



WILMINGTON  
GRAMMAR SCHOOL FOR BOYS

# Knowledge Organisers

## Year 9 – Term 4

Name	
Form group	

The knowledge organisers in this booklet are full of the **essential facts** and **information** that you need to know and be able to recall in order to ‘master’ Term 4’s units/topics in each of your subjects.

To achieve this, you will need to take in the facts and information and work at moving it all from your short to long-term memory.

We have included the reminder about how to self-quizz as well as the new techniques from last term to keep using/trying out.

Good luck in your learning,

Miss Price

Assistant Headteacher in charge of Teaching and Learning

*Knowledge is Power*

## How to self-quiz: A Reminder!



Read the specific facts/information you have been asked to focus on



Say it in your head/out-loud (if you are at home and would like to)



Cover the section of your knowledge organiser



Write out everything you can remember from what you have read and said to yourself



Check over what you have written – check every word.

If you have everything correct, tick your work with a green pen.

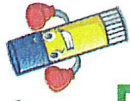
If you have made mistakes in word choice or spelling or have left words/information out, use the green pen to correct your work: This will help you identify the gaps in your knowledge and what you must spend time going over.

Repeat the process until you are able to write out all the facts/information, making no errors. We recommend at least 30 minutes in order to achieve this.

For an example of self-quizzing in action, please see the following instructional video:



# Making knowledge stick!



**Focus and be positive** - say to yourself you can learn what you've been asked to/want to learn, because you can! It is proven that this makes a difference as you're more receptive to the knowledge going in!

**Make flash cards** (for example, have the term on one side and the definition on the other.) Please see this video that shows you how you can effectively use them over the course of a week or set amount of time to embed knowledge:

<https://www.youtube.com/watch?v=C20EvKtdJwQ&t=87s>

**Test yourself a lot - in all these ways and self-quizzing.** When you do so and answer incorrectly, not only are you more likely to remember the right answer after you look it up... you'll also remember that you didn't remember. (Getting something wrong is a great way to remember it the next time, especially if you tend to be hard on yourself.) That's why you need to start early and do little and often, and keep retrieving the same and old knowledge!

Get a family member/friend to test you (remember - word for word; number for number!)

**Incorporate mnemonics** (patterns of letters, ideas, or associations which assist in remembering something) to **recall longer strings of information**: e.g. My Very Excellent Mother Just Served Us Noodles (or Nachos) = The planets in order: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune

**Chunk your learning** - DON'T leave it until the night before it's due (if you do, you may know it a bit and be able to recognise the words, phrases and equations etc. But they won't be committed to memory.) Start early and do little and often; distributed practice is much more effective!

Say the words, definitions, formulae etc. **OUT-LOUD**: This turns you from passive to active in the learning process. Research shows that producing words aloud during study, relative to simply reading them silently, improves explicit memory.

Build a **'MEMORY PALACE'** (also known as method of loci; memory journey and mind palace technique): This memory aid was created thousands of years ago by the ancient Greeks. It's used by world record-holding memory champions (and Sherlock Holmes!) With a little planning and practice, you can build a memory palace, too. *Please see this video of a man helping an 8 year-old boy to know all the US presidents using this technique!*

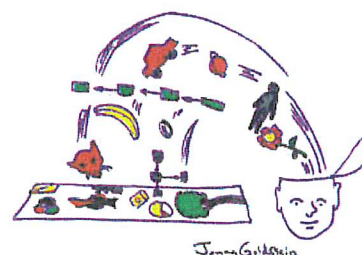
[https://www.youtube.com/watch?v=aT7\\_g2E3q3Q&t=452s](https://www.youtube.com/watch?v=aT7_g2E3q3Q&t=452s)

# Two others for us to try out!

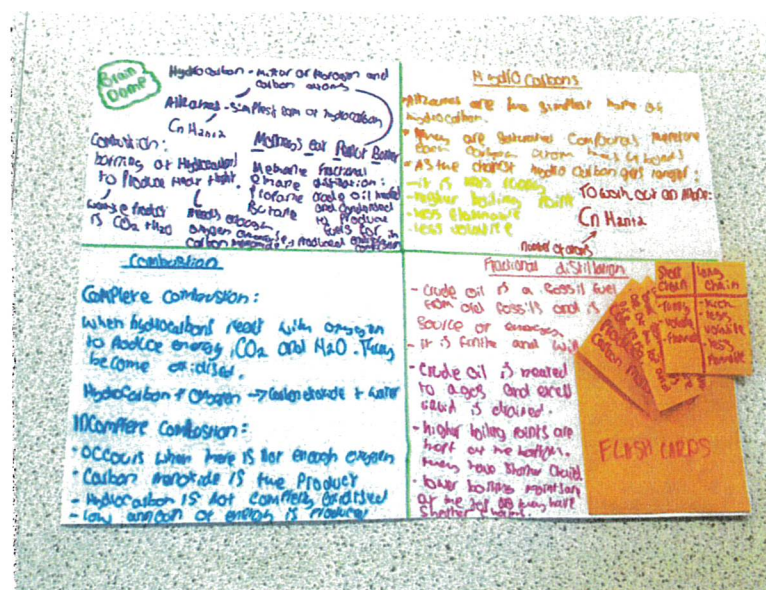
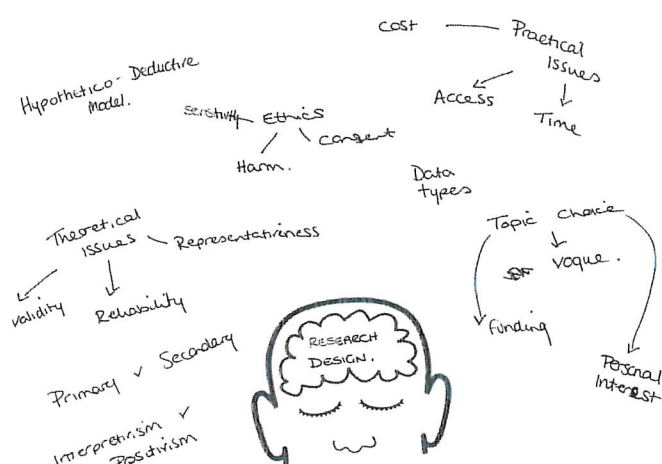
After self-quizzing and employing different techniques to move your essential facts and information into your working and then long-term memory, put your knowledge to the test with a... **Brain Dump!**

## How?

- Take a blank piece of paper
  - Write down (DUMP!) everything you know about the topic
    - No books
    - No notes
    - Be as messy as you like
  - Time limit of 2 minutes
  - After, put a star next to the things you think will be useful to revise.
  - If you are unsure of anything you have written, try to explain each term or concept to someone and if you cannot then you need to revise it.
  - Use your notes to identify areas you have not included in your brain dump. These should be revised too!
- 
- Once you have your brain dump you should be able to elaborate on the content, being able to describe and explain things in detail.
  - You should be able to make connections amongst the ideas.
  - You should identify anything you cannot explain or have missed.
  - You will want to go back and self-quiz and use our other techniques to help you to embed and retrieve the knowledge you have difficulty remembering or explaining or that you did not add to your original brain dump!



Examples of brain bumps:



Here students have 'brain dumped' and then created revision resources (flash cards) to master content



# Mind Maps!

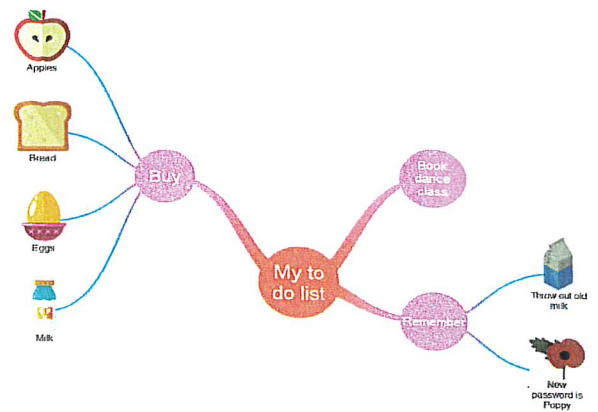
## How?

