggs were rationed.
10	1941	Clothes rationing began; people used ration books and coupons.
11	1942-1944	Thousands of US Army bases and airfields were built across Britain.
12	1942-1944	American soldiers were stationed in Britain to prepare for the invasion of Europe.
13	1945	In May, World War Two ended in Europe.
14	Airfield	An area of runways used for aircrafts and planes during the war.
15	Evacuation	To be moved from one part of the country to another for safety. Usually urban to rural.
16	Evacuee	Someone who has been evacuated.
17	Friendly invasion	The term for the large number of Americans that arrived in Suffolk during the Second World War.
18	Home Front	The work done by ordinary civilians in Britain in order to help with the war effort.
19	Morale	Overall how happy or sad people are.
20	Propaganda	When someone tries to convince people of something, usually in a speech, picture, video or radio.

1960s Britain

	Term or word	Definition
1	William Beveridge	An economist who published a report that suggested people needed far better welfare in order to be happy and live longer.
2	1941	The Beveridge Report published.
3	1946	A wide range of reforms were passed: the National Insurance Act, National Health Service Act and New Towns Act.
4	1961	The contraceptive pill was made available for married women.
5	1967	The contraceptive pill was made available for everyone.
6	1970	Equal Pay Act
7	boycott	To deliberately avoid something or someone you disagree with.
8	Conservative Party	A political party that usually holds views that are traditional and do not involve big change.
9	disability	A barrier to accessing everyday life in some way.
10	Homosexual	Someone who is attracted to the same gender.
11	Housewife	The role a woman was traditionally supposed to have. This involved cooking, cleaning and caring for children.
12	Labour Party	A political party set up in 1900 to represent the views of working people.
13	liberal	Open to new ideas and reforms.
14	National Health Service Act	The law that set up the NHS and free healthcare for all.
15	welfare	The health, happiness and fortune of people.

Multiples

The "times table" of a given number

All the numbers in this lists below are multiples of 3.

3, 6, 9, 12, 15...

This list continues and doesn't end

$3x, 6x, 9x \dots$

x could take any value and as the variable is a multiple of 3 the answer will also be a multiple of 3

Non example of a multiple

45 is not a multiple of 3 because it is 3×15

Not an integer

Factors

Arrays can help represent factors

5×2 or 2×5

Factors of 10
1, 2, 5, 10

10×1 or 1×10

The number itself is always a factor

Factors and expressions

$6x \times 1$ OR $6 \times x$

Factors of $6x$

$6, x, 1, 6x, 2x, 3, 3x, 2$

$2x \times 3$

$3x \times 2$

Prime numbers

- Integer
- Only has 2 factors
- and itself

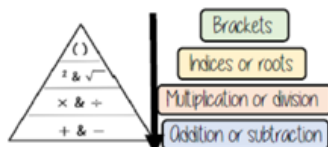
The first prime number
The only even prime number

2

Learn or how-to quick recall...

2, 3, 5, 7, 11, 13, 17, 19, 23, 29...

Order of operations



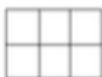
If you have multiple operations from the same tier work from left to right

eg $10 - 3 + 5 \rightarrow 10 - 3 \rightarrow 7 + 5$

$$6 \times 4 + 8 \times 2 = 24 + 16 = 40$$

Area problems

Rectangle
Base $\times$ Perpendicular height



Parallelogram/ Rhombus
Base $\times$ Perpendicular height



Triangle
 $\frac{1}{2} \times$ Base $\times$ Perpendicular height



A triangle is half the size of the rectangle it would fit in

Properties of Quadrilaterals

Square
All sides equal size
All angles 90°
Opposite sides are parallel



Parallelogram
Opposite sides are parallel
Opposite angles are equal
Co-interior angles

Rectangle
All angles 90°
Opposite sides are parallel



Trapezium
One pair of parallel lines

Rhombus
All sides equal size
Opposite angles are equal



Kite
No parallel lines
Equal lengths on top sides
Equal lengths on bottom sides
One pair of equal angles

