

Knowledge Organiser

TERM 1: **RESILIENCE**

"There are many things that I still have to learn... I don't know everything, and I'm totally okay with that. I like to be a student of life."

Zendaya, Actress

**THE ENGAGED MIND STAYS SHARP.
BE ENGAGED IN THE HERE AND NOW.**



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Equipment

all students must have...



Mobile phones are not to be used in lessons without staff permission
No photos or videos to be taken without permission
No school related images or videos to be uploaded on to social media

Black or blue pen
Pencils
Ruler - 30cm
Protractor
Compass
Rubber
Pencil Sharpener
Purple pen
Scientific calculator
Coloured crayons
Student Organiser
Knowledge Organiser
Locker Key

Knowledge Organisers at Redmoor Academy

WHY?

Why do we have knowledge organisers?

Your knowledge organisers help you to be successful in many ways. Firstly, they make the key elements of each topic clear, showing you what you need to have an excellent understanding of in order to be successful. If you know these elements, your teacher will help you to understand them.

WHAT?

What are my teachers' expectations of me?

In Year 7 and 8 your teachers will give you homework. You will be spending 20 minutes a week learning information from your knowledge organiser for each subject, with Sparx used for Maths and Literacy. In Year 9 this will increase to 30-40 minutes. Teachers will test you regularly to make sure that you are completing the homework and remembering your knowledge.

HOW?

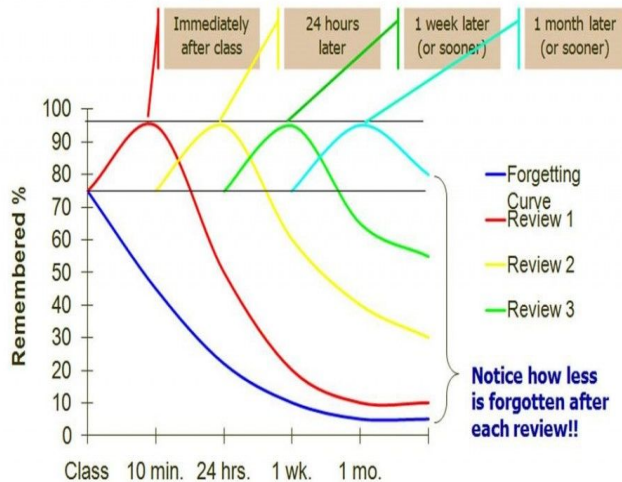
How will my teachers use them?

Core subjects will set homework once a week (others less often). This will help you to learn the most important knowledge for each topic. Teachers will also test you regularly to see how well you have remembered it. Research tells us that this practising is a really good way of helping you make sure that the knowledge stays in your memory. Over time, you will build on this knowledge to make sure that you know everything you need to for your subject. Sometimes you may have high stakes quizzes, where teachers will set a certain score that you have to reach to be successful.

How will they help me to be successful later on?

When it comes to GCSEs, you have lots of information to remember. Your knowledge organisers will gradually build up this knowledge over 5 years to help support you in Year 11. This means that when you revise you will just be recalling knowledge that you have already stored. Also, all of this practice with lots of different revision techniques now will help you when it comes to your final exams.

How we learn at Redmoor



Why reviewing your learning is so important

As soon as we are told a new piece of information, most of that information is 'lost' and forgotten. Hermann Ebbinghaus found that repeating information helps us remember more of it. This means we need to be reviewing and going over what we learn in order for us to remember and be able to use the information after a period of time has passed.

This resource summarises some proven strategies that you can use to review your knowledge.

Common methods of revision that are the **least effective**:

- Highlighting key points
- Re-reading
- Summarising texts



Retrieval practice

Testing what you know is a powerful tool in revision; the effort to remember something really strengthens your memory. Apps such as Memrise and Quizlet allow you to use or create your own quizzes based on topics. Create them, test yourself or get someone to test you. It works!

Learn more about retrieval practice here: [Link to the Learning Scientists](#)

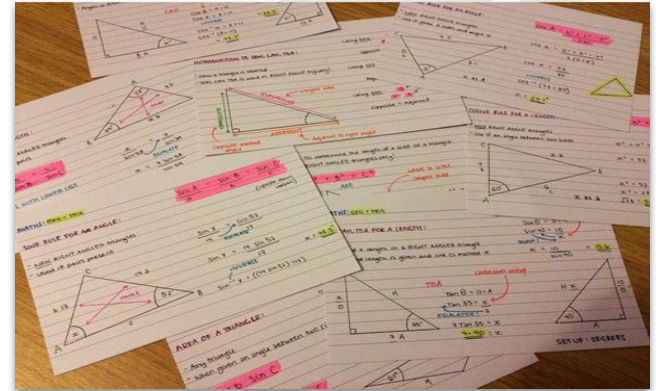
How we learn at Redmoor

Flash Cards

You can use these simply to create questions on one side and answers on the other. You might colour-code the cards for specific topics, and even include keywords and timelines.

Once you have created your flashcards you need to think about how you will use them effectively. There is a link below to a video helping you understand the Leitner system of using flashcards:

[YouTube: The Leitner Method](#)



Dual Coding



Dual coding is the process of combining verbal materials with visual materials.

You simply take information that you are trying to learn and draw visuals to go with it.

You can learn more about dual coding here:

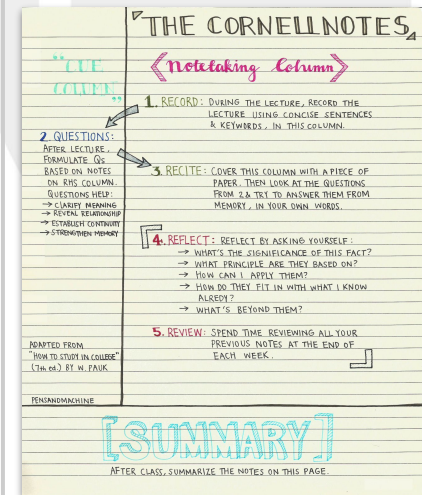
[Link To The Learning Scientists](#)

Try to come up with different ways to represent the information. For example, you could draw a timeline, a cartoon strip or a diagram of parts that work together.

Cornell Notes

This method can be used in your revision books as a great method to get you to 'think' about your revision. You simply split your page into 3 sections as shown on the diagram below:

- Note Taking
- Key words / concepts
- Summary

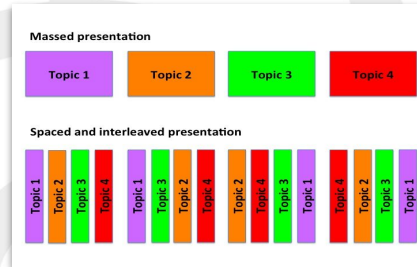


How we learn at Redmoor

Spacing and Interleaving

You shouldn't revise all of your topics in one go - this is called cramming. Instead, you should revise 'chunks' of a topic for small amounts of time, spending around 15-30 minutes on each. You should then move onto another 'chunk' from a different topic.

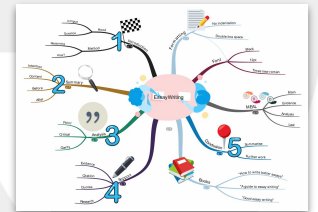
Eg. topic 1 is 'cells', topic 2 is the 'digestive system'. This will improve your memory!



Mind Maps

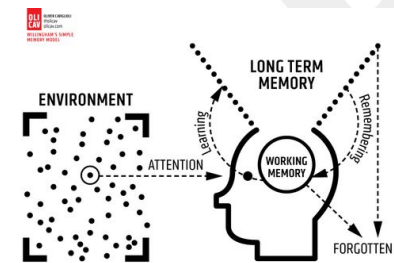
Mind mapping is simply a diagram used to visually represent or outline information. It is a powerful graphic technique you can use to translate what's in your **mind** into a visual picture.

Mind maps help with memorisation of key knowledge as they help to organise information and allow you to begin to make links and connections to different pieces of information. The use of visual images helps your brain to memorise the information with simple words next to them - and this links to dual coding!



Useful links:

- The learning scientists: <https://www.learningscientists.org/>
- Memrise: <https://www.memrise.com/>
- Quizlet: <https://quizlet.com/en-gb>
- Seneca: <https://www.senecalearning.com/>



Literacy

Proofreading Guidance

When we write, we know what we're trying to say, so our brains might skip out words or punctuation. It is important that we proofread to avoid making silly mistakes.

Full Stops & Commas

- A full stop gives a strong pause. It goes at the end of a whole sentence.

e.g. Jake had four brothers. He got on best with Dan who shared his sense of humour.

- A comma gives a short pause and is used to separate items in a list *e.g.*

Bring some milk, eggs, butter and flour.

After introductory words *e.g.*

However,

Between the different parts of a sentence: *Gran, who had been a champion boxer in the sixties, stepped forward.*

Paragraphs

- Change in time, *e.g. Later that day, an important letter arrived.*

- Change in place, *e.g. Back at home things were just as bad. / Chile, however, has a population of...*

- Change of subject, *e.g. As well as mountain biking, I also enjoy swimming...*

- Each time a different person speaks:

"Hey, that's my phone!"

"No it isn't - I had it for my birthday."

Spelling Homophones

Words that sound the same but are spelt differently.

there, their, they're

They're silly to have left their coats over there where there is wet grass.

your, you're

You're such a good friend to lend me your phone.

to, two, too

Two of my friends are coming to Alton Towers too.

Grammar Errors

I have played tennis. ✓ *I of played tennis.* ✗

I should have / should've played tennis. ✓

I should of played tennis. ✗

I/she/he were late. ✗ *I/she/he was late.* ✓

They were late. ✓ *They was late.* ✗

You were late. ✓ *You was late.* ✗

I ran quick, passing the ball brilliant. I played amazing. ✗

I ran quickly, passing the ball brilliantly. I played amazingly. ✓

Apostrophes

- Use an apostrophe to show possession *e.g. John's football is flat.*

- Also use an apostrophe for omissions (the apostrophe shows where a letter or letters are missing) *e.g. I didn't do it. It wasn't me!*

Capital Letters

- At the start of every sentence

- For days, months and celebrations, *e.g. Wednesday, April, Easter*

- For proper nouns (names of people and places) *e.g. James, London, Rutland Water*

- For Titles (except the small words) *e.g. The Hunger Games, Match of the Day*

- For abbreviations *e.g. BBC, RSPCA*

Correct Tense

Are you using the correct tense? Do not switch from one to another. - For days, months and celebrations,