- Put the topic in the centre of a blank page
- Add big branches with the main ideas/themes of the topic
- Add small branches to these with more detail
- Try to write only 1 or 2 words per branch
  - Focus on the key points only
- Add an image to each branch (dual code\*):



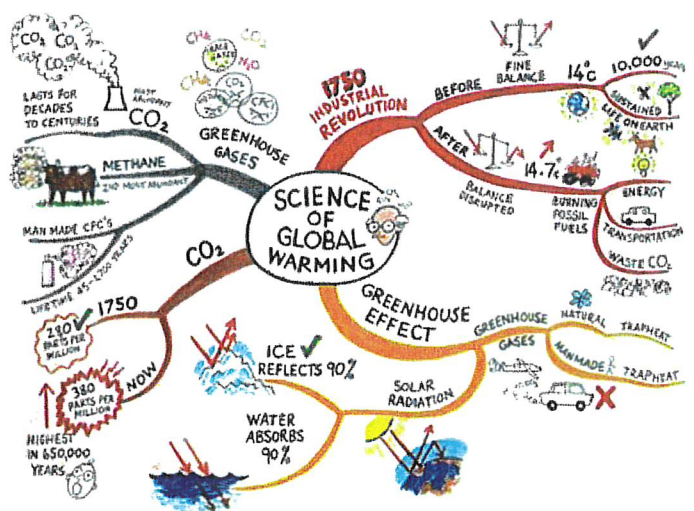
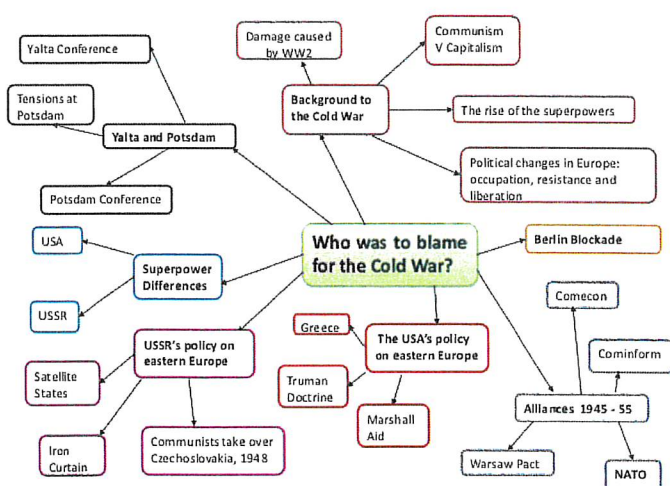
!!!The more creative, the better! Mind mapping can benefit memory retention when we create maps that involve association... The more imaginative and tailored an idea is to an individual, the more it will benefit their memory!!! ... As a simple example, let's work to remember a small 'to do' list:

- Buy apples
- Throw out old milk
- Remember the Internet password is now 'Poppy'
- Book a dance class



To help them remember items on their list, the individual who has created this mind map uses a picture of a 'Pink Lady' apple as a retrieval cue (trigger) because these are their favourite. Furthermore, the individual needs to remember that they have changed their password to 'Poppy', as another cue (trigger), so uses a picture of a remembrance poppy.

More examples of mind maps:

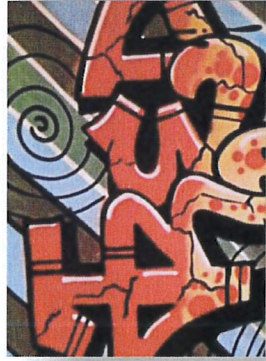


## Top tips!

- 1) ! Use different colours for each branch of your mind map. This helps your brain distinguish between each of the different information stems.
- 2) ! Use 'dual coding'\* in your mind maps. Dual coding means using both words and images to record the information you need to remember.



# WGSB Art - Year 9 Knowledge Organiser



## FAB 5 FREDDY

Born Fred Brathwaite in 1959 to Jazz loving parents in Brooklyn, New York.

He initially exploded on the scene in the late 70's as one of the first Graffiti artists to exhibit his paintings internationally.

Along with close friends and contemporaries, Futura 2000, Keith Haring, Jean Michele Basquiat, Lee Quinones and others, Fab was key in getting the art world to realise New York graffiti was creating an art movement that would eventually pulsate globally until today, and give birth to street art.

He linked up with budding filmmaker Charlie Ahearn and came up with the idea that eventually became the cult classic and first film on Hip-hop culture, "Wild Style", which he also produced, stars in and composed all the original music for.

Fab wanted to reach a broader audience so he decided to direct music videos. His first assignment was the song "My Philosophy" for Hip-Hop legend KRS-ONE. Fab would go on to direct numerous videos and commercials for artists like Queen Latifah, Nas, Snoop Doggy Dog and companies like Pepsi.

In the late 80'S, MTV asked him to host a program called, YO! MTV Raps, which immediately became the highest rated show on the channel and blasted Hip Hop culture into the living rooms of mainstream America and millions on several continents and countries around the world.

Today Fab is focusing on making visual art, exhibiting his work, and was recently featured in the Los Angeles Museum Of Contemporary Art, "Art in The Streets", the blockbuster exhibit that was a historical survey on graffiti and street art

## KEITH HARING

Born May 4, 1958 in Reading, Pennsylvania. He loved drawing as a child, learning cartooning skills from his Dad and from pop culture, such as Dr. Seuss & Walt Disney.

After school he moved to New York and joined the School of Visual Arts. He became friends with fellow artists Jean-Michel Basquiat and Kenny Scharf and, as well as the musicians, performance artists & graffiti writers of the NY alternative art community.

Haring desperately wanted to produce public art, and in 1980 he noticed a perfect way to do this – advertising panels covered with matt black paper in subways. He started doing white chalk drawings on these all through the subway system, sometimes as many as 40 a day. The subway became, as Haring said, a "laboratory" for working out his ideas and experimenting with simple line drawings.

In April 1986, Haring opened the Pop Shop, a retail store in Soho NY selling T-shirts, toys, posters, buttons and magnets bearing his images. Haring considered the shop to be an extension of his work and painted the entire interior of the store in an abstract black on white mural, creating a striking and unique retail environment.

Haring devoted much of his time to public works, which often carried social messages. He produced more than 50 public artworks between 1982 and 1989, in dozens of cities around the world, many of which were created for charities, hospitals, children's day care centres and orphanages.

Haring was diagnosed with AIDS in 1988. In 1989, he established the Keith Haring Foundation, its mandate being to provide funding and imagery to AIDS organizations and children's programs, and to expand the audience for Haring's work through exhibitions, publications and the licensing of his images.

Keith Haring died of AIDS related complications at the age of 31 on February 16, 1990. A memorial service was held on May 4, 1990 at the Cathedral of St. John the Divine in New York City with over 1,000 people in attendance

## Year 9 Business and Finance

### The implications of borrowing

**Assets** – Personal possessions and investments that have a value if sold.

**Bankruptcy order** – A court order to recover debts from an insolvent person, under the supervision of a trustee in bankruptcy.

**Consumer borrowing** – Borrowing by members of the public rather than the government.

**County court judgment (CCJ)** – A court order for the repayment of a debt.

**Credit reference agencies** – Companies that collect data on the conduct of people's financial accounts.

**Debt consolidation** – Rolling up existing debts into one new loan.

**Debt relief order** – An arrangement for someone with debts not exceeding £20,000, limited assets and little disposable income to write off the debts after 12 months.

**Individual voluntary arrangement (IVA)** – An agreement between a debtor and their creditors to pay some of the debts over a set term, usually five years.

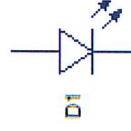
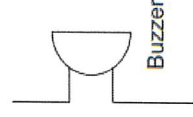
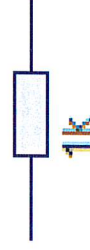
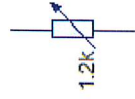
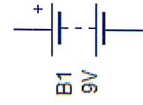
**Insolvency** – When an individual's debts exceed their assets and they cannot meet the loan repayments on the debt; they are said to be 'insolvent'.

**Payment default** – When the borrower fails to make payments on a credit agreement.

**Recession** – A period of at least six months when the amount of goods and services that a country is producing is shrinking. This has wide-scale negative effects on the economy.

# YEAR 9 ALARM KNOWLEDGE ORGANISER

Keyword	Definition
Proton	a stable subatomic particle occurring in all atomic nuclei, with a positive electric charge equal in magnitude to that of an electron.
Electron	a stable subatomic particle with a charge of negative electricity, found in all atoms and acting as the primary carrier of electricity in solids.
Current	a flow of electricity which results from the ordered directional movement of electrically charged particles
Potential Difference	Potential difference is the difference in the amount of energy that charge carriers have between two points in a circuit
Resistance	Resistance is a measure of the opposition to current flow in an electrical circuit. Resistance is measured in ohms, symbolized by the Greek letter omega ( $\Omega$ )
Ohm's Law	a law in electricity that states that the current in a circuit is equal to the potential difference divided by the resistance of the circuit.
V = Volts	The unit of measurement for voltage
I = Amps/Amperes	The unit of measurement for current
R = Ohms	The unit of measurement for resistance
Push to Make Switch	A Push to Make Switch is a type of electrical switch where the connection inside the switch is wired to be normally open. When the switch is compressed the connection is made which allows the electricity to flow and the device the switch is connected to switch "on".
Buzzer	An electrical device that makes a buzzing noise and is used for signalling.
LED - Light Emitting Diode	LED stands for light emitting diode. LED lighting products produce light up to 90% more efficiently than incandescent light bulbs.