Classify angles



Acute Angles
 $0^\circ < \text{angle} < 90^\circ$



Obtuse
 $90^\circ < \text{angle} < 180^\circ$



Reflex
 $180^\circ < \text{angle} < 360^\circ$



Right Angles
 90°

Right angle notation



Straight Line
 180°

Like and unlike terms

Like terms are those whose variables are the same



and 3 hearts

are like terms

the variable is the same



3 hearts

are unlike terms

the variables are NOT the same

Examples and non-examples

Like terms

$y, 7y$
 $2x^2, x^2$
 $ab, 10ba$
 $5, -2$

Un-like terms

$y, 7x$
 $2x^2, 2c^2$
 $ab, 10a$
 $5, -2t$

Note here ab and ba are commutative operations, so are still like terms

Key FDP Conversions

Fraction	Decimal	Percentage
$\frac{1}{2}$	0.5	50%
$\frac{1}{4}$	0.25	25%
$\frac{1}{3}$	0.33333	33.333%
$\frac{1}{5}$	0.2	20%

Maths, continued.

	Term or word	Definition
1	area	The space inside a 2D object.
2	arithmetic	A sequence where the difference between the terms is constant.
3	balance	The amount of money in a bank account.
4	biased	A built-in error that makes all values wrong by a certain amount.
4	coefficient	The number used to multiply a variable.
5	congruent	The same.
6	continuous data	Numerical data that has an infinite number of values (often seen with height, distance and time).
7	correlation	The mathematical definition for the type of relationship.
8	denominator	The number below the line on a fraction. The number represents the total number of parts.
9	difference	The gap between two terms.
10	discrete data	Numerical data that can only take set values.
11	equivalent	Of equal value.
12	factors	Integers that multiply together to get the original value.
13	formula	A mathematical relationship or rule given in symbols. For example, $b \times h =$ area of rectangle or square.
14	frequency	The number of times a particular data value occurs.
15	gradient	The steepness of a line.
16	Highest Common Factor (HCF)	The biggest factor (or number that multiplies to give a term).
17	inequality	An inequality compares two values showing if one is greater than, less than, or equal to, another.
18	integer	A whole number which can be positive, negative or zero.
19	isosceles	Two equal size lines and equal size angles (in a triangle or trapezium)
20	Line of best fit	A straight line on a graph that represents the data on a scatter graph.
21	numerator	The number above the line on a fraction. The top number represents how many parts are taken.
22	parallel	Straight lines that never meet.
23	perimeter	The length around the outside of a 2D object.
24	perpendicular	Lines that cross at 90 degrees
25	product	multiply.
26	qualitative	Descriptive information such as colours, gender, names or emotions.
27	quantitative	Numerical data.
28	reciprocal	A pair of numbers that multiply together to give 1.
29	regular polygon	All the sides have equal length; all the interior angles have equal size.
30	secondary data	The data you source from elsewhere such as the internet, newspapers or local statistics.
31	simplify	Grouping and combining similar terms.
32	substitute	To replace a variable with a numerical value.
33	sum	Addition (the total of all the numbers added together)
34	variable	A quantity that may change within the context of the problem.
35	vertex	A point where two or more line segments meet.