- **Past:** *e.g. I ran to the shops.*

- **Present:** *e.g. I am running to the shops*

- **Future:** *e.g. I am going to run to the shops.*

Literacy Marking Code:

sp	Spelling mistake
^	Missing word/letter
O	Capital letter/Punctuation
~~~~~	Unclear/poorly worded
//	New paragraph
th	Use a thesaurus
w	Wrong word

# Talking Points

## To add an new idea to what someone else has been saying:

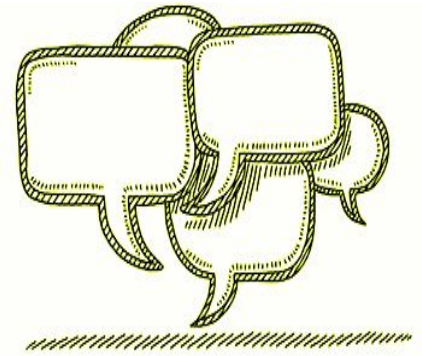
- I would like to add to this...
- I would have to agree with you because...
- Another example of this could be...
- Adding on to this, in my opinion...
- We might also consider...
- As well as this, it is important to think about...
- In addition...

## To build on what someone else has been saying:

- This could be developed by considering...
- This links to...because...
- Furthermore, it could be argued that...
- To elaborate further...
- Building onto this...
- Leading from this...
- Taking this one step forward...
- On top of this...

## To challenge someone's ideas and offer the opposite viewpoint:

- I would challenge this idea because...
- On one hand I agree with... However I think...
- On the other hand this idea could be challenged because...
- From another perspective you might argue that...
- Although I can see why ___ thinks... I disagree because...
- Whereas ___ seems to think... instead I think...



## Banned words:

- ★ You know
- ★ Like
- ★ Isn't it
- ★ Basically
- ★ Sort of
- ★ Kind of
- ★ Sommit
- ★ Innit
- ★ Dunno
- ★ Gonna
- ★ So...
- ★ Okay....

Add, Build, Challenge

**AUTHORIAL  
ADVERBS –  
SPRINKLE THESE  
INTO YOUR  
ANALYSIS**

The writer...

skilfully,  
subtly,  
provocatively,  
disturbingly,  
pivotally,  
effectively,  
strikingly,  
challengingly,  
crucially,  
significantly,  
clearly,  
critically,  
rarely,  
artfully,  
carefully,  
masterfully,  
awkwardly,  
surprisingly,  
subsequently,  
conversely,  
frequently,  
vividly,  
subsequently,  
thoroughly,  
creatively,  
ambitiously,  
unexpectedly,  
realistically,  
dramatically...

HOW TO STRUCTURE YOUR PETZEL PARAGRAPHS	SENTENCE STARTERS
Effective essay paragraphs are structured carefully using PETZEL PARAGRAPHS	
<b>P: Give a clear <u>point</u> to answer the question. This is your idea or argument.</b>   <i>The writer presents the headteacher as a terrifying and angry person.</i>	<input type="checkbox"/> [Author's surname] presents the character of... as...   <input type="checkbox"/> [Author's surname] presents the theme of... as...
<b>E: Use well-chosen <u>evidence</u> which backs up your idea and proves what you're saying. Remember to use quotation marks when quoting from the text!</b>   <i>For example, the text says, "The teacher barked at the students like a wild dog."</i>	<input type="checkbox"/> This is shown through the line '...'   <input type="checkbox"/> The writer's description '...' suggests/emphasises/highlights...   <input type="checkbox"/> We see this when '...'   <input type="checkbox"/> The texts says '...'
<b>T+Z: Name the language trick the writer used (<u>technique</u>), then pick out one specific word to look at closely (<u>zoom</u>).</b>   <i>The writer uses a simile by comparing the teacher to a dog. If we zoom in on the word "barked", it shows he is loud, aggressive, and losing control.</i>	<input type="checkbox"/> The writer uses the word '...' to suggest/emphasises/ highlight...   <input type="checkbox"/> The use of the [literary technique] shows/ highlights/ emphasises/...
<b>E: Explain how this makes the reader or audience feel (<u>effect</u>), and what it makes them think of or imagine.</b>   <i>This makes the reader feel scared for the pupils. Audiences in the past might have been used to strict schooling, but modern audiences today would find this behavior shocking.</i>	<input type="checkbox"/> This makes the reader feel/ think/ realise/ understand...   <input type="checkbox"/> A reader would/ would not be surprised because...   <input type="checkbox"/> A traditional reader may... whilst a modern reader may...
<b>L: <u>Link</u> your ideas back to the history of when the text was written, or back to your main argument.</b>   <i>In older schools, teachers were allowed to be much stricter and use harsher punishments than they do today. Therefore this amplifies how terrifying the teacher might seem to a modern reader.</i>	<input type="checkbox"/> This reflects the idea of... at the time...   <input type="checkbox"/> Overall, the writer presents the character/theme in this way to show/ emphasise/ highlight...

<i>LANGUAGE TECHNIQUES</i>	<i>STRUCTURE TECHNIQUES</i>
<b>Superlative:</b> Shows the highest degree. Example: biggest, fastest, best.	<b>Repetition:</b> Saying something more than once. Example: "He ran and ran."
<b>Modal Verb:</b> Shows if something is possible or necessary. Example: can, must, should.	<b>Triplet:</b> Three words or phrases together. Example: "Tall, dark, and handsome."
<b>Imperative:</b> A command or order. Example: "Sit down."	<b>Juxtaposition:</b> Putting two different things together to show contrast. Example: "The rich and the poor."
<b>Symbolism:</b> Using something to represent an idea. Example: A heart for love.	<b>Listing:</b> Writing several things in a row. Example: "Apples, oranges, bananas."
<b>Alliteration:</b> Words close together start with the same sound. Example: "Silly snakes slither."	<b>Shifts in Focus:</b> A change in what the writer is writing about, typically signposted by a new paragraph.
<b>Metaphor:</b> Saying something is something else. Example: "He is a lion in battle."	<b>Chronological Structure:</b> Events in time order.
<b>Simile:</b> Comparing using 'like' or 'as'. Example: "She is as fast as a cheetah."	<b>Foreshadowing:</b> Hinting at something which will happen in the future.
<b>Personification:</b> Giving human qualities to things. Example: "The wind whispered."	<b>Flashback:</b> Jumping to a past event.
<b>Semantic Field:</b> Group of words about the same topic. Example: ocean, wave, tide, sand.	<b>Exposition:</b> The beginning or opening of a text.
<b>Hyperbole:</b> Exaggeration. Example: "I've told you a million times!"	<b>Tension:</b> The build up of nerves or fear before an important event.
<b>Imagery:</b> Describing something so you can picture it. Example: "The golden sun warmed her face."	<b>Climax:</b> The most exciting part of a story
<b>Onomatopoeia:</b> A word that sounds like the actual noise it makes. Example: "The heavy textbook fell to the floor with a loud thud."	<b>Oxymoron:</b> Two direct opposites placed next to each other Example: "Exploding comfortably"
<i>New Word:</i>	<i>New Word:</i>

# English Department: The Giver

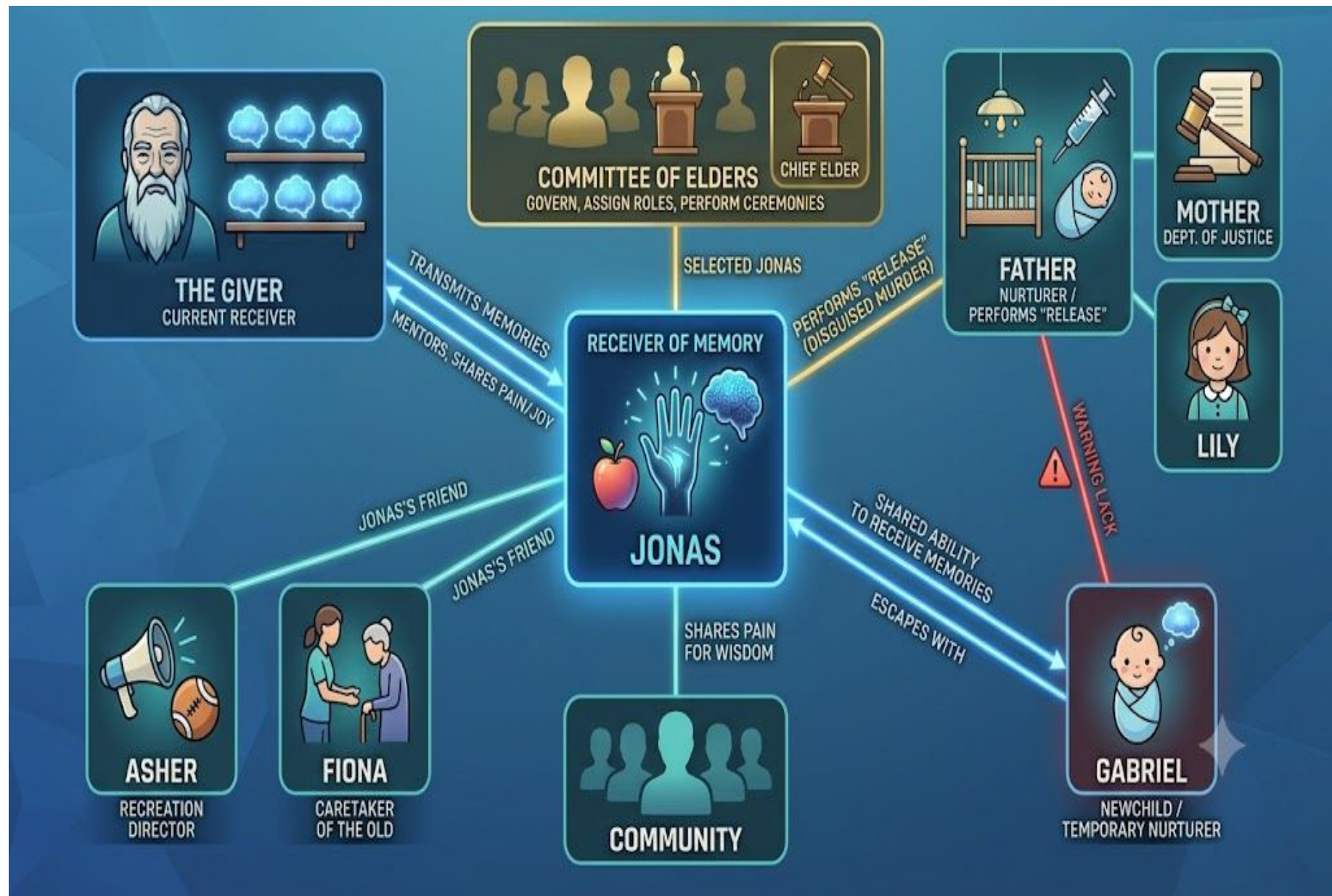
Conventions of Dystopian Literature	
Characteristics of Protagonist	Often feels trapped and is struggling to escape.
	Questions the existing social and political systems.
	Believes or feels that something is terribly wrong with the society in which he or she lives.
	Helps the audience recognizes the negative aspects of the dystopian world through his or her perspective.
Characteristics of a Dystopian Society	Propaganda is used to control the citizens of society.
	Information, independent thought, and freedom are restricted.
	Citizens are perceived to be under constant surveillance.
	Citizens have a fear of the outside world.
	The society is an illusion of a perfect utopian world.

Why The Giver was banned in the USA	
<b>Violence</b>	This is slightly ironic as the book doesn't explicitly include any violence and was written for children yet due to its content surrounding infanticide and euthanasia many deemed this book as dark and inappropriate for children.
<b>Sexual References</b>	In the story Jonas shares a dream in which he experiences a sexual awakening. After sharing this dream with his family, Mum confirms that this is normal and offers him a pill 'which will stop his 'stirrings'. Many older readers believed this topic to be inappropriate for their children and asked for the book to be banned from schools and libraries.
<b>Suicide</b>	In the book there are many implicit references to death through the 'murder' of the young and elderly. Additionally to this, the Giver shares a story about Rosemary taking her life amongst other smaller references of people not returning to their dwellings. Again, this topic was deemed inappropriate for children and given as a reason to further ban The Giver.

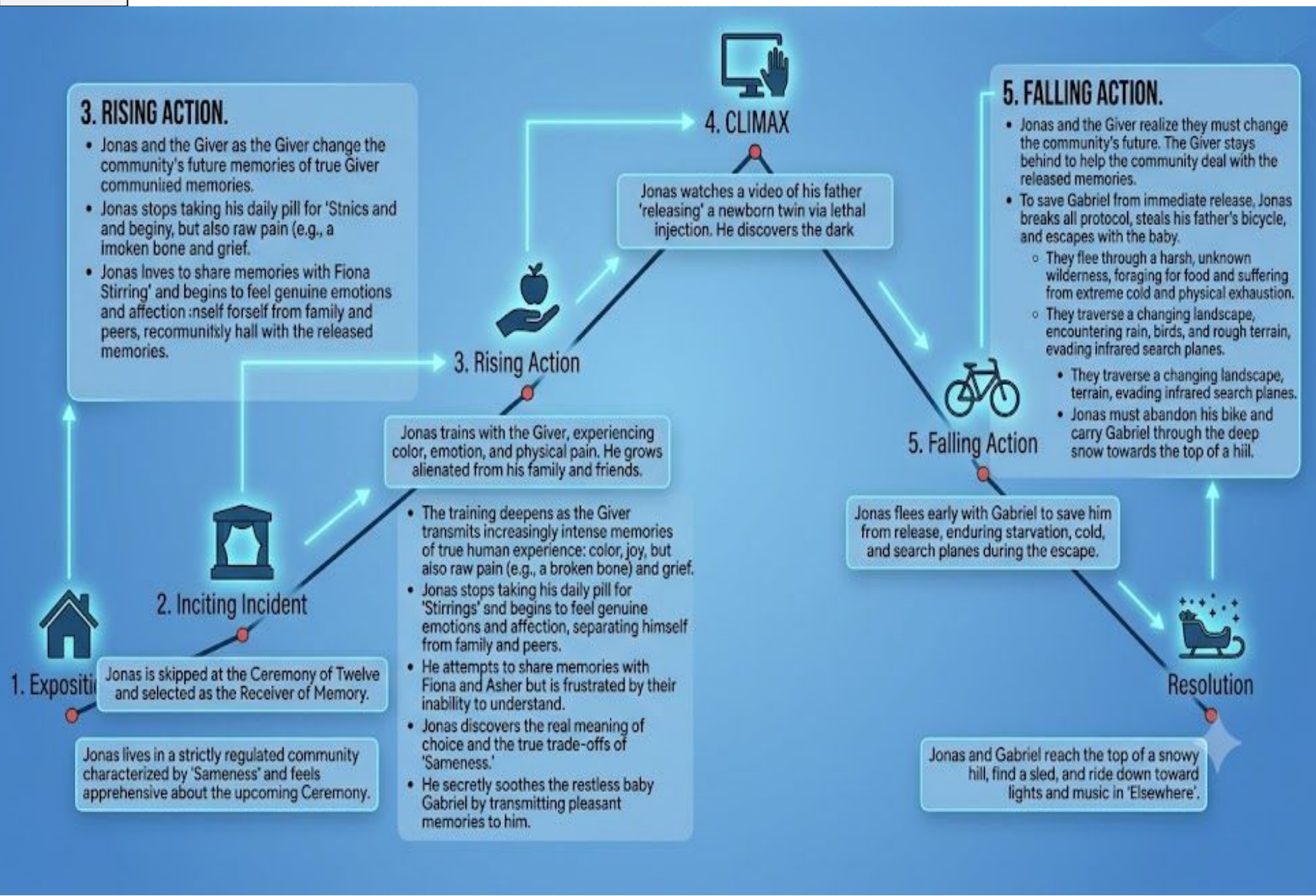
Key Themes	
<b>Memory</b>	Lois Lowry decided to write The Giver after visiting her aging father - she realised that without memory, there is no pain. In the community, not only does the removal of memory eradicate pain, it also prevents them from wanting relationships avoiding suffering and loss. Jonas realises with no memories, no true happiness can be achieved.
<b>Individualism</b>	The first time difference is celebrated is during the Ceremony of Twelve where each child's attributes help establish their job/ purpose in the Community. Jonas throughout the story is attempting to carve out his identity by exploring his emotions and beliefs and therefore leads him to fight for what he believes is right.
<b>Control</b>	Jonas' community are able to rule by infantilizing people, requiring total obedience and preventing people from thinking for themselves. The community live according to a set of rules (instead of laws), which mean that people do not question their actions, they simply follow instructions without reflecting on whether it is right or wrong, lacking morals and emotion.

Vocabulary Boost	
Word	Definition
Utopia	A perfect, pristine society.
Dystopia	A broken down society.
Adherence	Faithful attachment.
Admonition	Counsel, advise, caution.
Apprehensive	Uneasy or fearful about something.
Chastise	To discipline.
Dejected	Disheartened.
Immobilize	To fix in place.
Interdependence	Mutually dependent on two or more people.
Languid	Slow.
Permeate	To pass into or through every part of.
Palpable	So intense, it seems almost touchable
Scrupulously	Acting with careful attention
Assuage	To make an unpleasant feeling less intense

Character Map



Key Plot