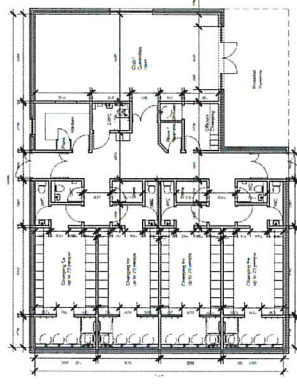
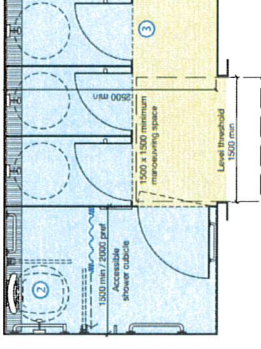
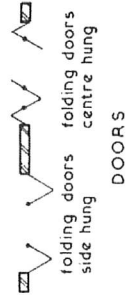
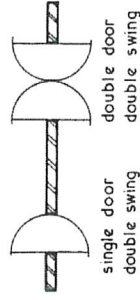
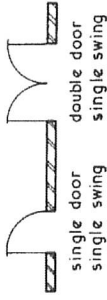
Keyword	Definition
Aeration	Incorporating air into a mixture to give a light fluffy texture
All-in-one	A method of cake making where all ingredients are mixed together at the same time
Beating	This is the rigorous mixing of ingredients using a wooden spoon, electric whisk, food mixer or food processor to thoroughly combine ingredients and to incorporate air
Binary fission	Process by which bacteria replicate and multiply.
Bridge hold	Creating an arch over the ingredient with your hand so the knife can fit underneath to safely chop ingredients
Buttercream	A soft, pipeable or spreadable mixture of butter and icing sugar used as a filling or topping for a cake.
Coating	One of the functions of eggs where they are used to stick flour or breadcrumbs to an ingredients such as fish or chicken.
Choux pastry	A cooked paste or light dough containing eggs, water, butter, and flour that puffs up when baked into a nearly hollow shell
Claw grip	A chopping techniques where your fingers are curled inward and gripping the food with the fingernails, the side of the knife blade should rest against the knuckles, used for slicing ingredients
Coagulation	The change in the structure of protein from a liquid form to solid or a thicker liquid, brought about by heat, mechanical action or acids
Core cooking temperature	The temperature at which foods need to reach in order to be cooked thoroughly. It should be over 75 °C and measured at the thickest part of the food.
Creaming	Mixing butter and sugar together on a moderately high speed until well blended, fluffy and pale yellow., it is often the first step in a cake recipe before the other ingredients are added.
Cross Contamination	The process by which bacteria are transferred from one substance or object to another, with harmful effect. Transferring bacteria from raw to cooked food is the cause of most infections.
Danger Zone	The temperature range with which bacteria multiplies rapidly (5°C -63°C)
Food Hygiene	The conditions and measures necessary to ensure the safety of food from production to consumption
Food poisoning	Illness caused by bacteria or other toxins in food, typically with vomiting and diarrhoea.
Gelatinisation	When starch particles swell and burst, thickening a liquid
Grilling	A form of cooking that involves dry heat applied to the surface of food, commonly from above or below
Hot holding	The process of keeping the cooked food at a safe temperature while it is ready for service
Macro nutrients	The nutrients we need in larger quantities, these include fat, protein and carbohydrate
Micro nutrients	The nutrients we need in small quantities these include vitamins and minerals
Pathogenic bacteria	Bacteria which causes disease, unlike many bacteria which are harmless and often even beneficial to health. Common food borne bacteria include Shigella, Campylobacter and Salmonella
Personal Hygiene	Ensuring people are clean and ready to handle food in order to avoid any form of contamination
Piping	To squeeze a pastry bag in order to force frosting or other paste-like mixtures through the tip of the bag for the purpose of decorating or creating special shapes.
Raising agent	A substance added to a food product that makes it rise when cooked
Rubbing in	To coat flour grains with fat by gently rubbing between the fingertips and thumbs, continuing until the mixture resembles coarse breadcrumbs.
Salmonella	A common bacterial disease that affects the intestines. Humans become infected most frequently through contaminated water or food such as chicken and eggs
Shortcrust pastry	Crumbly pastry made with flour, fat, and a little water, typically used for pies, flans, and tarts
Shortening	The ability of a fat to produce a characteristic crumbly texture to baked products, i.e. pastry
Stir fry	To cook pieces of meat or vegetables quickly in a small amount of hot oil, moving them around all the time
Vegan	People who do not eat any product produced by an animal, this includes, meat, fish, poultry, dairy, eggs and honey
Vegetarians	People who do not eat meat, fish, poultry and in some cases eggs
Whisking	Blend ingredients together quickly or to incorporate air into ingredients such as egg whites or heavy cream in order to increase the volume of the mixture
Wok	A traditional Asian cooking pot shaped like a large deep bowl with a long and short handle or two short handles on opposite sides



# YEAR 9 SPORTS CLUBHOUSE KNOWLEDGE ORGANISER

Keywords	Definition
Water saving measures	Measures such as dual flush toilets, push taps to help reduce the use of water
Scale	The ratio of a distance on the map to the actual distance in real life. The quantitative relation between two amounts showing the number of times one value contains or is contained within the other
Plan view	A view of an object looking straight down on it from above.
Wall	An upright side of a building or room
Window	An opening in the wall or roof of a building or vehicle, fitted with glass in a frame to admit light or air and allow people to see out
Door	A hinged, sliding, or revolving barrier at the entrance to a building, room, or vehicle, or in the framework of a cupboard
Building Symbols	A mark or character used as a conventional representation of elements of a building
British Standards Institute	BSI produces technical standards on a wide range of products and services and also supplies certification and standards-related services to businesses
Sustainability	Avoidance of the depletion of natural resources in order to maintain an ecological balance
Passive design	To design a building to use the planets resources such as the sun, rain and wind to provide energy for the building
Renewable energy	Energy such as wind, solar, biomass, ground source heat pumps used to run a building.
Elevations	A particular side of a building either N/S/E/W
CAD	<b>Computer-aided design (CAD)</b> is the use of computers (or workstations) to aid in the creation, modification, analysis, or optimization of a design
Virtual Model	A digital representation of a physical object