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

Music

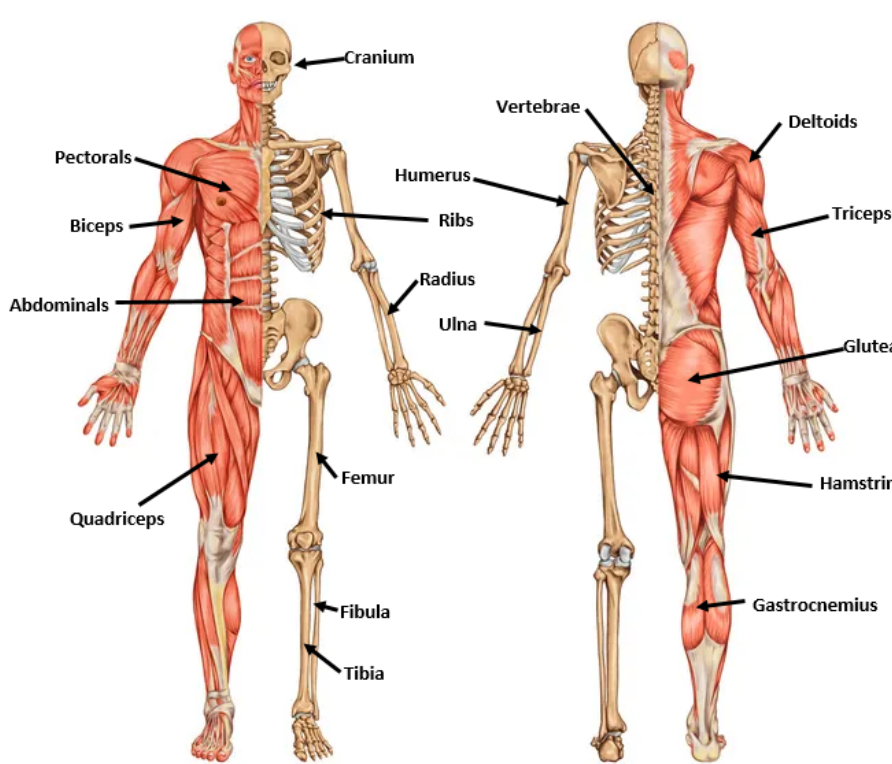
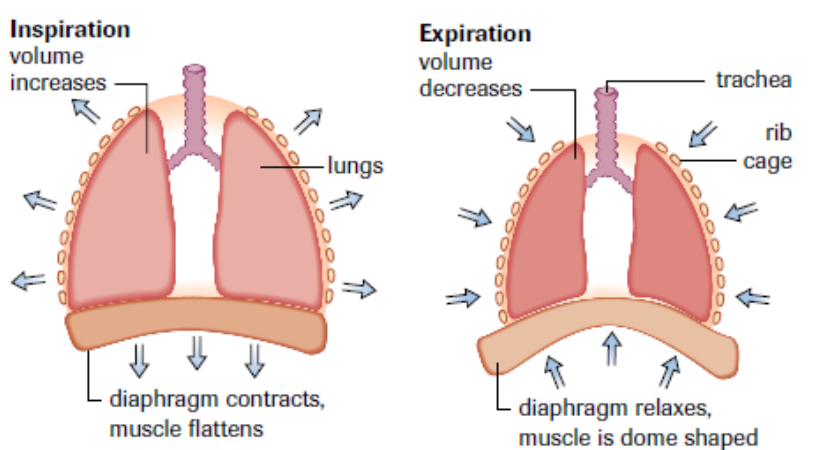
	Term or word	Definition			
1	blues	A style of early jazz, often vocal, descended from African-American work songs and spirituals			
2	scat	A type of blues singing using nonsense syllables instead of words			
3	call and response	Where one person or group sings or plays a line and is then answered by another person or group			
4	improvisation	When a musician makes up the music on the spot			
5	chord	3 notes played at the same time, constructed using the rule: <i>play a note – miss a note – play a note – miss a note – play a note</i> (eg. CEG)			
6	syncopation	Emphasis on the ‘off-beats’			
7	12-bar blues	A pattern of chords in the order: C – C – C – C F – F – C – C G – F – C – C			
8	dynamics	How loud or quiet the music is			
9	forte (f)	Loud	10	Piano (p)	Quiet
11	crescendo ()	Getting gradually louder			
12	diminuendo ()	Getting gradually quieter			
13	dotted note	A dot next to a note increases its length by half again, eg. a dotted crotchet () is worth 1.5 beats (a crotchet is 1 beat, then you add half again to give 1.5 beats)			
14	dissonant	Harmony (chord) where the notes ‘clash’			
15	consonant	Harmony (chord) where all the notes ‘fit together’			
16	articulation	How the notes are played, eg. staccato or legato			
17	staccato	A type of articulation where notes are short, spiky and detached			
18	legato	A type of articulation where notes are played smoothly			
19	block chords	Chords where all the notes are played together, at the same time			
20	broken chords	Chords where the notes are played separately, one after another			
21	calypso	A style of music from Trinidad and Tobago and particularly associated with carnivals			
22	melody	The tune			
23	tonality	Whether the music is in a major key or a minor key			
24	major key	When music uses notes from a major scale (will sound positive or happy)			

