Year 8 Cycle 2

Knowledge Organisers

Contents

LO: How to use a knowledge organiser so that you don't forget what you've learnt?

SUBHEADINGS

1. Look at the subheading.
2. Write down everything you know about that topic without looking at the KO.
3. Check what you've missed; add this to your notes in a different colour.
4. Do something else (e.g. revise something else).
5. Return to this and repeat from the beginning.

BIG IDEAS

1. Look at the list of ideas the writer is trying to convey.
2. For each idea, write down HOW the writer does this.

MINDMAP

1. Create a mindmap of what you know about the topic areas on the page *from memory*.
2. Check your mindmap against the KO.
3. Add 5 things that you've missed using a different colour pen.
4. Do something else (e.g. revise something else).
5. Repeat.

PICTURES

1. Look at just the pictures.
2. Explain how each of these pictures is relevant to the knowledge on the page.

VOCABULARY

1. Cover the vocabulary and definition columns. Try to work out what the missing word is in the example. Check. Move to the next word. Repeat until you can do this with all the words you've studied so far.
2. Try the same as above, but this time by looking at just the definition column.
3. Try the same as above, but this time just look at the vocabulary and try to explain what the definition is.

Questions

1. Cover the explanation.
2. Look at and write answers to the questions.
3. Check your answers; add anything you missed; correct anything you got wrong.
4. Do something else (e.g. revise something else).
5. Return to this and repeat from the beginning.

'Remains' – Knowledge Organiser

What happens in the poem? The speaker and two other soldiers are sent to tackle some looters who are robbing a bank. They open fire on a looter who is running away. The looter is seriously wounded He is carried away in the back of a lorry. The soldier has to walk past the blood stain left on the ground week after week. He returns home and is haunted by the memory of what he has done, reliving it again and again. He drinks and takes drugs in an attempt to forget what happened. However, he is unable to forget the looter and what he did. The memory remains stuck in his mind.

What is the context of the poem?

- Simon Armitage wrote 'Remains' (and other poems) for a Channel 4 programme called 'The Not Dead'.
- He has never been to war himself and has never been a soldier.
- To write the poems, he interviewed a number of soldiers who have survived war (in Iraq, Afghanistan, the Falklands etc.) i.e. the 'not dead'.
- The poems show the suffering soldiers experience long after wars have finished.
- 'Remains' is heavily based on the experience of Guardsman Tromans who fought in the Iraq war.
- Tromans shot a looter in Iraq and suffers from PTSD.

What is the significance of the title? The poem is about PTSD – in other words, how the traumatic experience of war REMAINS with the soldier. It could also refer to the human REMAINS – the image of the looter – that the soldier obsesses over so much as part of his PTSD.

What is a central idea in this poem? As is implied by the title, the poem explores the trauma experienced by soldiers and the terrible impact of PTSD on survivors long after the battle has ended.

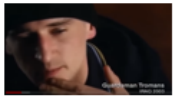
What other ideas are explored in the poem?

- War can cause suffering beyond the battlefield.
- War is damaging.
- Guilt is powerful and can overwhelm us.
- War can result in us dehumanising the enemy.
- War can cause us to act in ways we later regret.
- Memory can have a powerful effect on us.

Key Vocabulary	Definition	Example
Traumatic	Causing severe and lasting emotional shock or pain.	Being involved in war is deeply disturbing and a highly _____ experience.
PTSD (post-traumatic stress disorder)	This is an anxiety **disorder** caused by very stressful, frightening or distressing events. Someone with this often relives the **traumatic** event through nightmares and flashbacks, and may experience feelings of isolation, irritability and guilt.	The soldier in 'Remains' is suffering from _____.
Guilt	A feeling of worry or unhappiness that you have because you have done something wrong.	The soldier struggles to come to terms with the _____ he feels over shooting the looter.
Haunt	To revisit again and again.	The memory of the shooting _____ the soldier.
Dehumanisation	To treat people as less than human.	It can be argued that the soldiers in 'Remains' _____ the looter by treating him with so little respect.
Dramatic monologue	A poem made up of a single *character* speaking (i.e. the poet is very clearly writing as someone else).	'Remains' is a _____ because Armitage is writing as someone else and there is only one speaker in the poem.