FOOTBALL: Clubhouse

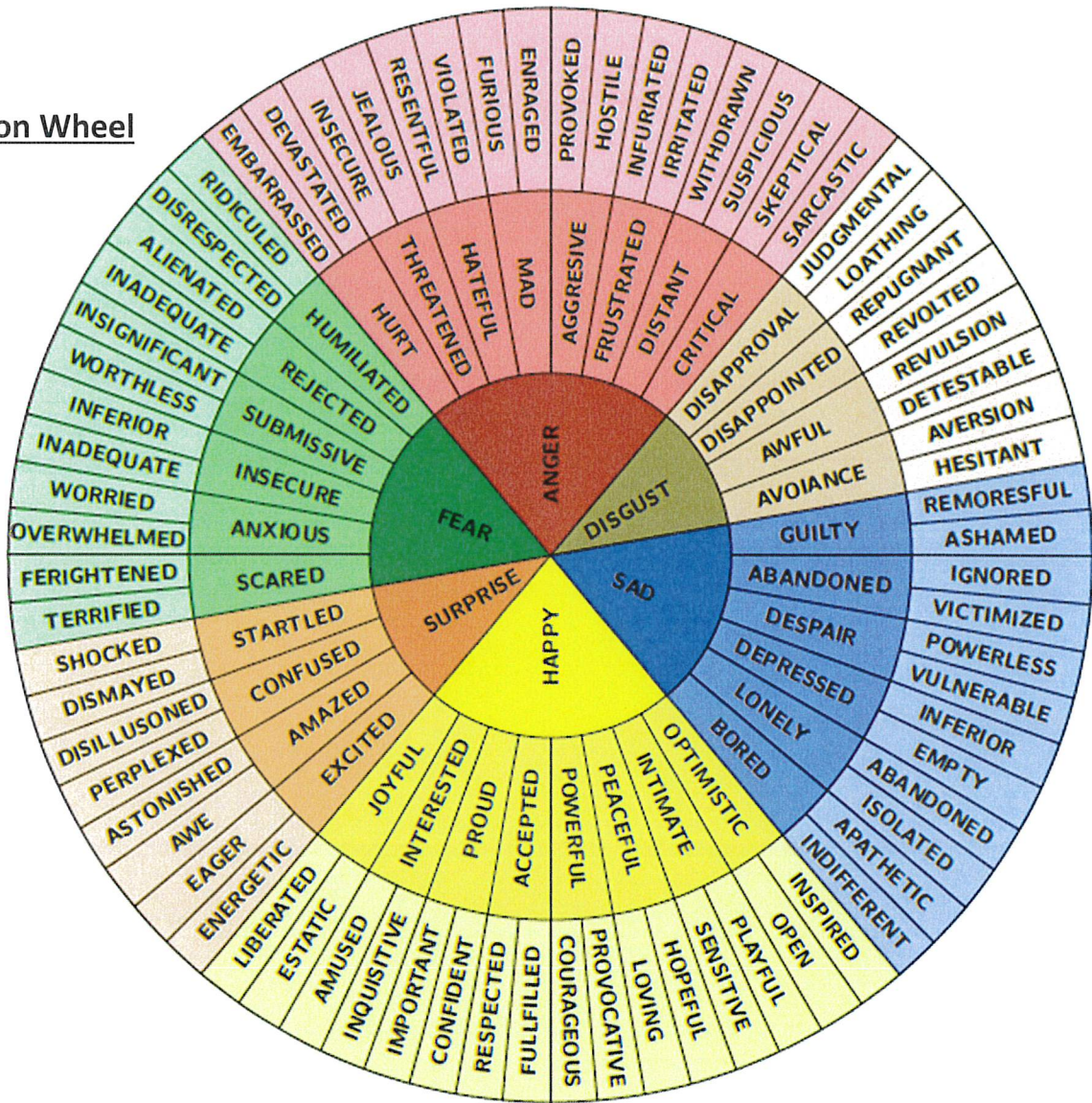




# Year 9 Drama

## Key Terminology Spring 2

### Emotion Wheel



Pick out different emotions from the emotions wheel and write below how you would use your **voice**, **body language**, **facial expressions** and **gestures** to show the emotion.

Emotion 1.....

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Emotion 2 .....

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Emotion 3.....

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## Knowledge Organiser

<b>Department: English</b>	<b>Year: 9</b>
<b>Term: 4-5</b>	<b>Topic: The Lord of the Flies</b>

Overview	Context and Assessments
<p><b>Key Characters</b></p> <p>Ralph – Anglo Saxon word for council: leader, tall, rational, blonde hair.            Piggy – nickname only (never learn his real name): glasses-wearing, asthma- suffering, low class, bullied.            Jack – ‘one who takes over’ – tall, intimidating            Simon – ‘one who listens’ – small, shy, ‘queer’, spiritual, black hair            Roger – ‘one with a spear’ – secretive, sadistic, Jack’s sidekick            SamnEric – twins, always together            The Littluns – collective name of the younger boys</p> <p><b>Key themes:</b></p> <ul style="list-style-type: none"> <li>• Democracy/dictatorship</li> <li>• Civilisation/savagery</li> <li>• Loss of innocence</li> <li>• Human nature</li> <li>• Good/evil</li> </ul> <p><b>Plot Summary</b></p> <p><b>The Sound of the Shell</b> – During WW2, plane carrying evacuees crashes on an island. Piggy (P) meets Ralph(R) and they find a conch shell. R made leader; Jack (J) made leader of hunters.  <b>Fire on the Mountain</b> – Beastie first mentioned. Signal fire rages out of control and kills boy with birthmark.  <b>Huts on the Beach</b> – P focuses on building shelter; J and choir prefer hunting. Simon (Si) disappears and finds peacemf, aromatic part of island.  <b>Painted Faces and Long Hair</b> – J and others paint their faces – say it’s for camouflage but it actually reveals their savage identity.  <b>Beast from Water</b> – beastie discussed. J starts to rebel against the rules/democracy.  <b>Beast from Air</b> – Sam + Eric (S+E) mistake the parachutist for the beast  <b>Shadows and Tall Trees</b> – The boys fight and separate. Storm begins.  <b>Gift for the Darkness</b> – J sacrifices pig’s head to beast  <b>A View to a Death</b> – Si thinks the head talks to him; it realises his paranoia. S killed by the boys.  <b>The Shell and the Glasses</b> – P, S+E avoid talking about Si’s death. J and hunters steal P’s glasses  <b>Castle Rock</b> – P+R go to get P’s glasses. P killed by Roger.  <b>Cry of the Hunters</b> – R runs for his life. Fire engulfs the island and a naval officer comes to investigate. The boys are rescued.</p>	<p><b>Socio-Historical Context:</b></p> <ul style="list-style-type: none"> <li>• The people of Britain had just been through the Second World War. In the novel, the boys seem to create their own war, suggesting that this is an aspect of human nature.</li> <li>• It was feared that there might be a nuclear war between Western countries and the Soviet Union. References to bombs and fighting are made throughout the novel.</li> <li>• Golding worked as a teacher in a boys’ school and said he understood young boys with ‘awful precision.’</li> <li>• The class system was very much existent in Britain. Piggy stands out for being lower class; the others are upper class</li> <li>• Nazi Germany had adopted a system of rewarding the strong and attacking the weak. The same system appears to happen in the novel.</li> <li>• Food was still being rationed in Britain. Desire for food is a major part and motivation of LOTE.</li> </ul> <p><b>Key Symbols:</b></p> <p>Conch – civilization and democracy            Piggy’s glasses – science and technology            Fire – hope of salvation            The Beast – human nature (the desire to be a savage)            The Lord of the Flies (pig’s head) – physical manifestation of the beast            Adults – civilization and social order</p> <p><b>Religious allegory:</b></p> <p>The island - Garden of Eden            The scar - how man destroys paradise (the Fall of Man)            Simon- Jesus Christ</p>