25	minor key	When music uses notes from a minor scale (will sound sinister / sad / mysterious)
26	verse	Section of music where the words are new but the music is the same every time
27	strophic	A kind of structure consisting of a series of verses
28	time signature	Numbers at the start of a piece of music which tell you how many beats per bar, eg.: 2/4 = 2 beats per bar; 3/4 = 3 beats per bar; 4/4 = 4 beats per bar
29	tempo	How fast or slow the music is
30	tie	A curved line between 2 notes of the same pitch; it means to hold the note for the total value of the 2 notes, eg.  = 1.5 beats
31	notes in spaces in treble clef	Spell FACE: 
32	notes on lines in treble clef	Stand for Every Green Bus Drives Fast: 
33	crotchet 	A note held for 1 beat
34	minim 	A note held for 2 beats
35	dotted minim 	A note held for 3 beats
36	semibreve 	A note held for 4 beats
37	quaver 	A note held for ½ beat
38	semiquaver 	A note held for ¼ beat
39	crotchet rest 	A silence lasting 1 beat



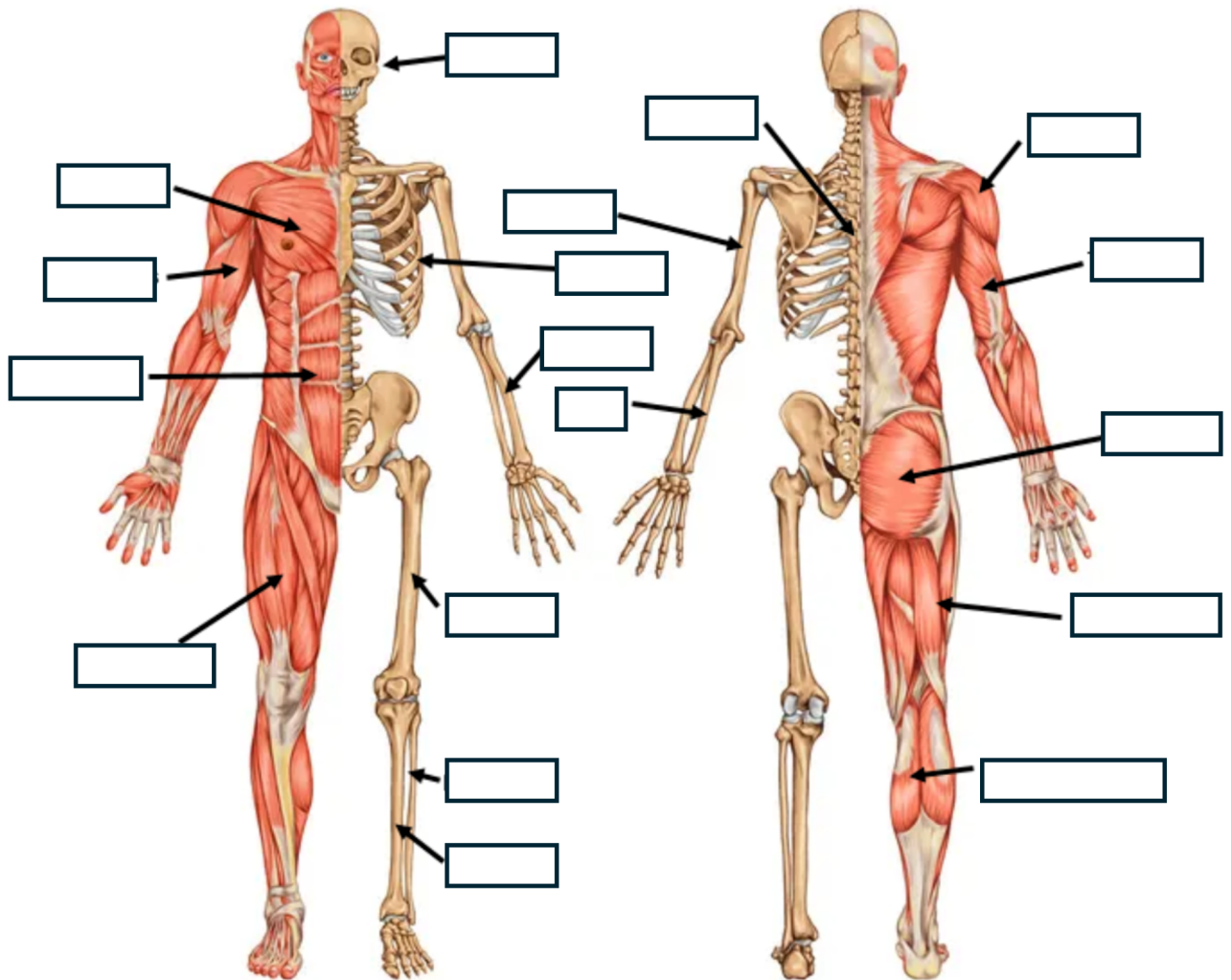
Sharp minds in music: where to look

- 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

Bone names & locations: • Humerus • Ulna • Radius • Tibia • Fibula	
Muscles names & locations: • Gluteals • Gastrocnemius • Deltoids	
Ligaments	Tough fibrous tissue which connects two bones together
The role of the diaphragm & intercostal muscles when breathing	
Blood vessels	Arteries carry blood away from the heart, have thick muscular elastic walls and a small lumen which can vasodilate and vasoconstrict. Capillaries are a huge network of tiny vessels linking the arteries and the veins, they have a very narrow lumen and very thin walls (one cell thick) to allow rapid diffusion of substances into and out of the blood. Veins carry blood towards the heart, they have a large lumen and contain valves to prevent the backflow of blood.
stroke volume	The volume of blood ejected from the heart per individual beat

Term or word	Definition
aerobic respiration equation	Glucose + O ₂ = energy + CO ₂ + water
aerobic training zone	60-80% of your maximum heart rate
anaerobic respiration equation	Glucose = energy + lactic acid
anaerobic training zone	80-90% of your maximum heart rate