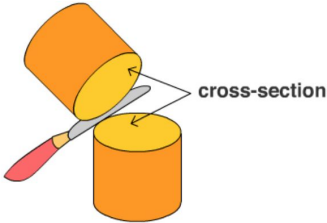


<u><b>Dystopian Narrative</b></u>	<u><b>What to do</b></u>	<u><b>A Short example</b></u>
<b>World Building</b>	<b>Describe the setting. Establish a futuristic, broken, or overly controlled environment. Use the weather (pathetic fallacy) to reflect the dark mood. Focus on sensory details.</b>	<i>The neon glow of the surveillance towers cast long, sickly shadows over the concrete streets. The air tasted of ash and copper.</i>
<b>Oppression</b>	<b>Show the strict rules, propaganda, or surveillance. Let the reader see how the government or 'The System' controls everyday life. Also start to flesh out your rebellious protagonist.</b>	<i>Every corner held a blinking camera lens. Posters on the grimy walls reminded citizens that 'Obedience is Peace'. No one dared look up.</i>
<b>Rebellion</b>	<b>Show your main character doing something forbidden or breaking a rule. This is the spark that starts the action. Is it deliberate? An accident? You decide.</b>	<i>Leo's heart hammered against his ribs. Slipping his hand into his coat, his fingers gripped the forbidden object: a real, printed book from the past.</i>
<b>Line crossed</b>	<b>Raise the stakes. Your character gets caught, spotted, or has to run away. The danger becomes real and immediate.</b>	<i>A siren wailed, piercing the silence. Heavy boots crunched on the gravel behind him. Shouts echoed. They knew.</i>
<b>Dark or Defiant ending</b>	<b>Finish with a classic dystopian ending. Does the system win or will your protagonist survive to fight another day? Consider using a cyclical structure. Contrast with the opening.</b>	<i>As the iron cell doors slammed shut, Leo smiled in the dark. They had captured his body, but they could never lock up his mind.</i>

<b><u>ASCEND</u></b>	<b><u>What to do</u></b>	<b><u>A short example</u></b>
Anecdote	<b>Start with a short personal story about your first experience with the topic. Share your thoughts and feelings. You can make this story up!</b>	Do you remember your first fast-food burger? I remember mine: the sizzling smell of meat and the giant queue of hungry teenagers. <i>Tip: Try to use alliteration to make key words stand out.</i>
Set the scene	<b>Clearly state your opinion and introduce your main argument. Use facts to sound like an expert so the reader knows exactly what you believe.</b>	Fast food is everywhere on our high streets. Shouldn't we want healthy choices instead of greasy burgers? It makes me wonder what the future holds... <i>Tip: rhetorical questions are good but don't overuse them.</i>
Case in Point / Counter argument	<b>Give a real-life example or mention a famous brand to support your point. Show the other side's view (the counter-argument), but explain why they are wrong.</b>	McDonald's is the UK's most popular fast-food chain. Of course, people love it because it is cheap and quick. But does a low price justify damaging our health? <i>Tip: Vary your punctuation with commas, semi-colons, question marks and exclamation marks.</i>
Emotive Appeal	<b>Make your reader feel a strong emotion, like sympathy or shock. Choose powerful words that make them care deeply about your topic.</b>	I have seen the terrible impact up close: the pain, the illness, the heartbreak. A relative of mine suffered a heart attack after years of eating junk food. <i>Tip: Hyperbole can add to the emotive effect.</i>
Narrow it down	<b>Write a short, punchy paragraph. Summarise your main point clearly so it stays in the reader's mind.</b>	Together, we must stop eating junk. Together, we can choose health. Together, we can make a difference! <i>Tip: Consider using repetition.</i>
Dream for the future	<b>Link back to your opening story. Share your positive hopes for the future and how things could improve. End on an inspiring note.</b>	I hope teenagers of tomorrow have a better experience. Perhaps they will confidently choose healthy meals and feel energetic instead of sluggish. <i>Tip: We call this a cyclical structure as the end mirrors the beginning.</i>

# MATHS – Mastery Curriculum

Sparx Code	TOPIC	In Class	Pre-test	Post test
M242	Changing the subjects of formulae with one step			
M983	Changing the subjects of formulae with two or more steps			
M595	Identifying parts of circles			
M169	Finding the circumference of circles			
M231	Finding the area of circles			
M319	Combining angle facts			
M606	Angles on parallel lines			
M767	Properties of 3D shapes			
M765	Finding the volume of cubes and cuboids			
M722	Finding the volume of prisms			
M465	Converting units of volume			
M677	Using Pythagoras' theorem in 2D			
M480	Applying Pythagoras' theorem in 2D			



Volume = Area of cross-section × length

Sparx Code	TOPIC	In Class	Pre-test	Post test
M328	Calculating the range			
M934	Calculating the median			
M841	Finding the mode			
M940	Calculating the mean			
U854	Finding averages from diagrams			
M127	Finding averages from frequency tables			
U312	Interpreting frequency tables with grouped data			
U877	Finding averages from grouped data			
M135	Calculating with roots and powers			
U299	Estimating roots and powers			
M533	Percentage change with a calculator			
M476	Percentage change without a calculator			
M528	Finding original values in percentage calculations			
U533	Simple interest calculations			
U330	Using standard form with positive indices			
U534	Using standard form with negative indices			

Percentage Change =  $\frac{\text{amount of change}}{\text{original amount}} \times 100$

# MATHS – Stretch Curriculum

Sparx Code	TOPIC	In Class	Pre-test	Post test
U166	Expected results from repeated experiments			
U580	Calculating experimental probabilities			
U280	Frequency trees			
U556	Changing the subjects of formulae			
U228	Factorising to solve quadratic equations of the form $x^2 + bx + c = 0$			
U963	Factorising the difference of two squares			
U178	Factorising quadratic equations of the form $x^2 + bx + c$			
M960	Expanding double brackets			
U337	Constructing and solving inequalities			
U145	Solving double inequalities			
U738	Solving inequalities with the unknown on both sides			

Inequalities

>

↑

Greater Than

<

↑

Less Than

≥

↑

Greater Than or Equal To

≤

↑

Less Than or Equal To

Symbol	Number Line Symbol
>	
<	
≥	
≤	

greater than

less than

greater than or equal to

less than or equal to

Experimental probability

6 appears 65 times.

$P(\text{roll a 6}) = \frac{65}{100}$

Roll a die 100 times.

Sparx Code	TOPIC	In Class	Pre-test	Post test
U671	Percentage change with a calculator (Review)			
U286	Finding original values in percentage calculations			
U278	Finding the percentage an amount has been changed by			
U264	Multiplying and dividing numbers in standard form			
U290	Adding and subtracting numbers in standard form			
U161	Standard form with a calculator			
U773	Percentage change without a calculator (Review)			
U533	Simple interest calculations			
U349	Finding percentages of amounts with a calculator (Review)			
U554	Finding percentages of amounts without a calculator (Review)			
U916	Finding fractions of amounts with a calculator (Review)			
U881	Finding fractions of amounts without a calculator (Review)			
U594	Ordering fractions, decimals and percentages (Review)			
U888	Converting between fractions, decimals and percentages (Review)			

Expanding Double Brackets

$(2x + 3)(5x - 8)$

	$2x$	$+ 3$
$5x$	$10x^2$	$+ 15x$
$- 8$	$- 16x$	$- 24$

Grid Method

$10x^2 + 15x - 16x - 24$

Simplified:

$10x^2 - x - 24$

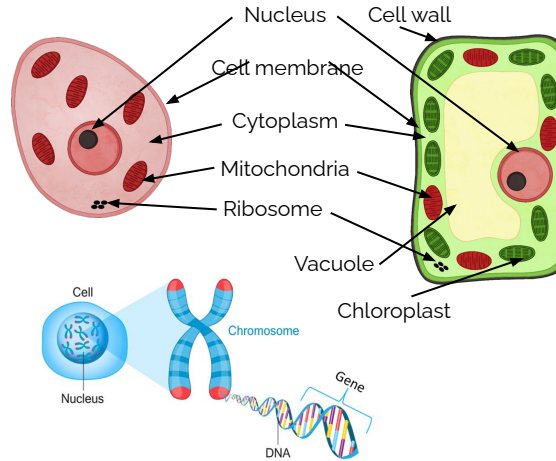
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## BIG QUESTIONS:

1. What are cells and why are they different?
2. Why has our understanding of cells improved over time?
3. How are new cells made and how can we take advantage of this?

## Redmoor Science Department

### GCSE Biology - Cell Structure and Division



## 1. What are cells and why are they different?

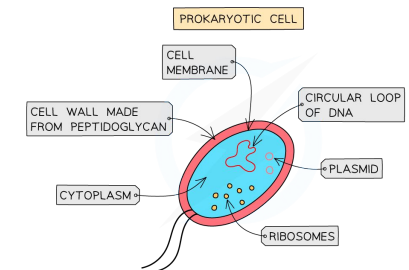
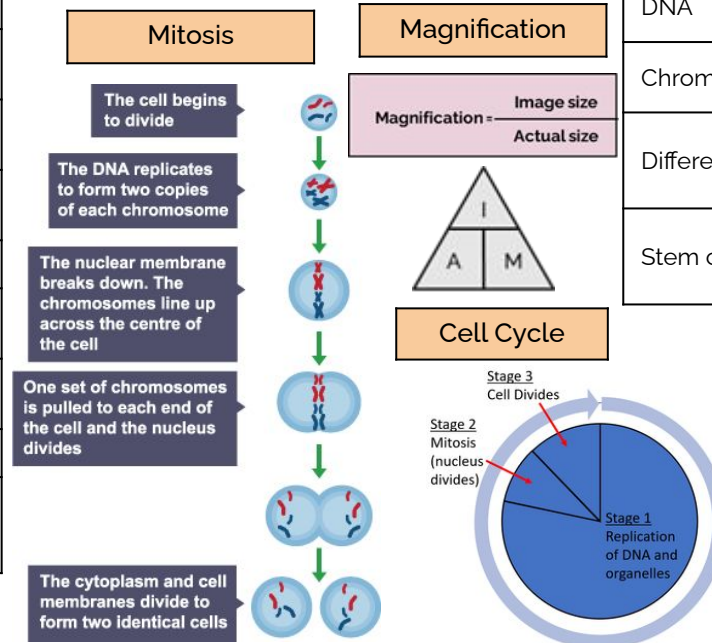
Cell	Basic building block of all organisms.
Eukaryote	A cell that has its DNA contained within a nucleus.
Prokaryote	A cell that does not have its DNA contained within a nucleus..
Cell membrane	Surrounds the cell and controls what enters and leaves.
Cell wall	Surrounds the cell and gives it support.
Cytoplasm	Jelly-like substance where chemical reactions take place.
Nucleus	Controls activities of the cell and contains genetic information (DNA).
Vacuole	Contains cell sap.
Mitochondria	The site where aerobic respiration takes place.
Chloroplasts	Contain chlorophyll and carry out photosynthesis.
Ribosome	Site of protein synthesis.
Specialised cell	A cell that has structural adaptations that allow it carry out a particular role.

## 2. Why has our understanding of cells improved over time?

Light microscope	Device that uses visible light and a series of lenses to produce an enlarged image of an object.
Electron microscope	Device that uses a beam of electrons to produce a detailed, 3D image of an object.
Magnification	The amount that an image of something is scaled up when viewed through a microscope.
Resolution	The ability to distinguish between two separate points.

## 3. How are new cells made and how can we take advantage of this?

Mitosis	A type of cell division which produces two identical daughter cells.
DNA	Genetic information that contains codes to produce proteins.
Chromosome	DNA is arranged into these. Humans have 23 pairs (46 in total).
Differentiation	The process by which an unspecialised cell becomes specialised.
Stem cell	Undifferentiated cell that can specialise into many different cell types.

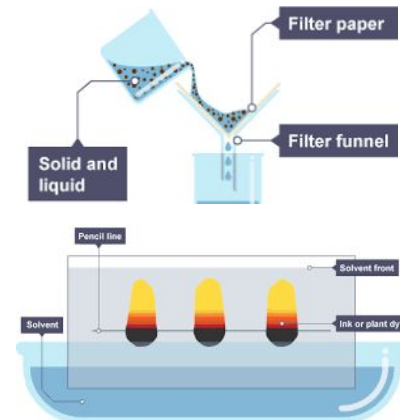
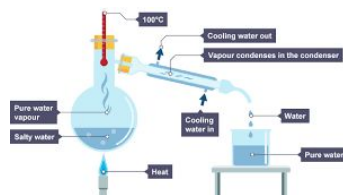


## BIG QUESTIONS:

1. How do different types of atoms differ from each other?
2. How can we use chemical equations to predict reacting quantities?
3. How can we separate mixtures?

## Redmoor Science Department

### Separation Techniques



### 1. How do different types of atoms differ from one another?

Atom	Smallest part of an element
Element	Material made of one type of atom
Compound	Substance made of more than one type of atom chemically bonded together.