Writer's Craft:	Example
Why is the poem written as a dramatic monologue?	To explore a traumatised soldier's thoughts and feelings; because the poem was produced following an interview with a soldier.
Why does Armitage use colloquial language?	To create a convincing voice – an ordinary person/soldier; to contribute to the almost matter-of-fact tone in the first half of the poem.
What does the first/second half focus on? What is the turning point?	First half: the shooting; second half: the emotional impact on the soldier. Turning point = 'End of story, except not really.'
Why is the shooting described with graphic imagery?	To convey the brutality; to show what has traumatised the soldier; because it's so vivid in the soldier's mind.
Why is the blood on the street described as a 'blood shadow'?	Shadow = dark imagery – connotations of death and misery; the shooting has cast a shadow over his life; a shadow follows you around
What does the imagery 'dug in behind enemy lines' suggest?	To the looter, the soldier is the enemy; the soldier's mind is enemy territory. The looter is in the soldier's mind, so this is 'behind enemy lines'. 'Dug in' means well defended and prepared for attack – this suggests that the memory of the looter is difficult to remove; 'dug in' is a military term, suggesting that the war/conflict is still going on for the soldier.
What impression does the final stanza leave us with and what is meant by 'bloody hands'?	It leaves us with the impression that the pain will be ongoing – there seems little hope of an end as the looter is still 'here and now'. 'Bloody' can suggest frustration (swearing), but 'to have blood on your hands' also means to be responsible for an act of violence against someone i.e. to be guilty of something.

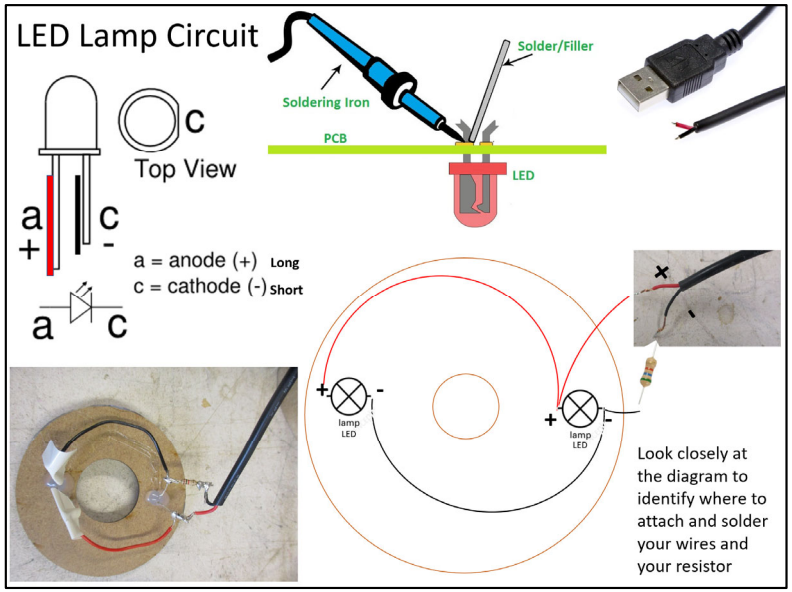


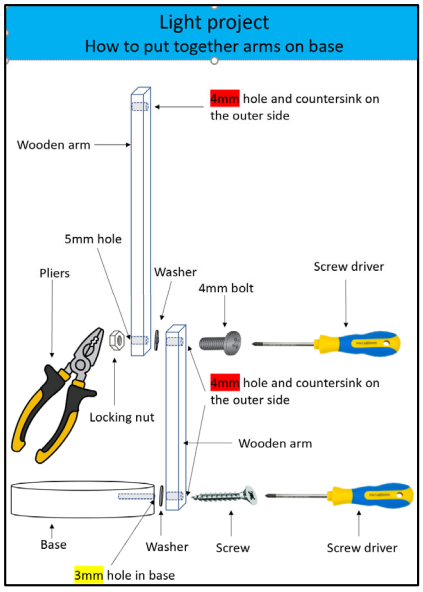



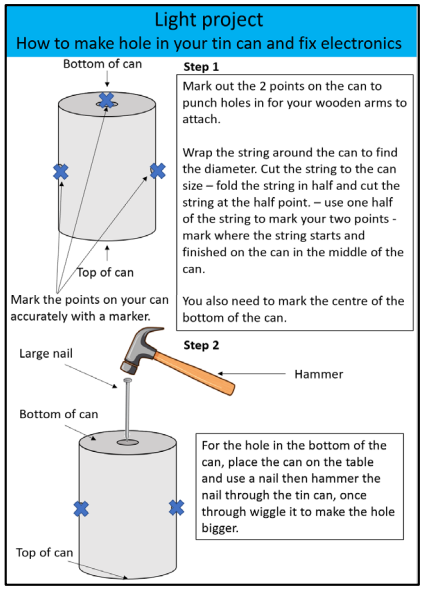
Design & Technology *knowledge organiser* Year 8