Movements at the ankle joint:	Plantar flexion: The movement of the foot and ankle downwards, away from the leg, increasing the angle between the foot and shin. Dorsi flexion: The upward movement of the ankle joint where the toes are brought closer to the shin.
fitness	The ability to meet, or cope with the demands of the environment
Provide sporting examples for each component of fitness:	• Cardiovascular Endurance • Agility • Reaction time • Balance • Speed • Flexibility • Strength • Power • Co-ordination • Muscular Endurance
The FITT principle	Frequency: the number of training sessions per week Intensity: how hard the session is (% mhr / % 1 rep max) Time: how long the session is Type: the method of training used
Fartlek training	A method of training that involves working at different intensities over different terrains. A suitable method of training for improving cardiovascular endurance for games players
SAQ training	Speed, Agility and Quickness training
feedback types:	Intrinsic feedback: information a performer receives from within. Extrinsic feedback: information a performer receives about their performance from outside themselves, such as from a coach.
calories	'A unit which measures heat or energy production in the body, normally expressed as Kcal.'
The effects of dehydration:	• blood thickening, • increase heart rate, • increase body temperature, • increase reaction time, • muscle fatigue • dizziness

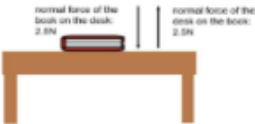
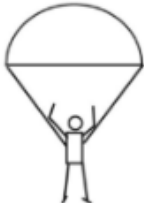
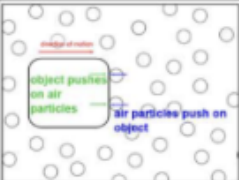
Can you label the bones and muscles from memory? Use 'look, cover, write, check'.



Sharp minds in PE: Where to look

- 'PE 4 LIFE Home Workouts' google classroom. You will find various teacher-led warm ups, workouts and sporting challenges as well as local community sports clubs you can join.
- Your class 'PE homework / Enrichment tasks' Google Classroom. Improve your knowledge & tactical understanding in each sport by completing the sports-specific enrichment tasks.
- Sky Sports news / BBC Sport. Keep up to date with all sporting events.
- Watch LIVE sport. Watching live sports will help to improve your knowledge, tactics, rules and skills of analysis.