Mixture	2 or more elements or compounds NOT chemically bonded. Mixtures can be separated.

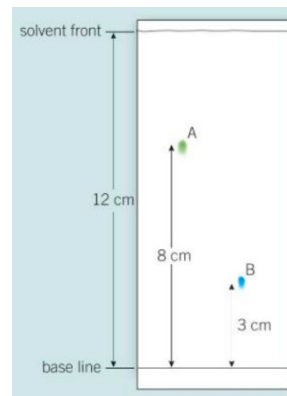
### 2. How can we use chemical equations to predict reacting quantities?

Reactants	Substance at the beginning of a chemical reaction (before the reaction has occurred)
Products	Substance made as a result of a chemical reaction
Conservation of mass	The total mass of the products formed in a reaction is equal to the total mass of the reactants

### 3. How can we separate mixtures?

Filtration	Technique used to separate substances that are insoluble in a solvent from substances that are soluble
Crystallisation	Technique used to separate a solute dissolved in a solution
Distillation	Separation of a mixture of liquids by evaporation followed by condensing
Fractional Distillation	Separation of multiple liquids from a mixture by evaporation and condensing at different temperatures
Chromatography	Use to separate different substances that are dissolved in a liquid. It relies on the different attractions of substances to two phases: a stationary phase (like paper) and a mobile phase (like a solvent).

### Calculating R_f values



$$R_f = \frac{\text{distance moved by substance}}{\text{distance moved by solvent}}$$

$$\text{The } R_f \text{ value of A} = \frac{8}{12} = 0.67$$

$$\text{The } R_f \text{ value of B} = \frac{3}{12} = 0.25$$

### Gas Tests

Gas	Method	Result in Positive test
Carbon Dioxide	Bubble the gas through limewater	Goes milky/cloudy
Hydrogen	Put a lit splint into a test tube of the gas	Squeaky pop
Oxygen	Put a glowing splint into a test tube of the gas	Relights
Chlorine	Damp blue litmus paper	Turns red and then bleaches

## Big Questions:

- How is energy stored and transferred?
- How do we calculate the values of different energy stores?

## GCSE Physics Dissipation & conservation of energy

**By heating** → increases the kinetic of the particles in the system, which increases the energy in the thermal store of the object.

### 1. How is energy stored and transferred?

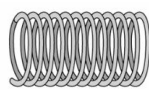
Energy	The ability to do work.
System	An object or group of objects.
Work done	Energy transferred from one energy store to another.
Conservation of energy	Energy cannot be created or destroyed, it can be transferred between energy stores or dissipated.
Dissipation	Process of energy being transferred, or lost, to the surroundings.



Kinetic energy	Energy stored in a moving object.
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Books on a high shelf.



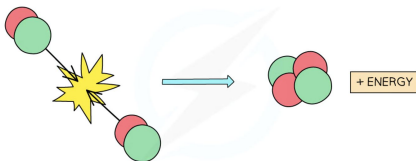
A stretched or compressed spring.

Gravitational potential energy	Energy stored in an object above the ground.
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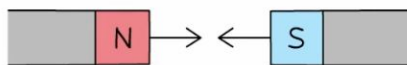
Elastic potential energy	Energy stored in a stretched or compressed object.
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Thermal (internal) energy	Energy stored in an object due to their temperature.
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Electrostatic energy	Energy stored in charged objects.
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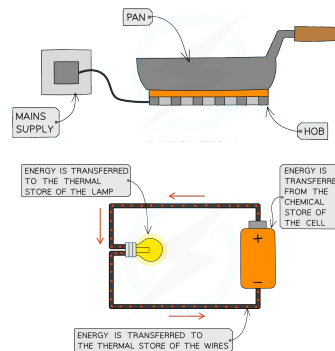
+ ENERGY



Nuclear energy	Energy stored in the nuclei of atoms when they split or fuse.
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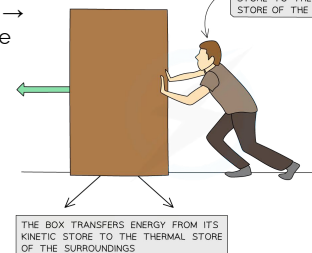
Magnetic energy	Energy stored in magnetic materials when they attract or repel objects.
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## Energy transfers

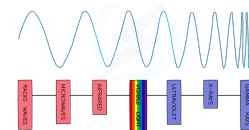


**By electrical current** → Energy is transferred electrically from the power supply to the components in the circuit.

**Mechanically** → When a force acts over distance.



**Radiation** → Electromagnetic waves transferring energy.



### 2. How do we calculate the values of different energy stores?

Power	Rate at which energy is transferred. Measured in Watts (W).
Joules (J)	Unit for energy and work done.

## Energy equations

$$\text{Gravitational potential energy} = \text{mass} \times \text{gravitational field strength} \times \text{height}$$

$$\text{Power} = \frac{\text{Energy or work done}}{\text{Time}}$$

$$\text{Efficiency} = \frac{\text{Useful energy/power output}}{\text{Total energy/power input}}$$

$$\text{Work done} = \text{force} \times \text{distance}$$

$$\text{Kinetic energy} = \frac{1}{2} \times \text{mass} \times \text{velocity}^2$$

$$\text{Change in thermal energy} = \text{mass} \times \text{specific heat capacity} \times \text{change in temperature}$$

$$\text{Elastic potential energy} = \frac{1}{2} \times \text{spring constant} \times \text{extension}^2$$

Year 9 French: Autumn 1- Les Vacances

Tu es allé(e) où en vacances ? Where did you go on Holiday?		time phrase	verb	place	duration	opinion	intensifier	adjective
Je suis allé(e) I went... _____ est allé(e) _____ went Nous sommes allés We went Mes parents sont allés My parents went		L'année dernière Last year	je suis resté I stayed	dans un hôtel in a hotel	pendant une semaine for a week	à mon avis, c' était in my opinion it was	Un peu a bit	amusant fun
		L'été dernier Last summer	j'ai logé I stayed	dans une gite in a cottage	pendant deux semaines for two weeks	selon moi, c' était according to me it was	très very	super super
en France	to France		_____ est resté _____ stayed	dans un camping at a campsite	pendant dix jours for 10 days	je pense que c'était I think that it was	vraiment really	cool cool
en Espagne	to Spain	Juillet dernier Last July			pendant une quinzaine for a fortnight		tellement so	genial great
en Italie	to Italy	Il y a deux ans Two years ago	nous sommes restés we stayed	dans un appartement in an apartment			assez quite	formidable amazing
en Écosse	to Scotland		nous avons logé we stayed	chez mes grandparents at my grandparents house	pendant un mois for a month	selon lui / elle / nous / eux, c'était according to him / her / us / them it was	trop too	confortable comfortable
en Allemagne	to Germany	Pendant les grandes vacances During the summer holidays	mes parents ont logé my parents stayed				complètement completely	luxueux luxurious
au Portugal	to Portugal						absolument absolutely	moderne modern
au pays de Galles	to Wales			dans une caravane in a caravan			incroyablement incredibly	
aux États-Unis	to the USA							

Qu'est-ce que tu as fait pendant les vacances ? What did you do on holiday?				
Weather phrase	I...	connective	someone else	activity
Quand il faisait beau, When the weather was nice, Quand il faisait mauvais, When the weather was bad Quand il faisait chaud, When it was hot Quand il y avait du soleil, When it was sunny Quand il pleuvait, When it rained	je suis allé(e) à la plage I went to the beach j'ai joué au mini-golf I played mini-golf j'ai mangé une glace I ate an ice cream j'ai fait du tourisme I did some sightseeing j'ai nagé dans la mer I swam in the sea	mais but cependant however pourtant however par contre on the other hand	mon père a my Dad ma mère a my Mum mon frère a my Brother ma soeur a my Sister mes parents ont my parents	pris des photos took photos vu un spectacle saw a show bu de la limonade drank lemonade mangé du poisson et frites ate fish and chips fait une promenade went for a walk

Year 9 French: Autumn 2- Là où j'habite

Où habites-tu ? <i>Where do you live?</i>					
verb	description	it is located	In _____	but I would like to live	location
J'habite à _____ <i>I live in</i>	un grand village animé <i>a large, busy village</i>	c'est situé <i>it is located</i>	dans le centre de l'Angleterre <i>in the middle of England</i>	mais je voudrais habiter <i>but I would like to live</i>	à la campagne <i>in the countryside</i>
Il/Elle habite à _____ <i>He/she lives in</i>	un petit village joli <i>a small, pretty village</i>		près de Leicester <i>close to Leicester</i>		à la montagne <i>in the mountains</i>
Nous habitons à _____ <i>We live in</i>	une petite ville industrielle <i>a small, industrial town</i>		entre Leicester et Coventry <i>between Leicester and Coventry</i>		au bord de la mer <i>at the seaside</i>
			(assez) loin de Londres <i>(quite) far away from London</i>		dans une grande ville <i>in a city</i>
					à l'étranger <i>abroad</i>
					au banlieue <i>in the suburbs</i>

Qu'est-ce qu'il y a pour ceux qui aiment... <i>What is there for those who like...</i>					
For those who like...		there is/ there are		where you can	activity
Pour ceux qui aiment <i>For those who like</i>	le sport <i>sport</i>	il y a	un terrain de foot <i>a football pitch</i> un centre sportif <i>a leisure centre</i> une piscine <i>a swimming pool</i> une patinoire <i>an ice rink</i>	où on peut <i>where you can</i>	jouer au foot <i>play football</i> faire du sport <i>do some sport</i> faire de l'exercice <i>do some exercise</i> faire de la natation <i>do some swimming</i>
Si vous aimez <i>If you like...</i>	la culture <i>culture</i>		un cinéma <i>a cinema</i> un théâtre <i>a theatre</i> un musée <i>a museum</i>	où c'est possible de <i>where it is possible to</i>	regarder des films <i>watch films</i> regarder un spectacle <i>watch a show</i> admirer des tableaux <i>admire some paintings</i>
Si tu es intéressé(e) par... <i>If you are interested in...</i>	faire les magasins <i>doing some shopping</i>		des magasins <i>some shops</i> un centre commercial <i>a shopping centre</i> un (super)marché <i>a (super)market</i>		faire des achats <i>buy things</i> acheter des vêtements <i>buy some clothes</i>
	la nature <i>nature</i>		un forêt <i>a forest</i> un parc <i>a park</i> des espaces verts <i>some green spaces</i>		voir des animaux <i>see some animals</i> faire une promenade <i>go for a walk</i> promener le chien <i>walk the dog</i>
	la nourriture <i>food</i>		un café <i>a cafe</i> un restaurant <i>a restaurant</i> un fastfood <i>a fastfood restaurant</i>		manger un repas <i>eat a meal</i> rencontre les amis <i>meet some friends</i> prendre un casse-croûte <i>have a snack</i>

# Yr 9 History: Weimar Germany



## End of WW1 & Weimar Key Events:

- 1919** - The new German constitution signed in the city of Weimar