<p><u>Key Terms and Definitions</u></p> <p><b>Acquit</b> – to find a defendant 'not guilty' or release the accused from the charges brought against him or her</p> <p><b>Animosity</b> – a feeling of hatred or hostility</p> <p><b>Antidote</b> – anything that counteracts or relieves a harmful or unwanted condition</p> <p><b>Antithesis</b> – the exact opposite; contrast</p> <p><b>Apartheid</b> – system of segregation in South Africa that existed until the 1900s</p> <p><b>Appeal</b> – to turn to a higher court to try to have a lower court's decision reversed</p> <p><b>Aversion</b> – a feeling of repugnance</p> <p><b>Bias</b> – a tendency towards prejudice</p> <p><b>Bildungsroman</b> – a novel concerned with a person's formative years and development</p> <p><b>Circumstantial Evidence</b> – less-than-direct evidence that requires a judge or jury to make an inference about its relationship to a case</p> <p><b>Convict</b> – to find or prove that someone is guilty of a crime</p> <p><b>Contempt</b> – the act of despising</p> <p><b>Corroborating Evidence</b> – evidence that adds to or supports existing evidence, strengthening a legal case</p> <p><b>Defense Attorney</b> – a lawyer whose job is to represent one accused of a crime and try to prove their innocence</p> <p><b>Discrimination</b> – an act of prejudice</p> <p><b>Expunge</b> – to erase a crime or wrongdoing from a criminal record</p> <p><b>Felony</b> – a serious crime for which the guilty party could receive at least a year in prison</p>	<p><u>Key Quotes</u></p> <p>Atticus said to Jem one day, "I'd rather you shot at tin cans in the back yard, but I know you'll go after birds. Shoot all the bluejays you want, if you can hit 'em, but remember it's a sin to kill a mockingbird."</p> <p>That was the only time I ever heard Atticus say it was a sin to do something, and I asked Miss Maudie about it.</p> <p>"Your father's right," she said. "Mockingbirds don't do one thing but make music for us to enjoy. They don't eat up people's gardens, don't nest in corncribs, they don't do one thing but sing their hearts out for us. That's why it's a sin to kill a mockingbird." (p. 88)</p> <p>Atticus: "You never really understand a person until you consider things from his point of view ... until you climb into his skin and walk around in it." (p. 32)</p> <p>"Well, most folks seem to think they're right and you're wrong ..." (Scout)</p> <p>"They're certainly entitled to think that, and they're entitled to full respect for their opinions," said Atticus, "but before I can live with other folks I've got to live with myself. The one thing that doesn't abide by majority rule is a person's conscience." (p. 101)</p> <p>"Atticus told me to delete the adjectives and I'd have the facts." (p. 59)</p> <p>Until I feared I would lose it, I never loved to read. One does not love breathing. (p. 21)</p> <p>When he was nearly thirteen, my brother Jem got his arm badly broken at the elbow. (p. 1)</p> <p>"There are just some kind of men who—who're so busy worrying about the next world they've never learned to live in this one, and you can look down the street and see the results."</p> <p>Miss Maudie stopped rocking, and her voice hardened.</p> <p>"You are too young to understand it," she said, "but sometimes the Bible in the hand of one man is worse than a whiskey bottle in the hand of—oh, of your father." (p. 46)</p> <p>Scout: "No, everybody's gotta learn, nobody's born knowin'. That Walter's as smart as he can be, he just gets held back sometimes because he has to stay out and help his daddy. Nothin's wrong with him. Naw, Jem, I think there's just one kind of folks. Folks." (p. 212)</p> <p>"He ain't company, Cal, he's just a Cunningham—"</p> <p>"Hush your mouth! Don't matter who they are, anybody sets foot in this house's yo' comp'ny, and don't you let me catch you remarkin' on their ways like you was so high and mighty! Yo' folks might be better'n the Cunninghams but it don't count for nothin' the way you're disgracin' 'em—if you can't act fit to eat at the table you can just set here and eat in the kitchen!" (p. 28)</p> <p>Aunt Alexandra was fanatical on the subject of my attire. I could not possibly hope to be a lady if I wore breeches; when I said I could do nothing in a dress, she said I wasn't supposed to be doing things that required pants. Aunt Alexandra's vision of my deportment involved playing with small stoves, tea sets, and wearing the Add-A-Pearl necklace she gave me when I was born; furthermore, I should be a ray of sunshine in my father's lonely life. I suggested that one could be a ray of sunshine in pants just as well, but Auntie said that one had to behave like a sunbeam, that I was born good but had grown progressively worse every year. She hurt my feelings and set my teeth permanently on edge, but when I asked Atticus about it, he said there were already enough sunbeams in the family and to go on about my business, he didn't mind me much the way I was. (p. 80)</p>
<p><b>Hung Jury</b> – a jury whose members cannot agree on a verdict, typically leading to a mistrial</p> <p><b>Impartiality</b> – treating people equally</p> <p><b>Indict</b> – to formally accuse a person of a crime, based on evidence, before bringing him/her to trial</p> <p><b>Justice</b> – fairness and right action</p> <p><b>Mindset</b> – a fixed state of mind</p> <p><b>Misdeemeanour</b> – a minor wrongdoing</p> <p><b>Pigeonhole</b> – to classify or restrict</p> <p><b>Prejudice</b> – an opinion formed beforehand, esp an unfavourable one; intolerance of or dislike for people of a specific race, religion, etc.</p> <p><b>Prosecutor</b> – a lawyer who produces evidence to prove the guilt of the person or persons accused of a crime</p> <p><b>Respect</b> – good feelings, consideration</p> <p><b>Sympathy</b> – unity, harmony, accord</p> <p><b>Tolerance</b> – act of allowing or admitting</p> <p><b>Umbrage</b> – a feeling of doubt or resentment</p> <p><b>Xenophobia</b> – fear or hatred of foreigners</p> <p><u>Context</u></p> <p>Harper Lee was an American author, whose modern, <b>semi-autobiographical</b>, Pulitzer Prize winning classic novel 'To Kill a Mockingbird' was published in 1960. She was born in Monroeville, Alabama in 1926. In 1950s America, while Lee was writing the novel, the <b>Civil Rights Movement</b> was demanding desegregation and equality for black citizens.</p> <p><b>Jim Crow laws</b> – these were a collection of laws which <b>segregated</b> the African American population of America from 1896. This signposted a big step backwards in America although the <b>Emancipation Proclamation</b> freed the slaves in 1865 following the end of the Civil War.</p>	<p>Atticus said to Jem one day, "I'd rather you shot at tin cans in the back yard, but I know you'll go after birds. Shoot all the bluejays you want, if you can hit 'em, but remember it's a sin to kill a mockingbird."</p> <p>That was the only time I ever heard Atticus say it was a sin to do something, and I asked Miss Maudie about it.</p> <p>"Your father's right," she said. "Mockingbirds don't do one thing but make music for us to enjoy. 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Yo' folks might be better'n the Cunninghams but it don't count for nothin' the way you're disgracin' 'em—if you can't act fit to eat at the table you can just set here and eat in the kitchen!" (p. 28)</p> <p>Aunt Alexandra was fanatical on the subject of my attire. I could not possibly hope to be a lady if I wore breeches; when I said I could do nothing in a dress, she said I wasn't supposed to be doing things that required pants. Aunt Alexandra's vision of my deportment involved playing with small stoves, tea sets, and wearing the Add-A-Pearl necklace she gave me when I was born; furthermore, I should be a ray of sunshine in my father's lonely life. I suggested that one could be a ray of sunshine in pants just as well, but Auntie said that one had to behave like a sunbeam, that I was born good but had grown progressively worse every year. She hurt my feelings and set my teeth permanently on edge, but when I asked Atticus about it, he said there were already enough sunbeams in the family and to go on about my business, he didn't mind me much the way I was. (p. 80)</p>

## Knowledge Organiser 5 March 2018

Department: Geography

Year: 9

Term: 4

Topic: The importance of China – Links to Urban Futures/Resource Reliance/Climate Change at KS4

### Key Words

- **Physical geography**—Natural features on earth e.g. Oceans, mountains, rivers, climate, weather.
- **Relief** – Height and shape of the land.
- **Climate zones** – divisions of the Earth's climates in to zones according to average temperatures and average rainfall. Major climate zones apply to China's regional geography e.g Humid, Arid, Polar etc.
- **Communism** – system of social organisation in which all property is owned by the community and each person shares and contributes according to their ability and needs.
- **Democracy** in modern usage, is a system of government in which the citizens exercise power directly or elect representatives from among the population to govern them.
- **Govern** – to rule or preside over and carry out policy, actions, and affairs of (a state, organization, or people) with authority.
- **Prevailing wind** – the most frequent or common wind direction.
- **Monsoon** – heavy rainfall that arrives as a result of seasonal wind, notably in southern Asia and India between May & September.
- **Plateau** – an area of fairly level high ground e.g. In China the Tibetan plateau.
- **EDC - Emerging and developing country** – A country that is more economically advanced than an LIDC because its economic base is expanding usually from a larger primary sector to secondary sector industry.
- **Primary industries** – industries that collect raw materials from the land and sea e.g Mining and Fishing.
- **Secondary industry**-industry that converts raw materials provided by primary industry into products for the consumer; manufacturing industry e.g. Factory making potatoes into crisps.
- **Population density** – numbers of people per kilometre squared.
- **Rural-Urban migration** – term used to describe the movement of people from the countryside to cities.
- **Urbanisation**- term used to describe the growth of a city outwards also known as urban sprawl.
- **Sustainability** – term used to describe the meeting the needs of the present generation whilst not harming the needs of the future generations socially, economically and environmentally.

### Key Learning Concepts/Facts

#### What is China's human rights record like?

Numerous human rights groups have publicized human rights issues in China that they consider the government to be mishandling, including: the death penalty (capital punishment), the one-child policy (in which China had made exceptions for ethnic minorities prior to abolishing it in 2015), the political and legal status of Tibet, and neglect of freedom of the press in mainland China. Other areas of concern include the lack of legal recognition of human rights and the lack of an independent judiciary, rule of law, and due process.

**What is the population of China and what has the country done to tackle it?** China has a population of 1.439 billion, the largest in the world, according to 2020 figures from the United Nations. The country had feared that population growth was hindering economic development, so in 1979, the Chinese government implemented one crucial policy to control its population: a one child per family policy. It also implemented birth control programs and offered economic incentives to families with fewer children.

**What is the consequence of China's One Child Policy to the present day?** The one-child policy was part of a birth planning program designed to control the size of the rapidly growing population of the People's Republic of China. Distinct from the family planning policies of most other countries, which focus on providing contraceptive options to help women have the number of children they want, it set a limit on the number of births parents could have, making it the world's most extreme example of population planning. It was introduced in 1979

(after a decade-long two-child policy), modified beginning in the mid 1980s to allow rural parents a second child if the first was a daughter, and then lasted three more decades before the government announced in late 2015 a reversion to a two-child limit. The policy also allowed exceptions for some other groups, including ethnic minorities. Thus, the term "one-child policy" has been called a "misnomer", because for nearly 30 of the 36 years that it existed (1979–2015), about half of all parents in China could have a second child.