Physics

Force name	Explanation/description	Contact or non-contact?
Weight – also known as the gravitational force 	The gravitational force acts between all objects with mass. It is a fairly weak force so we usually only notice the effects caused by large masses such as the Earth. 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. Surprisingly, the desk is also exerting a normal force on the book. This will be considered in more depth later on.	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
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

Weight	Mass
Determined by gravity	Not determined by gravity
Changes depending on where you are in the Solar System	Stays the same wherever you are in the Solar System
Is a force	Is not a force
Measured in newtons	Measured in kilograms

Calculating weight and mass

The following equation can be used to calculate the weight of an object:

$$W = m \times g$$

$$\text{Weight (N)} = \text{mass (kg)} \times \text{gravitational field strength (N/Kg)}$$

The gravitational field strength ⓘ on Earth is 10 N/kg.

This means that a 1 kg mass would be attracted to Earth by a force of 10 N.

How to calculate weight

An apple has a mass of 0.2 kg. Calculate the weight of the apple on Earth ($g = 10 \text{ N/kg}$).

$$W = ?$$

$$m = 0.2 \text{ kg}$$

$$g = 10 \text{ N/kg}$$

Use the weight equation:

$$W = m \times g$$

and substitute in the values you know:

$$W = 0.2 \times 10$$

$$W = 2 \text{ N}$$

The weight of the apple on Earth is 2 N.

Religious Studies

Hinduism

	Term or word	Definition
1	Atman	The soul in Hinduism
2	Brahman	The main God in Hinduism
3	dharma	Duty in Sanskrit
4	Diwali	The Hindu festival of lights
5	karma	Good or bad actions you do can have direct consequences to you
6	mandir	The Hindu place of worship
7	meditation	Transforming the mind through concentration
8	moksha	The end of the rebirth cycle
9	monotheism	The belief in one God
10	polytheism	The belief in many Gods
11	Ramayana	Means journey relating to the story of Rama and Sita
12	reincarnation	The permanent soul transferring into another being after death
13	Samsara	The cycle of life, death and rebirth
14	shrine	A place dedicated to worship at home
15	Trimurti	Three Gods in Hinduism – Brahma, Shiva and Vishnu

Buddhism

	Term or word	Definition
1	anatta	No self or soul
2	anicca	Impermanence
3	ascetic	A life with little to no luxuries
4	dukkha	Suffering
5	enlightenment	Becoming at peace
6	Nirvana	The end goal for Buddhists
7	rebirth	When the consciousness is reborn after death
8	prophecy	A prediction about the future

Sikhism

	Term or word	Definition
1	Gurdwara	The Sikh place of worship
2	Guru Granth Sahib	The Sikh holy book
3	Kaur	A naming convention given to all female Sikhs, meaning 'princess'.
4	Singh	A naming convention given to all male Sikhs, meaning 'lion'.
4	Khalsa	The Sikh community of men and women
5	langar	The free meal in a Gurdwara
6	turban	A head covering for men
7	kirpan	The knife/sword representing self-defence of the weak (one of the 5Ks)
8	kesh	Uncut hair, this is a gift from God (one of the 5 Ks)
9	kanga	Wooden comb for cleanliness and discipline (one of the 5 Ks)
10	kara	A bracelet representing God's eternal nature (one of the 5 Ks)
11	kachera	Cotton undergarments representing high moral character (one of the 5 Ks)
12	Vaisakhi	A Sikh festival



Sharp minds in religious studies: where to look

- Complete RS challenge cards. These can be found in your religious studies classroom.
- YouTube: 'My life, My religion' series
- Take part in the RS 'Spirited Arts' competition

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

- **Book: *The Periodic Table Book* by Tom Jackson**
A visually rich guide to the elements with colourful diagrams, interesting facts, and real-world examples that help young readers understand how elements are used in everyday life.
- **YouTube Channel: MinutePhysics**
Short animated videos that explain scientific ideas clearly and visually, making topics like energy, space, and physics concepts easy to understand.
- **Activity: STEM Learning STEM Clubs Experiments**
A collection of simple hands-on science activities designed for students to explore scientific ideas through practical investigation using common materials.
- **Film: October Sky (PG)**
A motivating true story about a group of students inspired by the space race to build rockets, highlighting perseverance, engineering, and curiosity about science.
- **Podcast: Wow in the World**
An energetic and humorous podcast that explores fascinating science discoveries and big ideas in a fun way that keeps young listeners engaged.