- 1919** - The Treaty of Versailles caused many problems for Germany. The German people disliked the politicians for signing it and it caused political problems and economic problems.
- 1923** - Invasion of Ruhr by France & Belgium caused by German failure to pay reparations.
- 1923** - Hyperinflation in Germany.
- 1924-1929** - 'Golden Years' of recovery under Stresemann (Foreign Minister)..
- 1929** - Wall Street Crash.
- 1929 onwards** The Great Depression.

## End of WW1 & Weimar - Key Terms:

**Treaty of Versailles** - This decided how Germany was going to be treated after WW1.

**Weimar Republic** - The establishment of the new democratic government following WW1 in Germany.

**Communism** - Political and economic ideology that is a way of creating an equal society, e.g. individual people do not own land or factories. Instead, the government or the whole community owns these things.

**Social Democrats** - Political party that achieved majority of votes in first elections, supported by mostly working class.

**Fascism** - an extreme right wing political Ideology, fascists emphasise nationality.

**Social democracy** - Is the idea that the state needs to provide security and equality of opportunity for its people.

**Constitution** - The basic principles (rules) according to which a country is governed.

**'Passive resistance'** - Refusing to work or co-operate with the foreign troops and in return the government continued to pay workers' wages.

**Hyperinflation** - Extremely high inflation, where the value of money plummets and becomes almost worthless.

**Wall Street Crash** - The collapse of the American Stock Market it preceded The Great Depression.

**The Great Depression** - Slump in the global economy in the late 1920s and early 1930s which led to high unemployment.



## Nazi Germany and Holocaust Key Events:

**1933 January** - Hitler becomes Chancellor.

**1933 March** - Enabling Act - law passed in 1933 that gave Hitler complete power

**1933 July** - Nazis become the only legal political party in Germany.

**1933** - Boycott of Jewish businesses and Jews banned from government jobs.

**1934 August** - Hitler combines the post of Chancellor and President and becomes Führer.

**1935** - Nuremberg Laws: Citizenship / Ban on Jews marrying 'Germans' / Segregation for Jews in public places.

**1936** - Membership of the Hitler Youth made compulsory.

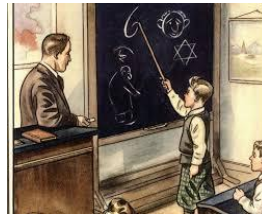
**1938** - Kristallnacht - Night of Broken Glass - organised attack on Jewish businesses and synagogues.

**1938** - Jewish children were not allowed to attend German schools.

**1939** - The euthanasia campaign began. Designated Jewish ghettos established.



## Yr 9 History: Nazi Germany and Persecution



## Nazi Germany & The Holocaust: Key Terms & People:

**Hitler** - Supreme leader of the Nazi Party

**Goebbels** - Head of Propaganda

**Heydrich** - In charge of removing Jews in Eastern Europe.

**Himmler** - Head of the SS.

**NSDAP** - National Socialist German Workers' Party. Name of the Nazi Party.

**Third Reich** - A term referring to the Nazi state and regime from 1933-1945.

**Gestapo** - Secret police under the direct control of Himmler.

**The SS** - originally Hitler's bodyguards, became main security organisation

**Lebensraum** - The idea of increasing German 'living space' in order to survive.

**Aryan race** - A racial group Hitler and the Nazi Party believed were superior to others.

**Führerprinzip** - 'Leader principle', ultimate authority rested with Hitler

**Hitler Youth** - Youth organisation of the Nazi party in Germany.

**Indoctrination** - Influencing to change ideas a.k.a 'brainwashing'.

**Propaganda** - Giving out information, true, false or partially true to make people think or behave in a certain way.

**Censorship** - Controlling what is produced and suppressing anything considered to be against the state

**SA** - Private army of the Nazi Party headed by **Ernst Röhm**.

**Youth** - The Nazis placed much emphasis on controlling the young as only then could they secure a 'thousand year Reich'. Youth organisations and education indoctrinated the German youth.

**Kinder, Küche, Kirche** - Children, Kitchen, Church. This summed up the Nazi ideal of womanhood.

**Nuremberg Laws** - Jews were stripped of their citizenship rights and marriage between Jews and Non-Jewish German people was forbidden.

**Jewish person** - A member of the people and cultural community whose traditional religion is Judaism

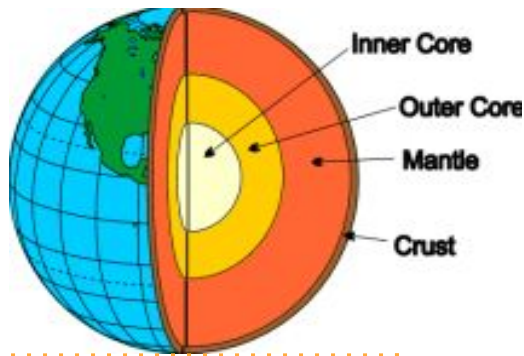
**Persecution** - Hostility and ill-treatment, especially because of race or political or religious beliefs.

**Einsatzgruppen** - Special Killing squads of SS soldiers **Ghetto** - Where Jews were forced to live in slum areas of towns.

**Concentration Camps** - A place where political and persecuted minorities are held.

# Geography

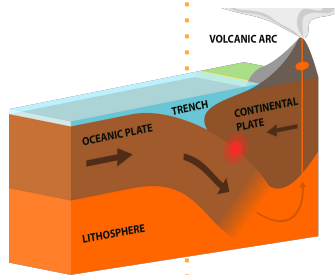
## Restless Earth



### Types of Plate Margins

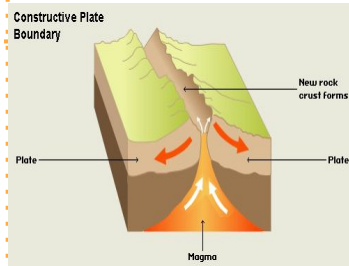
#### Destructive Plate Margin

When the denser plate subducts beneath the other, friction causes it to **melt and become molten magma**. The magma forces its way up to the surface to form a volcano. This margin is also responsible for **devastating earthquakes**.



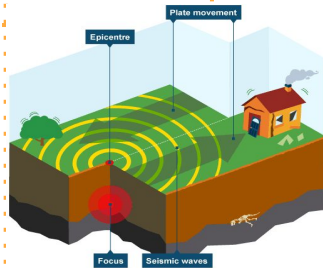
#### Constructive Plate Margin

Here two plates are **moving apart** causing new magma to reach the surface through the gap. Volcanoes formed along this crack cause a submarine mountain range such as those in the **Mid Atlantic Ridge**.



#### Conservative Plate Margin

A conservative plate boundary occurs where plates **slide past each other** in opposite directions, or in the same direction but at different speeds. This is responsible for earthquakes such as the ones happening along the San Andreas Fault, USA.



Key word	Definition
Earthquake	An earthquake is the shaking and vibration of the Earth's crust due to movement of the Earth's plates
Seismic Waves	The energy of the earthquake.
Focus	Where an earthquake begins
Epicentre	The area directly above an earthquake. This is where the most damage occurs.
Primary effect	A primary effect is one that is directly caused by the disaster
Secondary effect	Secondary effects occur as a result of the primary effects, eg tsunamis or fires due to ruptured gas mains.
Ash cloud	Small pieces of pulverised rock and glass which are thrown into the atmosphere.
Pyroclastic flow	A fast moving current of superheated gas and ash (1000°C). They travel at 450 mph.
Composite volcanoes	Steep-sided and cone-shaped, made up of layers of ash and lava
Shield volcano	Gently sloping sides and runny lava that covers a wide area.

# Year 9 Geography - Our Unequal World

## What is Development?

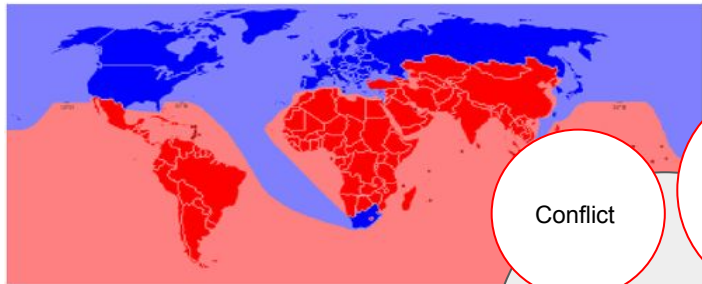
Development in Geography is the continued improvement in quality of life.

Quality of life is often defined as “health, wealth and education”.

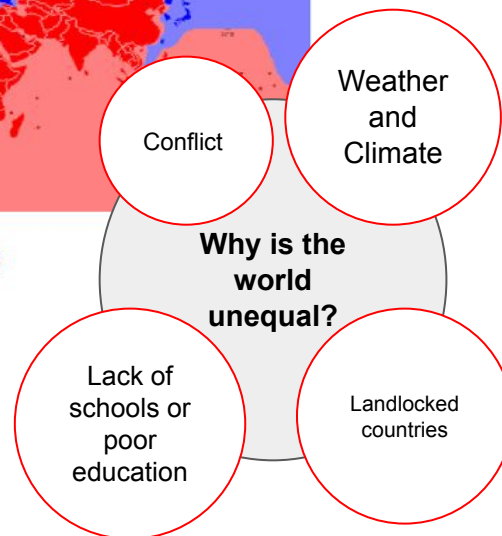
A country's development often depends on its wealth. Therefore, in Geography we refer to countries as low income countries (LICs), high income countries (HICs) and newly emerging economies (NEEs).

A country may be classed as a HIC, a LIC, or a NEE but there can still be disparity within a country or even within a town or city.

**HICS**



**LICS**



Key Term	Definition
HIC	High income country
LIC	Low income country
NEE	Newly emerging economy
Malnourished	Being weak or ill because of having too little food.
Development	The economic progress of a country and improvements to quality of life.
Development indicator	A measure of a country's level of development.
Literacy rate	How many people can read or write, as a percentage of the population over the age of 15.
Infant mortality rate	The amount of children who die before their first birthday.
GNI	Gross national income; the amount of money a country makes in a year.
Resources	Something that has a value or purpose, such as food, water and energy.
Resource insecurity	A lack of resources such as food, water and energy.
Resource security	Plentiful supply of resources like food water and energy.

# Year 9 Computing

## Core Computing 3

### Data Representation

Character Set	A complete library of letters, numbers, and symbols that a computer system can recognize and convert into binary code. E.g. ASCII and Unicode
Pixel	Short for "picture element"; the smallest single dot of color that makes up a digital image.
Resolution	How many pixels there are in an image
Metadata	Hidden "data about data" saved inside a file that tells the computer how to load it properly (e.g., image width, height, resolution, and the date it was taken).

### Data Compression

Data Compression	The process of reducing a file's size so it takes up less storage space and transfers faster across the internet.
Lossy Compression	A method that permanently removes unnoticeable data to greatly reduce file size, which slightly lowers the quality.
Lossless Compression	A method that shrinks a file by rewriting the data efficiently without losing a single piece of information, keeping the original quality perfect.

### Internal Hardware

CPU (Central Processing Unit)	The main chip inside a computer that carries out instructions.
Fetch, Decode, Execute Cycle	The continuous three-step loop the CPU runs billions of times a second to get an instruction, understand it, and run it.
Clock Speed	How fast the CPU can run instructions, measured in Gigahertz (GHz). Higher clock speed means a faster computer.
Cores	The number of independent processing units inside a single CPU; more cores allow a computer to do multiple tasks at once.
RAM (Random Access Memory)	Temporary, high-speed memory that holds the apps and files you are actively using right now. It empties completely when power is turned off.
ROM (Read Only Memory)	Permanent memory that contains the unchangeable boot-up instructions needed to turn the computer on.
Secondary Storage	Permanent storage used to keep your files, operating system, and software safe when the computer is turned off.
Magnetic Storage	Devices that use spinning platters and magnets to read and write data (e.g., traditional internal Hard Drives).