#### Why are China's cities so densely populated?

Huge growth in terms of job opportunities and improvements in living standards over the last 20 years have encouraged massive rural-urban migration.

#### What is China's rural life like?

In 2020, about 831 million people lived in urban regions in China and 564 million in rural. Most rural Chinese live in one of some 900,000 villages, which have an average population of from 1,000 to 2,000 people. Excessive taxation, local corruption and declining services are problems faced by many people in the countryside.

#### What is rural-urban migration?

Rural-urban migration is the movement of people from the countryside to the city. Urban growth – towns and cities are expanding, covering a greater area of land whilst Urbanisation - an increasing proportion of people living in towns and cities. China's internal migration—there were around 285 million rural-to-urban migrants in China in 2020.

#### What are the environmental challenges facing China?

China's environmental problems, including outdoor and indoor air pollution, water shortages and pollution, desertification, and soil pollution, have become more pronounced and are subjecting Chinese residents to significant health risks.

# Year 9 - Term 4 KO - 'Divided at home and abroad'

Skills and vocabulary  
 Conceptual focus: Similarity and Difference  
 The interpretation shows...  
 The interpretation describes...  
 ...  
 The interpretation says...  
 The interpretation was created by/written in/was designed to...and this meant...  
 The interpretations tone is...argumentative, informative, conciliatory... this is because...  
 A.R.K. - Source and Interpretation analysis structure  
 I.D.E.A. - Paragraph structure for medium and extended writing

Key individuals	
Harry S Truman	After the death of Franklin Roosevelt, Truman became the 33rd President of America from 1945 to 1953. Associated with a headline policy towards containing the spread of communism.
Joseph Stalin	Leader of Soviet Russia from 1924 to 1953. Associated with his autocratic rule and leading Russia through WWII.
Nikita Khrushchev	Leader of Russia during the period of the Cold War known as the Thaw. Although not always the case, he did initially attempt to improve relations with the West.
John F Kennedy	35th President of America from 1961 till his assassination in 1963. JFK oversaw the tensest showdown in the whole of the Cold War. The Cuban Missile Crisis.
Roy Hackett	Born in Jamaica in 1928 and migrated to Britain as part of the Windrush Generation. Took part in a oral history project which provided valuable insight into the experiences of immigrants to Britain.
Mark Ashton	Political and Community Activist and formed the Lesbians and Gays Support the Miners in 1984.
Timeline	<p>1945 - End of WWII and UN formed.</p> <p>1948 - Berlin Blockade, HMT Empire Windrush arrives, and the NHS formed.</p> <p>1953 - Joseph Stalin, leader of the USSR dies and replaced by Nikita Khrushchev.</p> <p>1962 - Cuban Missile Crisis</p> <p>1981 - Brixton Riots which led to Lord Scarman investigation.</p> <p>1988 - Section 28 passed.</p>

**Key question: To what extent were we divided during the twentieth century?**

Key terms:	
Allies	The term referring to America, Britain and Russia and their allies which fought alongside each other to defeat Hitler's Germany in WWII.
Atomic Bomb	Developed by the US as most destructive weapon ever used on a battlefield. Dropped on Hiroshima and Nagasaki ending WWII.
Capitalism	A system of private ownership designed to generate wealth. During this period it went hand-in-hand with liberal democratic views. Associated with America and her allies during the Cold War period.
Communism	A system of state ownership designed to reward everyone fairly based on their needs. During this period it usually went hand-in-hand with forms of autocratic rule. Associated with Russia and her allies during the Cold War period.
Yalta and Potsdam	Two conferences between the wartime allies. They made decisions on how the world would be reorganised after WWII but it quickly became clear there would be conflict between the US and Russia.
Detente	Easing of Cold War tension between the Capitalist West and Communist East.
Beveridge Report	The Beveridge Report recommended the need for a National Health Service (NHS). This would provide free medical services including doctor services, dental care, hospital services and maternity services.
NHS	The National Health Service became operational from the 5 July 1948. Doctors, hospitals, dentists, opticians, ambulances, midwives and health visitors were available, free to everybody.
United Nations	The United Nations was established in 1945 to act as a forum for states to solve their joint problems rather than resort to war.
Windrush Generation	- those that came to the UK from (mainly) the West Indies at the invitation of the British government to live and work. This includes children who did not have their own passport but travelled on their parent's passports.
Section 28	Law passed in 1988 designed to outlaw the deliberate promotion or publication which supported LGBTQ+ relationships.
The Scarman Report	Report produced by Lord Scarman which concluded the Brixton Riots were caused by the unfair treatment of the black community by the police.

# Year 9 Maths Knowledge Organiser

Make sure to read the pages that relate to the topic you're studying. To help you remember the key points, you can copy, say, cover and check. Once you think you have learnt the key knowledge, use the Knowledge Retriever book to test yourself. Look at the next page to see how to use the knowledge retriever book.

Term	Knowledge Organiser Book Pages	Knowledge Retriever Book Pages
1	Simple direct & inverse proportion	73-75
	Linear simultaneous equations	43-44
	Sequences (linear, geometric, quadratic)	35-36
	Factorising quadratics	29-30
	Indices (fractional)	19
	Trigonometry - SOH CAH TOA	115-116
2	Similar triangles	93-94
	Recurring decimals to fractions	11-12
	Engagements & combination of transformations	95-96
	Surds	23
3	Solving quadratics	30
	Plans and elevations	101-102
4	Loci & constructions	105-107
	Inequalities (number line & solving)	39-40
	Recap GCSE Percentages	77-80
	Units & conversions	81-82
5	Circle theorems	89-90
	Arcs and sectors	97-98
	Probability (tree diagrams)	127-134
6	Loci & constructions	108-110
	Solving using the quadratic formula	31-32
	Solving by completing the square	31-32
	Sketching quadratic graphs	57-58

## How to Use This Book

Every page in this book matches a page in the Higher GCSE Maths Knowledge Organiser. Before using this book, try to memorise everything on a Knowledge Organiser page. Then follow these seven steps to see how much knowledge you're able to retrieve...

**1** In this book, there are two versions of each page. Find the 'First Go' of the page you've tried to memorise, and write the **date** at the top.

**2** Use what you've learned from the Knowledge Organiser to **fill in** any dotted lines or white spaces. You may need to draw, complete or add labels to tables, graphs and diagrams too.

**3** Use the Knowledge Organiser to **check your work**. Use a **different coloured pen** to write in anything you missed or that wasn't quite right. This lets you see clearly what you **know** and what you **don't know**.

**4** After doing the First Go page, **wait a few days**. This is important because **spacing out** your retrieval practice helps you to remember things better.

**5** Now do the **Second Go** page. The Second Go page is harder — it has more things missing.

**6** Again, check your work against the Knowledge Organiser and **correct it** with a different coloured pen. You should see some **improvement** between your first and second go.

**7** **Wait** another few days, then try to recreate any methods, formulas, tables or diagrams from the Knowledge Organiser page on a **blank piece of paper**. You can also have a go at any **example questions**. If you can do all this, you'll know you've **really learned it**.

There are also **Mixed Practice Quizzes** dotted throughout the book:

- The quizzes come in sets of four. They test a mix of content from the previous few pages.
- Do each quiz on a different day — write the date you do each one at the top of the quiz.
- Tick the questions you get right and record your score in the box at the end.