Spanish

	Topic 1 : Descriptions	
1	Me llamo y tengo años.	I am called and I am years old.
2	Tengo los ojos azules / verdes / marrones	I have blue /green /brown eyes
3	Tengo el pelo castaño / rubio / negro largo / corto rizado / liso	I have brown / blonde / black hair longs / short curly / straight
4	Soy alto/a, bajo/a, gordo/a, delgado/a	I am tall /short /fat /thin
5	Soy simpático/a, divertido/a, paciente, trabajador(a)	I am nice / fun / patient / hard-working
6	Soy tímido/a, aburrido/a, antipático/a, perezoso/a	I am shy / boring / mean / lazy

	Topic 2 : Free time	
1	Juego al fútbol /tenis /badminton /baloncesto	I play football / tennis / badminton / basketball
2	Hago ciclismo / natación / deporte / deberes	I do biking / swimming / sport / homework
3	Veó la tele / una película / los dibujos animados / las noticias	I watch TV / a film / cartoons / the news
4	Escucho música / la radio	I listen to music /to the radio
5	Como una pizza /una hamburguesa	I eat a pizza /a burger
6	Voy al cine / restaurante / parque / polideportivo	I go to the cinema /restaurant /park / sport centre

	Topic 3 : My town	
1	Vivo en Eye /Madrid /Londres	I live in Eye / Madrid / London
2	Hay / no hay	There is /isn't, there are/aren't
3	un estadio / teatro / mercado / castillo	A stadium /theatre / market /castle
4	una biblioteca / iglesia / piscina	A library / church / swimming pool
5	es bonito / grande / pequeño está limpio / en el norte / en el sur	It is pretty / big / small It is clean / in the North / in the South

Topic 4 : Going out with friends		
1	Llevo un jersey / un abrigo / un vestido	I wear a jumper / a coat / a dress
2	Llevo una camisa / una falda / una camiseta	I wear a shirt / a skirt / a T-shirt
3	Llevo pantalones / zapatos / zapatillas	I wear trousers / shoes / trainers
4	Me gustaria salir	I would like to go out
5	Hace calor / frío / buen tiempo / mal tiempo	The weather is hot /cold /good / bad
6	Llueve / nieva	It's raining / snowing

Giving Opinions	
Positive	Negative
divertido - fun interesante - interesting gracioso - funny genial - great fantástico - fantastic maravilloso - marvellous/wonderful	aburrido - boring cansado - tiring un rollo - rubbish fatal - awful horrible/terrible – horrible /terrible irritante - annoying



Sharp minds in Spanish: where to look

- Create mind maps/ flash cards of key vocabulary.
- Watch a Spanish film on Netflix
- Make your own online flashcards using - <https://quizlet.com/>
- Use BBC Bitesize -<https://www.bbc.co.uk/zfckjxs>

Quizzing pages**Subject:**

You could practise here, or use your rough book.

	Word or term	Definition
1		
2		
3		
4		
5		

Cover up this box for your next go!

Attempt 2

	Word or term	Definition
1		
2		
3		
4		
5		

Cover up this box for your next go!

Attempt 3

	Word or term	Definition
1		
2		
3		
4		
5		

Subject:

	Word or term	Definition
1		
2		
3		
4		
5		

Cover up this box for your next go!

Attempt 2

	Word or term	Definition
1		
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3		
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Subject:

	Word or term	Definition
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Attempt 2

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

Attempt 3

	Word or term	Definition
1		
2		
3		
4		
5		

Sharp minds...

You should record here the things you've done to really stretch yourself. Each time you complete a section, let your tutor know.

Bronze 3 Hart Points 	Subject	Add details of what you've done
	Tutor signature	

Silver 5 Hart Points 	Subject	Add details of what you've done
	Tutor signature	

Gold 10 Hart Points Letter home Reward! 	Subject	Add details of what you've done
	Tutor signature	