Optical Storage	Devices that use lasers to read data from reflective discs (e.g., CDs, DVDs, and Blu-ray discs).
Solid State Storage	Flash memory devices with no moving parts, making them incredibly fast and durable (e.g., USB sticks and modern SSD hard drives).

# Year 9 Computing

## Algorithms and Programming 2

### Variables & Programming Basics

Variable	A named storage location (like a labelled box) in a program that holds a piece of data which can change while the program is running.
Constant	A named storage location that holds a value that cannot change while the program is running (like the value of Pi).
Arithmetic Operator	A symbol used in code to do basic maths.
Comparison Operator	A symbol used to compare two values to see if they match or if one is bigger.

### Operators

*	Multiply
/	Divide
==	Equal to
!=	Not equal to
<	Less than
<=	Less than or equal to
>	Greater than
>=	Greater than or equal to

### Algorithms & Flowcharts

Algorithm	A set of step-by-step instructions followed to complete a task or solve a problem.
Flowchart	A diagram that uses shapes and arrows to show the step-by-step path of an algorithm.
Input	The data or information that is put into a computer program (e.g., typing your age).
Process	The action the computer takes to change or calculate data.
Output	The final result that the computer displays or sends back to the user (e.g., printing text on the screen).
Trace Table	A grid used to manually track the values of variables step-by-step to check if an algorithm works correctly.

### Controlling the Code

Sequence	Running instructions in order, one after the other, from top to bottom.
Selection	Uses an IF statement to make a decision and choose which path to take.
Loop (Iteration)	A section of code that repeats a set of instructions multiple times
Debugging	Finding and fixing errors (bugs) in a piece of code so it runs perfectly.

# Year 9 Design - Medical Art

## The Art of the Scalpel and Sketchpad

For centuries, art and medicine were not seen as separate subjects, but as two sides of the same coin. Long before the invention of X-rays, MRI scans, or high-definition cameras, the only way for doctors to learn about the inner workings of the human body was through the eyes and hands of an artist. Medical art is the bridge between **scientific fact** and **visual communication**.

## The Renaissance Revolution

The most famous pioneer of this field was **Leonardo da Vinci**. While many know him for the *Mona Lisa*, Leonardo spent years in the morgues of hospitals, dissecting bodies to understand how muscles attached to bones. He was one of the first to use "exploded views"—drawing parts of the body pulled apart so you could see how they fit together. He believed that to paint a human being, you had to understand the "machinery" hidden beneath the skin.

## The Purpose of Precision

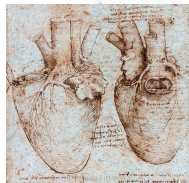
Unlike "Fine Art," where an artist might change colors or shapes to express a feeling, a medical artist must be **objective**. Their goal is to eliminate confusion. If a surgeon is looking at an illustration of a heart, they don't want a "creative" interpretation; they need to know exactly where a specific artery sits.

This requires a mastery of **tonal rendering**. Artists use light and shadow to show the difference between the hard, matte texture of a bone and the smooth, glistening surface of a lung. By using techniques like **stippling** and **cross-hatching**, artists can create a 3D effect on a flat piece of paper, making the anatomy "pop" for the reader.

## Medical Art Today

Today, medical artists don't just use pencils; they use 3D modeling software and virtual reality. However, the core skill remains the same: **observation**. A computer can take a photo, but a medical artist can choose to "hide" certain tissues or highlight specific nerves to make a complex surgery easier to understand. They simplify the chaos of the human body into a clear, educational map.

Act of looking



## "Art-Science" Connection

### Why Medicine Needs Artists

Many students believe that if they want to be a doctor, they must drop "creative" subjects to focus entirely on the sciences. However, many of the world's leading medical schools now actively encourage students to study Art. Why? Because medicine is a **visual discipline**.

A surgeon performing a delicate operation must have incredible **hand-eye coordination** and **spatial awareness**—the exact same skills you develop when mastering a paintbrush or a charcoal pencil. When a doctor looks at a rash or an X-ray, they are using **visual analysis** to spot patterns and anomalies. Studying Art trains your brain to see what is *actually* there, rather than what you *expect* to see.

Furthermore, "Empathy" is a core part of healthcare. Art allows us to explore the human condition, helping future doctors understand the person behind the patient. An artist-doctor doesn't just see a broken bone; they see the structural beauty of the body and the best way to explain the healing process to a worried patient.

### Why Take Art for a Medical Course?

1. **Fine Motor Skills:** Developing "dexterity" (control over your hands) is essential for surgery and clinical procedures.
2. **Visual Literacy:** You learn how to interpret diagrams and data visualizations more quickly.
3. **Communication:** You can explain complex surgeries to patients by sketching them—a skill that builds huge trust.
4. **Observation:** You become a "super-observer," noticing tiny changes in a patient's skin color or physical alignment that others might miss.

*"To draw is to see." — In medical school, being able to sketch a heart valve from memory proves you truly understand how it functions, not just that you've memorized its name.*

# Year 9 Design - GCSE Project

## Do all ideas come from another?

Artists and designers find stimuli in the world around them or research a particular topic to find stimuli. They use this material to help them generate a personal creative response in their work.

A stimulus is something which interests an artist or designer and gives them new ideas. A stimulus can be as simple as a word or as complex as a novel, person, place or an entire culture. The plural is stimuli.

In design work, carrying out market research might suggest possible starting points. You may also work from a source of inspiration or from a design problem as a stimulus to help you generate ideas.

There are many different ways to respond to stimuli for design work. You could:

- Base a list or a spidergram on your design brief to explore possibilities.
- Make a collage of market research images in your sketchbook or make a moodboard.
- Make a collection of images of designers' work that you particularly admire.
- Make a collection of images relating to your source of inspiration.
- Make 3D forms based on your source of inspiration, if appropriate.
- Take photographs.
- Doodle some initial ideas in your sketchbook.
- Make drawings based on your source of inspiration.

## Do designers need to follow rules?

Designers use a brief to give them guidance and focus. A brief helps define the design problem and gives details on important considerations and constraints.

Once they have decided on a basic design problem, they then expand on it to create your brief.

To do this, they identify key considerations for the brief. These can be:

- aesthetic considerations - these relate to the appearance of a design
- functional considerations- these relate to the purpose of a design
- market considerations - these relate to who a design is for

By creating a design brief, designers can see if they have been successful or not once they've produced their final idea.

Developing  
Successful  
Ideas



## Do you only need one good idea?

Developing ideas is part of the creative process for artists and designers. By exploring and refining ideas, effective decisions can be made about the final piece of artwork or design solution. There are many ways to develop ideas for design.

**Refining Your Ideas** Refinement does not involve major changes, but is about making small changes which improve the idea in some way.

This might be done by:

- Varying a technique - eg producing a graphic design using software to achieve a more professional look
- Producing a jewellery or textile design using different materials
- Modifying an idea so that it functions more effectively or looks more aesthetically pleasing.
- Changing a particular part of a design - eg changing a handle on a product so that it can be picked up more effectively.
- Enhancing the idea by experimenting with materials that give a better finish.
- Altering one visual aspect - eg changing the type of repeat pattern in a textile design, or changing the scale of an element to make a design look more interesting.
- Fine-tuning a design through small changes - eg making a chair design balance more effectively.
- Changing the position of particular elements - eg re-arranging windows in an architectural model to improve the use of natural light in the building.



# Year 9 Design - Architecture

How does architecture shape the way people experience their daily lives?

Architecture influences how people feel, behave and move through the world. Buildings are not just structures, they shape our experiences.

Features such as light, scale, colour, materials and layout can change mood or comfort. There are also buildings that are designed to support wellbeing, like hospitals, schools and community spaces.

Architects have responsibilities: to design safely, to make spaces accessible for everyone, and to consider sustainability and cultural context.

Architecture can improve quality of life and strengthen communities.

Is designing more about expressing personal creativity or solving practical human needs?

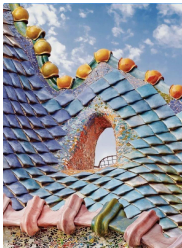
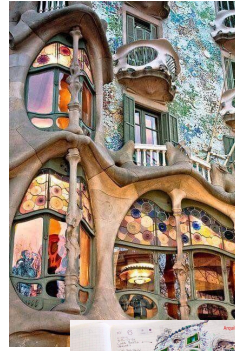
Architecture is a balance between imagination and usefulness. Think about how architects combine creative expression with practical needs such as structure, purpose, and safety.