## How to Use This Book



## Year 9 French Term 4 KO

### Discussing holidays (where you go)

normalement je vais normally I go  
l'année dernière je suis allé(e) last year I went  
j'allais I used to go  
l'année prochaine j'irai next year I will go  
j'aime aller I like to go  
je préférerais aller I would prefer to go  
au bord de la mer to the seaside  
à la campagne to the countryside  
à la montagne to the mountains  
en France to France  
en Espagne to Spain  
j'y vais I go there  
j'y suis allé(e) I went there  
j'y allais I used to go there  
j'y irai I will go there  
avec ma famille with my family  
avec mes amis with my friends

### Discussing holidays (what you do)

normalement je fais normally I do  
l'année dernière j'ai fait last year I did  
je faisais I used to do  
l'année prochaine je ferai next year I will do  
j'aime faire I like to do  
je préférerais faire I would prefer to do  
du camping camping  
du canoë-kayak canoeing  
du ski nautique water-skiing  
du snowboard snowboarding  
du ski skiing  
de la natation swimming  
de la plongée sous-marine Scuba diving  
de la voile Sailing  
de la planche à voile windsurfing  
de l'équitation horseriding  
de l'escalade climbing  
des randonnées hiking  
un stage de voile a sailing course

### Reflexive verbs PRESENT

je me baigne I swim  
je me coiffe I do my hair  
je me couche I go to bed  
je me douche I have a shower  
je me fais bronzer I sunbathe  
je me fais piquer I get stung  
je m'amuse I have fun  
je m'ennuie I get bored

### Les affaires de vacances Holiday items

un adaptateur an adaptor  
un chargeur a charger  
un tuba a snorkel  
un sac à dos a rucksack  
une bombe anti-insectes an insect repellent spray  
une lampe de poche a torch  
de la crème solaire sun cream  
des lunettes de plongée (fpl) swimming goggles  
des palmes (fpl) flippers  
des tong (fpl) flip-flops  
plein de bouquins (mpl) loads of books  
  
d'après moi/seul moi as I see it  
malgré cela in spite of this  
Tandis que whereas  
Sauf except  
dû au fait que due to the fact that  
quel cauchemar ! what a nightmare  
je prend tenses + depuis for  
je vais en France depuis 10 ans I have been going to France for 10 years

### Ideal holidays

si j'avais le choix if I had the choice  
si j'avais l'argent if I had the money  
si j'étais riche if I were rich  
je voudrais I would like  
j'aimerais I would like  
descendre l'amazonie en canoë go down the amazon on a canoe  
essayer des sports extrêmes try extreme sports  
faire un safari do a safari  
aller sur une île déserte go to a desert island  
aller à New York go to new york  
voir les Pyramides see the Pyramids  
rester dans un hôtel de luxe stay in a luxury hotel  
voir les aurores boréales see the Northern Lights  
partir en croisière go on a cruise

### Discussing holidays PAST

j'ai pris des cours de ski I took skiing lessons  
je suis allé à la pêche I went fishing  
j'ai essayé des sports extrêmes I tried extreme sports  
j'ai passé du temps avec ma famille I spent time with my family  
j'ai visité des parcs d'attractions I visited theme parks  
j'ai loué un pédalo I hired a pedalo  
j'ai joué au tennis I played tennis  
j'ai visité les monuments I visited monuments  
j'ai mangé au restaurant I ate in a restaurant  
j'ai admiré les sites I admired the sites  
j'ai acheté des souvenirs I bought souvenirs  
j'ai rencontré des amis I met friends  
j'ai pris des photos I took photos  
j'ai vu des spectacles I saw shows  
j'ai dormi bien I slept well  
j'ai fait les magasins I did shopping

### ¿Qué haces para ganar dinero? What do you do to earn money?

hago de canguro. I babysit  
lavo el coche. I wash the car  
lavo la ropa. I do the washing  
limpio la casa. I clean the house  
trabajo en el jardín. I work in the garden  
paseo al perro. I walk the dog  
paso la aspiradora. I do the vacuuming  
plancho la ropa. I do the ironing  
pongo la mesa. I lay the table  
reparto periódicos. I deliver papers

### ¿Qué haces con tu dinero? What do you do with your money?

compro... I buy...  
ropa. clothes  
videojuegos. videogames  
revistas. magazines  
chocolate y caramelos. chocolate and sweets  
¿Ahorras también? Do you save as well?  
(no) ahorro. I (don't) save

### Year 9 Term 4 KO

#### ¿En qué trabajas? What's your job?

soy... I'm a(n)...

- abogado(a). lawyer
- camarero(a). waiter/waitress
- cocinero(a). cook
- enfermero(a). nurse
- ingeniero(a). engineer
- médico(a). doctor
- conductor(a). driver
- diseñador(a). designer
- profesor(a). teacher
- actor/actriz. actor/actress
- futbolista. footballer
- periodista. journalist
- repcionista. receptionist
- dentista. dentist
- cantante. singer
- policía. police officer

¿Qué tipo de persona eres? What sort of person are you?  
soy profesional. I'm professional

¿Qué es lo más importante en el trabajo para ti? What is most important to you in a job? ...  
es importante para mí.... is important to me  
el dinero. money  
la creatividad. creativity  
la variedad. variety  
tener responsabilidades. having responsibilities

#### ¿Qué harás? What will you do?

¿Qué harás si ganas la lotería? What will you do if you win the lottery?  
beberé cócteles. I will drink cocktails  
me casaré con... I will marry...  
comeré en restaurantes. I will eat in restaurants  
compraré un coche muy caro. I will buy a very expensive car  
iré al gimnasio todos los días. I will go to the gym every day  
seré famoso/a. I will be famous  
tendré un entrenador. I will have a trainer  
viajaré mucho. I will travel a lot  
no/nunca más... I will not/never again ...  
tendré dos hijos. I will have two children

#### Me gustaría... I'd like to...

¿Qué te gustaría hacer? What would you like to do?  
me gustaría trabajar... I'd like to work...  
al aire libre. in the open air  
con animales. with animals  
con niños. with children  
en una oficina. in an office  
solo/a. alone  
en contacto con la gente. with people  
me gustaría viajar. I'd like to travel  
me gustaría hacer... I'd like to do...  
un trabajo creativo. a creative job  
un trabajo manual. a manual job



trabajo I work  
trabajaba I used to work  
me gustaría trabajar I would like to work  
voy a trabajar I am going to work  
trabajé I worked  
trabajaré I will work  
hay there is  
había there was  
habrá there will be  
no cabe duda de que there's no room for doubt that  
sea lo que sea be that as it may  
siempre he soñado con (+ infinitive) I've always dreamed of

Key Words	Topics	Essential knowledge
<p><b>Festival:</b> A Day or period of celebration for religious reasons.</p> <p><b>Easter:</b> A religious season celebrating the resurrection of Jesus from the dead.</p> <p><b>Christmas:</b> The day commemorating the Incarnation, the birth of Jesus.</p> <p><b>Church:</b> The holy people of God, also called the body of Christ. Also means the building in which Christians worship.</p> <p><b>Agape:</b> A word in the Bible that describes selfless or unconditional love.</p> <p><b>Mission:</b> The vocation or calling of a religious organisation or individual to go out into the world and spread their faith.</p> <p><b>The Great Commission:</b> Jesus' instruction to his followers to spread his teachings.</p> <p><b>Missionary:</b> A person sent on a religious mission, especially to promote Christianity in a foreign country through preaching or charitable work.</p> <p><b>Evangelism:</b> Spreading the Christian gospel by public preaching or personal witness.</p> <p><b>Convert:</b> Someone who has decided to become committed to a religion and change his or her religious faith.</p> <p><b>Reconciliation:</b> The restoring of harmony after relationships have broken down.</p> <p><b>Persecution:</b> Hostility and ill-treatment, especially because of race, or political or religious beliefs.</p>	<p><b>Festivals:</b> Festivals help Christians to remember and celebrate the major events in their religion. Christmas the birth of Jesus and Easter Jesus' resurrection from the dead. Christmas commemorates the incarnation of Jesus. Easter celebrates the rising of Jesus from the dead.</p> <p><b>The role of the church in the local community: Food banks and Street Pastors:</b> Individual churches and the church as a whole help the local community in a variety of ways. Such as <b>food banks and street pastors.</b></p> <p><b>Individual churches</b> help to educate people, provide activities for younger children, provide meeting places. <b>The Church,</b> help support local projects, provide social services such as schooling and medical care, they help those in need, and campaign for justice.</p> <p><b>Individual Churches:</b> Educate people about Christianity, meeting places for prayer and worship, provide activities for younger children such as youth clubs. <b>Food banks,</b> provide food for free to people who cannot afford to buy it, examples of <b>foodbanks:</b> The Trussell Trust and The Oasis Project. <b>Street Pastors</b> are trained to patrol the streets in urban areas. They help people by providing a reassuring presence on the street. This is done as Jesus taught to help others and show agape love.</p> <p><b>The Place of mission and evangelism:</b> Christians do this to spread the faith. To fulfil Jesus' instructions to the disciples to spread his teachings. Mission spreading the gospel, Evangelism telling others about Jesus and the Great commission Jesus' instructions. Alpha is an example of evangelism in Britain.</p> <p><b>Church Growth:</b> A third of the world's population claim to be Christian and around 80,000 people become Christians each day. Christ for all Nations is an example of a Christian organisation that promotes evangelism.</p> <p><b>The importance of the worldwide Church:</b> The worldwide Church has a mission to restore people's relationship with God and with one another. The Church therefore plays an important role in reconciliation. Examples of organisations working for reconciliation are The Irish Churches Peace Project and The World Council of Churches as well as The Corrymeela Community.</p> <p><b>Christian Persecution:</b> Christians have faced persecution from the beginning of the Church and Christians are still persecuted worldwide today. For some Christians persecution can have a positive effect, it can strengthen their faith, allow them to share in Jesus' suffering. The Church helps those in persecution through prayer, practical help and financial support, by raising awareness and campaigning.</p> <p><b>The Church's response to world poverty:</b> Christian charities follow the example and teaching of Jesus in working to relieve poverty. Christians believe they should show Jesus to the world through helping the disadvantaged. Three Christian charities that help the poor are Christian aid, Tearfund, and CAFOD.</p>	