There is a difference between expressive designs and functional, problem-solving architecture and how many buildings blend both approaches.

Layout, materials, shape, and scale affect how a building works. Architects have to prioritise creativity and function when designing.

It is important for a designer to use a variety of design strategies to be able to generate the most innovative and functional solution to a design problem. This will help to gather information and feedback from others to ensure the best design to fit the brief is created. Different projects might benefit from different kinds of design strategy.

Developing Ideas



How might taking creative risk lead to new ways of thinking about the future?

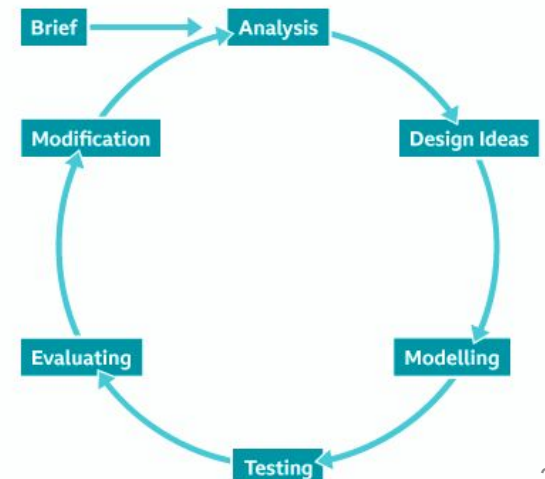
**Experimentation** helps designers take risks, explore ideas, and discover new possibilities.

Experimenting with **materials** and **techniques** such as card construction, foam board, recycled materials, clay modelling, bending, folding, joining, and digital modelling help designers to realise their intentions.

Understanding how experimentation leads to **innovation** is important: experimental architecture challenges traditional ideas about structure and space. Testing, refining, and adapting ideas is a key part of developing strong final outcomes.

Designing a product for a client can be done in several ways. Manufacturers cannot risk investing large amounts of money into the production of a product that has not had adequate design, modelling, testing, prototyping and evaluation.

**Iterative design** is a circular design process that models, evaluates and improves designs based on the results of testing.



## Drama Keywords

<b>Narration</b>	To tell a story/information of what is happening to the audience.
<b>Flashback/ Flashforward</b>	A scene which shows events from before or after the main action of the play. It can give extra information about the plot or help to develop characters.
<b>Split-staging</b>	The stage is split into different areas representing different places or times.
<b>Freeze Montage</b>	Three or more Tableaux linked together, to show a situation/event.
<b>Conscience Alley</b>	One character walks down the middle of two lines people (in character or not) and each person gives the character gives them advice about a decision they have to make.
<b>Expression</b>	Use of Facial Expression to show how you feel.
<b>Tone of Voice</b>	The emotion heard in your voice of this character.
<b>Body Language</b>	To show your emotion towards others/the situation in your body.
<b>Posture</b>	How a character stands, e.g. upright, hunched, slumped.
<b>Movement</b>	How the character physically inhabits the character and travels around the stage.
<b>Analyse</b>	To look at the information provided and break it down to identify and interpret the main points being raised. You need to talk about specific effects this has in Drama.
<b>Evaluate</b>	To evaluate is to make a personal judgement about the performance using the available evidence.

## Year 9 Drama - AutumnTerm Blood Brothers

### Key Knowledge

- You will continue to develop your performance skills - both vocally and physically in this unit
- You will learn about the context of the play Blood Brothers, by Willy Russell
- You will explore the characters in the story, and develop responses to key events that happen to them during the play
- You will get to use set, props and lighting to enhance your performances
- You will work together to create exam style performances using extracts of the script

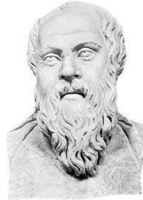


Drama techniques, skills and GCSE Drama keywords.

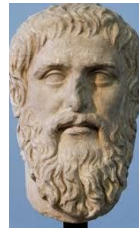
# Philosophy - love of wisdom

**Philosophers** - investigating the ideas of people who have shaped our world

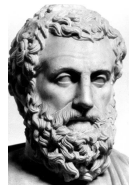
**Socrates** (born c470BCE) gave us Socratic questioning; a way of investigating truth.



**Plato** (born c427 BCE) was a rationalist. He said you need to use your **brain** to work out what is true - reason it out. He thought that ordinary people were like prisoners who had got trapped in a cave. The only little bit of the outside world the prisoners got to see was like shadow puppets. The firelight made the shadows of the outside world look like MONSTERS.



**Aristotle** (born c384 BCE) was a student of Plato. He strongly disagreed with Plato. He believed you need to use your senses to find out what is true - obviously. He was an empiricist.



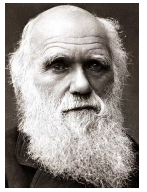
**Thomas Aquinas** (1225-1274 CE): The First Cause argument and the Design argument both prove that God exists as he is the only one who could have made the universe.



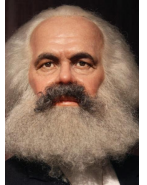
**Descartes** (born 1596 CE) thought he couldn't trust anything. He did reason that he was a thinking thing; 'I think, therefore I am.' His trademark argument was that the idea of God is imprinted on the brain. God is perfect and so must exist.



**Charles Darwin** (1809-1882 CE) wrote *On the Origin of Species* and introduced the theory of evolution by natural selection. He said the world was not made quickly and was not made exactly as it is today. He saw the results of natural selection in birds; survival of the fittest.



**Karl Marx** (1818-1883 CE) was an atheist. He described religion as 'the opium of the people.' He compared religion to an addictive, pain killing drug that enabled the ruling classes to oppress the working classes.



**Sigmund Freud** (1856-1939 CE) was a psychologist who said we are all scared of not having a parent, injustice and dying. He said religion was a 'cure' for the fear of these 3 things.



## Key Terms

**Rationalist:** Using your logic

**Empiricist:** Using your senses

**Natural law:** God given rules that are innate

**Evolution:** Scientific theory of the development of species which involves a process of natural selection and survival of the fittest.

**Psychologist:** someone who studies the human mind and human emotions and behaviour

**Atheist:** someone who believes in no God

**Theist:** someone who believes in one or more gods

**Agnostic:** someone who is not 100% sure there is or is not a God or someone who thinks you cannot know for certain whether there is a god

**Humanist:** someone who believes that human reasoning is the highest authority.

**Sanctity of life:** Belief that life is sacred/special because it was created by God, or because we are each unique individuals.

**Quality of life:** The standard of health, comfort and happiness/fulfillment experienced by a person or group.

**Scientific:** Knowledge based on what can be observed (eg regularities in nature) and experimentation.



Happy Human -  
Humanist symbol.

# Philosophy - love of wisdom

## Ethical theories - ways of deciding right and wrong

**Thomas Aquinas** (1225-1274) believed that all humans were built with an inbuilt knowledge of Gods' natural Law. These were to protect the innocent, reproduce, live in society, worship God and educate children. Therefore, these laws are absolute.

**Immanuel Kant** (1724-1804) introduced duty based ethics. He said that doing the right thing was easy, we should use absolute morality and do our duty. We should also never tell lies and if we make a rule, it must be for everyone. These rules are absolute.

**Utilitarianism** is an ethical theory from **Jeremy Bentham** (1748- 1832). He believed that we should use relative morality to make decisions. Bentham said that we should use the hedonic calculus to make decisions. **Pleasure - pain = the right choice**

**Joseph Fletcher** (1905-1991) put forward situation ethics. He argued that choices need to be made based on the circumstances. Fletcher was influenced by his Christian values of Love and the Good Samaritan. He believed that we should make decisions based on relative morality.

**Peter Singer** (born 1947) is utilitarian. Singer's theory of animal liberation requires that we reject speciesism, which would, for example, prevent the use of animals in experiments in those situations in which we would not use humans.



## The Parable of the Good Samaritan - NIV

An expert in the law stood up to test Jesus. "Teacher... what must I do to inherit eternal life?"..."Love the Lord your God with all your heart and with all your soul and with all your strength and with all your mind and, love your neighbour as yourself."...the man asked "And who is my neighbor?" Jesus said: "A man was going down from Jerusalem to Jericho, when he was attacked by robbers. They stripped him of his clothes, beat him... leaving him half dead. A priest ... passed by on the other side. So too, a Levite... But a Samaritan (his enemy) ...took pity on him; ...bandaged his wounds ... put the man on his own donkey, brought him to an inn and took care of him ... (Jesus asked) "Which of these three do you think was a neighbour...? The expert in the law replied, "The one who had mercy on him." Jesus told him, "Go and do likewise."



Created by last studio  
from NIV Bible

## Key Terms

**Absolute morality:** some things are always right, or always wrong. Circumstances don't make a difference.

**Relative morality:** what is considered right or wrong depends on circumstances. It depends on what is happening in society now.

**Abortion:** The termination of a pregnancy

**Euthanasia:** The ending of a life for reasons of compassion

**IVF:** In vitro fertilization

**Genetic engineering:** The changing of a genetic structure

**Justice:** Fairness; working to fix an unfair situation.

**Equality:** Belief that everyone is the same in value and worth.

## Music Keywords

Chromatic scale	A scale that involves every single note played individually.
Cluster chord	A group of notes close together that are played at the same time.
Drone	A continuous sounding note. Often in the bass end of the piano or instrument.
Motif	A musical idea that represents a theme.
Ostinato	A repeated musical idea
Glissando	A slide from one note to another.
Sequence	A musical idea repeated but a note higher or lower each time.

## Ornaments

Trill. Mordent. Acciaccatura. Appoggiatura. Arpeggio. Turn.

## Musical knowledge - How to Read Music

### Definitions

1. **Pulse** = the underlying count in the music. Like a heartbeat. You clap/dance to this. You *feel* it rather than *hear* it.
2. **Rhythm** = long and short notes, and the gaps between them:



### Bars and time signatures

1. Notes on the **stave** are divided up into **bars** by **bar lines**.



2. The **time signature** = two numbers at the start of the music. It tells us **how many beats are in a bar: how we count in the piece**.
3. The top number tells us how many **beats** are in a bar. The bottom number tells us what sort of beats they are.



## How to read rhythms

1. **These are the basic types of notes.** American note names are more logical: here, the UK names are in brackets.
2. **Rhythms** can be made up of any combination of notes or rests, as long as each bar adds up correctly.

Note/Rest Name	Note Symbol	Rest Symbol	Note/Rest Value (Length)
Whole Note/Rest (Semibreve)	O	≡	4 beats
Half Note/Rest (Minim)	⏏	≡	2 beats
Quarter Note/Rest (Crotchet)	⏏	≡	1 beat
Eighth Note/Rest (Quaver)	⏏	≡	1/2 beat

Pairs or 4s of quavers are beamed together. Remember each blob is a note.

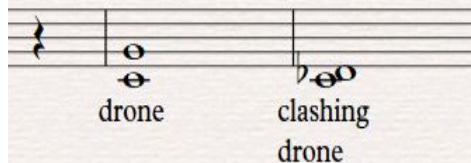
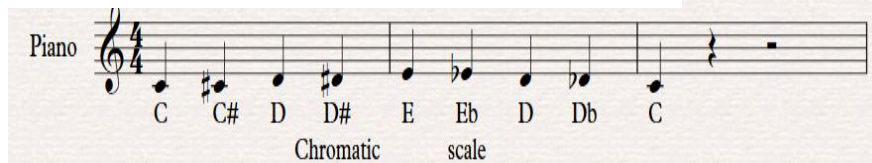
## How to read pitches

1. The blobs of the notes are arranged on the lines and spaces of the stave. The higher the blob on the stave, the higher the pitch.



2. Notes alternate being on a line and in a space.
3. Notes higher or lower than the stave have their own little line called a **ledger line**, like middle C shown above.
4. You can remember the notes on the lines with 'Every Good Boy Deserves Football', and the notes in the spaces spell 'FACE'. Remember to go upwards when doing this!

## Specific techniques



# Year 9 PE - Netball

## CAN YOU MATCH THE FITNESS TEST TO THE COMPONENT OF FITNESS?

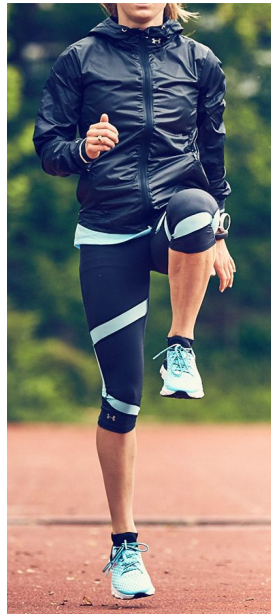
Cardiovascular fitness	illinois run
Agility	3 ball juggle
Balance	30m sprint
Coordination	12 min Cooper run
Power	sergeant jump
Speed	standing stork

## METHODS OF TRAINING

- Continuous** - working with no rest.
- Circuit** - A series of exercise stations to develop relevant components of fitness.
- Interval** - Periods of work and rest.
- Fartlek** - 'Speed play' - similar to interval.
- Weight** - Lifting light or heavy weights to improve endurance or strength.
- Plyometric** - Explosive movements to improve power.

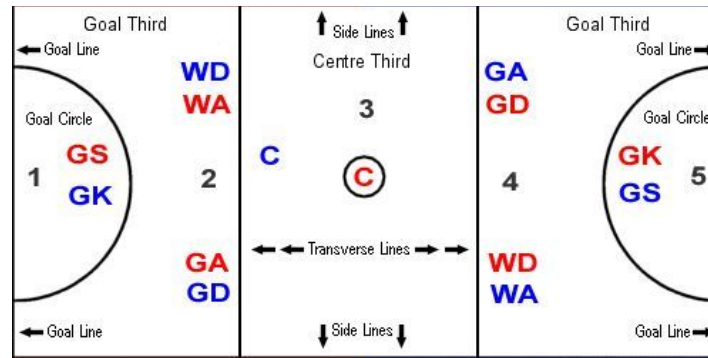
## HOW CAN YOU APPLY THESE TO NETBALL?

### ARE SOME MORE SUITABLE THAN OTHERS, WHY?



## APPLICATION OF SKILLS

- Set plays e.g. centre pass, back lines
- Decision making
- Demonstrate communication on court
- Adapt to the environment
- Adhere to the rules and safety advice



## SKILLS IN ISOLATION

- Passing** – chest, shoulder, bounce, over head.
- Handling** – ball control.
- Catching** – 1 and 2 handed.
- Footwork** – landings, pivot, running pass.
- Evasion** – holding space, dodging.
- Shooting** – 1 or 2 handed, forward/backward step.
- Defending** – stage 1 man to man, stage 2 defend the pass, stage 3 deny space.



Character focus: Are you taking responsibility for your position requirements?

## RULES AND REGULATIONS

### Rules resulting in a FREE PASS (Involves 1 player):

- FOOTWORK** – A player must not move their landing foot before passing the ball.
- OFFSIDE** – A player must stay in their playing area. See diagram above.
- HELD BALL** - The ball can only be held for 3 seconds by a player.
- REPLAYING** – A player must not bounce the ball to themselves when playing.

### Rules resulting in a PENALTY PASS (Involves 2 players):

- CONTACT** – A player must not touch another player whilst on court.
- OBSTRUCTION** – Any player must stand 1 meter away from the player with the ball.

## KEY TERMS

- Goal Third** – The 2 areas of the court including the shooting circle.
- Centre Third** – The area in the middle including the centre circle.
- Umpire** – The name of the person who officiates the match.
- Intercept / Interception** – Gaining the ball by getting in between a pass from the opposing team.
- Possession** – Keeping the ball.

# Year 9 PE - Football

## KEY TERMS

- Possession
- Shadowing
- Tactics
- Crossing
- Low block
- Goal kick
- Jockeying
- Counter Attack
- Throw-in
- Strategy

Character focus:  
Are you spreading  
positivity in your  
lesson?

## SKILLS IN ISOLATION

Passing  
Tackling  
Dribbling  
Running with the ball  
Volleying  
Control

## METHODS OF TRAINING

**Continuous** – working with no rest  
**Interval** – periods of high intensity work and rest  
**Resistance** – uses free weights or machine to improve strength and power  
**Circuit** – a series of stations to improve specific components of fitness  
**Fartlek** – 'speed play'  
**Plyometric** – explosive movements to improve power



## COMPONENTS OF FITNESS

**Cardiovascular Fitness** – being able to exercise the whole body for long periods of time

**Agility** – Change direction quickly with control

**Speed** – the rate in which you perform a movement

**Strength** – the amount of force a muscle can generate

**Power** – performing a forceful movement as quickly as possible

**Co-ordination** – moving two or more body parts together

## RULES AND REGULATIONS

- Game is started by a kick off in the centre of the pitch.
- In a full sided game each team consists of 11 players.
- If the ball goes off the side of the pitch it is a throw in to the team that didn't touch the ball last.
- If the ball goes off the end of the pitch it is a corner or a goal kick depending who the ball touched last.
- Depending on where the incident takes place, a free kick or a penalty is awarded if the player in possession of the ball is illegally infringed.
- The goalkeeper is the only player allowed to touch the ball with their hands and can only do this inside their 18 yard box.
- To score a goal, the ball must cross the opposition's goal line.
- If a player is past the opponent's last defender and in the opposition half when the ball is passed they are offside and a free kick is awarded to the opposition team.

# YEAR 9 PE - HANDBALL KNOWLEDGE ORGANISER

## Handball Set Plays

Set plays can either be from a restart in play or a set routine during open play.

Strategies during set plays can include but aren't limited to:

- Screening
- Switching of the play
- Counter attacking



## Rules and regulations

**Dribbling:** You are permitted one go at dribbling, then must either; shoot or pass the ball after you stop dribbling the ball.

**Travel:** You are permitted three steps once you stop dribbling before you must either; shoot or pass the ball.

**Passive play:** It is not permitted to keep the ball in the team's possession without making any recognisable attempt to attack or to shoot on goal. Prior to a penalty being awarded, a forewarning will be issued by the referee to give the team an opportunity to change its way of attack to avoid losing possession.

**Goalkeeper Area:** Only the goalkeeper is allowed to enter the goal area.

The goalkeeper throw, awarded when:

- Someone from the opposing team enters the goal area.
- Either the keeper of the attacking team had the last touch of the ball before going out behind the goal-area line.
- The goalkeeper has control of the ball inside the goal-area.

## Attacking Tactics and strategies

Jump to shoot before feet touch the floor and do not enter the goal area when shooting.

Quick passing, switching the ball from player to player to draw away defenders and create space to shoot.

Using fakes and dummies to trick defenders and goalkeeper

## Defending Tactics and Strategies

**Man-to-man:** each member on your team picks a player on the other team and marks them directly. When done right, it can work really well, however, it is physically tiring and if one person doesn't cover their mark properly, it can leave them open to score.

**Zone defence:** all of your team members defend the entire zone. The most effective way to do this is to line up on your crease to limit the attacking teams scoring opportunities; this directly protects the goal area.

## Character focus:

Can you problem solve in a variety of game situations?

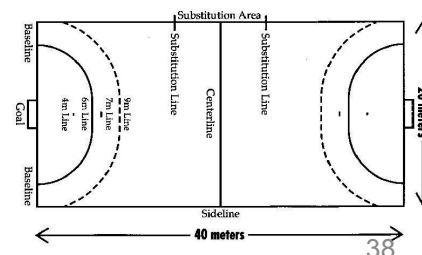
## Fouls and Unsportsmanlike Conduct

It is permitted to:

- use arms and hands to block or gain possession of the ball;
- use an open hand to play the ball away from the opponent from any direction;
- use the body to obstruct an opponent, even when the opponent is not in possession of the ball;
- make body contact with an opponent, when facing him and with bent arms, and maintain this contact in order to monitor and follow the opponent.

It is not permitted to:

- pull or hit the ball out of the hands of an opponent;
- block or force away an opponent with arms, hands or legs;
- restrain or hold (body or uniform), push, run or jump into an opponent;
- endanger an opponent (with or without the ball).



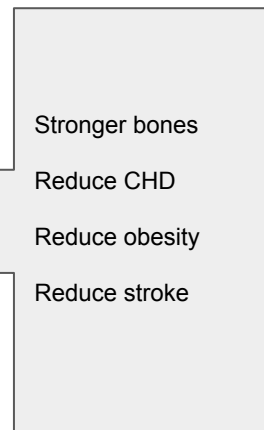
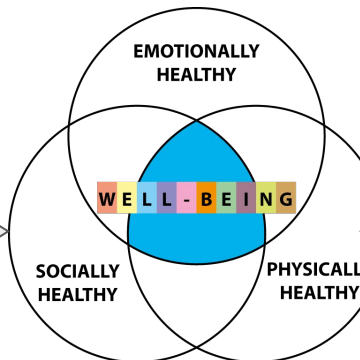
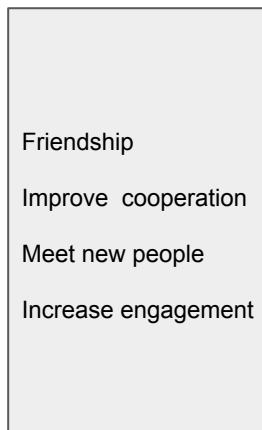
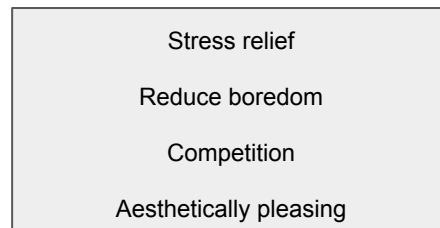
# YEAR 9 THEORY

## Health Fitness and Wellbeing

### Sedentary Lifestyle

A sedentary lifestyle is a lifestyle where there is very limited or no physical activity.

- ★ What risks would this have on health?
- ★ Create an eatwell plate for the food you ate yesterday.
- ★ How many hours are you active per week?



### Nutrition

#### ● Macronutrients:

1. Carbohydrates
2. Proteins
3. Fats

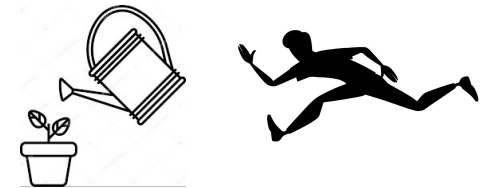
#### ● Micronutrients:

4. Vitamins
5. Minerals

#### ● Other

6. Water
7. Fibre

**My, Very, Fast, Friend, Can't, Water, Plants**



### Influences of participation

1. **Gender** - stereotypically, boys play more football and rugby. Girls do dance and gymnastics!

2. **Age** - young people have access to more sporting activities?

3. **Socio-economic** - golf is expensive so you can only play if you have money.

4. **Ethnicity** - stereotypically, Americans play ice hockey and baseball.

5. **Disability** - there are no disability clubs near me so I can't take part.

- ★ Do you agree or disagree with these statements?