**Knowledge Organiser**

Year: 9

Department: Biology

Topic: Chapter 1 ( B1.3 & B1.4) - Photosynthesis

Term: 4

Key Learning Concepts/Facts

Key Words

word	definition
respiration	the process used by all organisms to release the energy they need from food
Amylase	a digestive enzyme (carbohydrase) that breaks down starch
exothermic	chemical reaction in which heat is given out
aerobic respiration	respiration that involves the use of oxygen
Protease	digestive enzymes that break down proteins into amino acids
fermentation	anaerobic respiration in yeast cells; produces ethanol and carbon dioxide
anaerobic respiration	respiration without using oxygen
lactic acid	product of anaerobic respiration in muscles
Polymer	a molecule, such as DNA, made up of repeating units
monomer	single units, such as sugar molecules, that join together in a long chain to form a larger molecule (polymer).
Carbohydrates	provide the body with energy
Endothermic	chemical reaction which takes in heat from the surroundings
Chloroplast	a cell structure found in green plants that contains chlorophyll
chlorophyll	pigment found in plants which is used in photosynthesis (gives green plants their colour)
photosynthesis	process carried out by green plants where sunlight, carbon dioxide and water are used to produce glucose and oxygen
limiting factor	factors such as light, temperature and carbon dioxide, which affect the rate of photosynthesis
Lipids	used as a store of energy, and for insulation
proteins	used for growth and repair of body tissues
starch	a complex carbohydrate found in animals and plants
ATP	chemical energy store for all processes in the cell.

**Photosynthesis**

**Photosynthetic Reaction**

Photosynthesis is the process of making glucose from sunlight in the leaves of the plant. It is an endothermic reaction in which energy is transferred from the environment to the chloroplasts by light.

The equation for photosynthesis is:



**Calculating rate of photosynthesis**

By carrying out an experiment measuring the oxygen production of a plant, you can calculate the rate of photosynthesis.

**Factors affecting photosynthesis**

**Temperature** - With an increase in temperature, the rate of photosynthesis increases

**Light intensity** - For most plants, the higher the light intensity, the rate of photosynthesis increases. **the inverse square law**

**Inverse proportion** describes a relationship between two factors which involves one increasing whilst one decreasing. As the distance between the light source and the plant increases, the light intensity decreases. The light intensity is inversely proportional to the square of the distance- called **the inverse square law**.

**Carbon dioxide concentration** - As the concentration of carbon dioxide increases, the rate of reaction increases.

**Limiting factor**

This is an environmental condition (such as light intensity) which, in low levels, restricts any increase in the rate of photosynthesis. Despite increases in other factors (such as temperature or carbon dioxide concentration), the rate of photosynthesis will not increase any more.

**A graph involves one limiting factor if it has one line which levels off, with the factor on the horizontal axis and rate of photosynthesis on the vertical axis.**

Farmers can use the knowledge of limiting factors to enhance the conditions in the greenhouse for a greater rate of photosynthesis. This will increase growth leading to increased profits.

- **alkali metal:** an element in group 1 of the periodic table
- **argon:** one of the noble gases, symbol Ar
- **bromine:** an element that is a non-metal, liquid halogen that is orange-brown in colour
- **chlorine:** an element that is a non-metal, gaseous halogen that is green in colour
- **density:** found by dividing its mass by its volume
- **diatomic:** particle that exists as a molecule made of 2 atoms
- **Displacement reaction:** Chemical reaction where one element displaces or 'pushes out' another element from a compound.
- **halide:** name given to halogen elements when found in ionic compounds
- **halide ion:** negatively charged particle formed when a halogen gains an electron
- **halogen:** an element in group 7 of the periodic table
- **helium:** one of the noble gases and the second element in periodic table. It has the lowest boiling point
- **ion:** charged particle (can be positive or negative)
- **iodine:** an element that is a non-metal, solid halogen that is made of grey-black crystals which sublime into a purple vapour
- **monoatomic:** particle that exists as a single atom
- **neon:** one of the noble gases, symbol Ne
- **noble gas:** an element in group 0 of the periodic table
- **reactivity:** describes how one element (usually a metal) is more reactive than another. Often presented as a series.
- **Stable electronic structure:** when the outer electron shell of an atom is full
- **trend:** a general pattern or direction in which something is changing
- **unreactive:** does not chemically react, inert

## Knowledge Organiser

Department: Physics

Topic: Magnetism

Key Words		By the end of this unit you will need to be able to: (page numbers relate to the textbook available on teams)
A current or magnet that can be created by the use of magnetic fields	Induced	Know what is meant by the poles of a magnet and be able to plot the magnetic field around a bar magnet. P140-141
Electric current that continually changes direction	Alternating current	Describe magnetic materials and what induced magnetism is. P141
A region where there is a force on magnetic materials or current-carrying wires	Magnetic field	Describe the Earth's magnetic field and how the magnetic and geographic poles are not the same. P142
Useful output energy transfer divided by the total energy input	Efficiency	Understand the magnetic effect of a current and be able to draw the magnetic field around a conducting wire and a solenoid. P143 and 144
Device that creates electricity when a wire is moved so that it cuts magnetic field lines	Generator	Describe the force on a wire in a magnetic field. P145
Device that increases an alternating potential difference from the primary to secondary coil	Step-up transformer	Understand and be able to use Fleming's left-hand rule P145
A material that is magnetic only when it is placed in the magnetic field of another magnet	Induced magnet	Know the meaning of magnetic flux density and calculate the force on a wire in a magnetic field. P146-147
Device in a d.c motor that allows the motor to spin without reversing direction	Split-ring commutator	Describe the motor effect and how a motor works. P150-151
When a force between two objects draws them closer together	Attracts	Know the factors that can change the speed and direction on a motor. P150-151
Object or material that produces its own magnetic field	Permanent magnet	Explain how a dynamo generates direct current. P151
A device that produces a direct current from the rotation of a coil in a magnetic field	Dynamo	Know how transformers work, and the difference between step-up and step-down transformers. P152-153, 280-281
A coil of current-carrying wire that generates a magnetic field	Solenoid	Explain how an alternator generates alternating current. P153
Device that decreases an alternating potential difference from the primary to secondary coil	Step-down transformer	Describe how a potential difference is induced in a wire when it moves in a magnetic field and the factors that affect the size and direction of the current or induced potential difference. P148-149
Relationship where one variable increasing at the same rate as the other	Proportional	Describe how both a loudspeaker and microphone work and compare loudspeakers and headphones. P154-155
Interaction between a magnetic field and a current-carrying wire that causes the wire to move	Motor effect	<b>Equations for this unit – you will not be expected to know these but will be given them in the exam</b>
A device where a coil rotates in a magnetic field to produce A.C.	Alternator	force on a conductor (at right angles to a magnetic field) carrying a current = magnetic field strength x current x length
Network of cables that links power stations to consumers across the country	National grid	potential difference across primary coil x current in primary coil = potential difference across secondary coil x current in secondary coil
Unit of magnetic flux density	Tesla	<u>potential difference across primary coil</u> = <u>number of turns on primary coil</u>
Device that converts electrical energy to kinetic	Motor	<u>potential difference across secondary coil</u> = <u>number of turns on secondary coil</u>
The amount of magnetic flux in a given area	Magnetic flux density	

# WGSB Year 9 Academic Merits

	<b>BRONZE</b>	<b>SILVER</b>	<b>GOLD</b>
Life Programme	3	5	8
Art, Computer Studies, Drama, Music, RS	8	10	12
Geography, History, Biology, Chemistry, Physics	10	15	20
DT, French, Spanish, PE	20	25	30
English, Maths	30	40	50