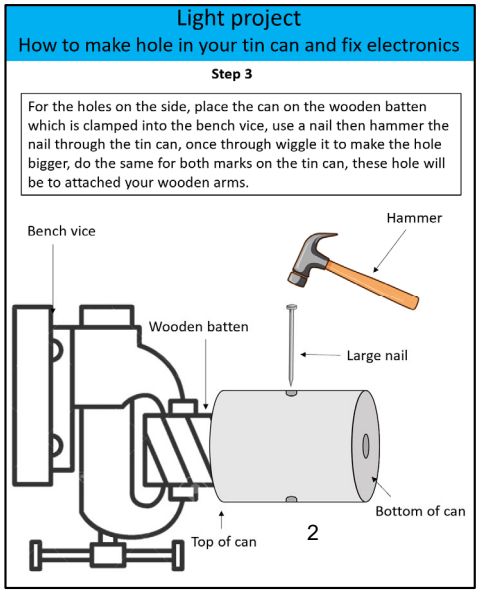
Year	Curriculum Overview	KS3 Curriculum covered	Assessment
YEAR 8 8-10 week rotation	You will make a USB lamp using an upcycled metal can and a range of electrical and joining components. You will work with MDF and a range of softwood/hardwoods. You will be taught how to accurately measure and mark out, to drill, sand and hand finish. You will learn about types of surface decoration, materials, processes, tools & equipment. You will develop your idea following the iterative design process	**Design:** • develop and communicate design ideas using annotated mind-maps and annotated sketches, 3-D modelling, oral and digital presentations **Make:** • select from and use specialist tools, techniques, processes, equipment and machinery, including computer-aided design and manufacture • select from and use a range of electronic and joining components, taking into account their properties **Evaluate:** • test, evaluate and refine their ideas taking into account the intended users and other interested groups **Technical knowledge:** • understand how more advanced electrical and electronic systems can be powered and used in their products [for example, circuits with heat, light, sound and movement as inputs and outputs]	**Design:** You will be assessed on the originality of your design idea and how effectively you are able to apply it to your lamp **Make:** You will be assessed on your ability to measure and mark out accurately, to cut materials and finish them skilfully **Evaluate:** You will complete a detailed evaluation of your final product, identifying what went well and even better if **Technical Knowledge:** You will be able to assemble your circuit following step by step instructions. You will understand renewable and non-renewable energy sources

Use www.technologystudent.com to research the meaning of core Key terms: Renewable and non-renewable energy sources, sustainable design, AI, Automation and Robotics, Scales of Production, Properties of materials, CAD/CAM, the iterative design process,









Homework 1 https://forms.office.com/r/jgEuY4gW8R

What are macronutrients and why do we eat food?

Balanced diet definition:

This means eating a wide variety of foods in the right proportions, and consuming the right amount of food and drink to achieve and maintain a healthy body weight.

The Eatwell guide shows how eating different foods can make a healthy and balanced diet. It divides food into groups and shows how much of each food group is needed for a healthy diet.

The groups of the Eatwell Guide are:

1. Fruit and vegetables -
2. Starchy carbohydrates -
3. Protein -
4. Dairy and alternatives -
5. Oils and spreads -

8 tips for a healthy diet

1. Base your meals on higher fibre starchy carbohydrates.
2. Eat lots of fruit and veg.
3. Eat more fish, including a portion of oily fish.
4. Cut down on saturated fat and sugar.
5. Eat less salt: no more than 6g a day for adults.
6. Get active and be a healthy weight.
7. Do not get thirsty.
8. Do not skip breakfast.

The 3 main macronutrients needed by the body are:

- Carbohydrate = Energy
- Protein = GERM
- Fat = PIE

Questions:

1. What colour is each section of the Eatwell guide?
2. What should we cut down on eating too much of?
3. What do the letters GERM stand for in proteins function in the body?
4. What do the letter PIE stand for in fats functions in the body?

Homework 2 https://forms.office.com/r/RrceUqrV8J

Micronutrients- Vitamins

Macro vs micronutrient:

- Macronutrients are nutrients needed in large amounts in the body
- Micronutrients are nutrients that we need in the diet in smaller amounts

We need macronutrients and micronutrients in the diet. They are equally important the only thing that is different is the amount of each that we need.

VITAMINS AND THEIR FUNCTIONS

	Function (what does it do?)	Source (foods found in)
A	• Healthy skin • Helps us see in the dark	• Animals – liver and milk • Plants – carrots and red peppers
B	• Releases energy from food	• Bread, fish, broccoli, liver, milk, peas, rice
C	• Keeps connective tissue healthy • Helps absorb iron	• Oranges, blackcurrants, broccoli, red and green peppers •
D	• Helps the body absorb calcium	• Butter, eggs, milk, oily fish •

Homework 3 https://forms.office.com/r/BKFV6zuUtJ

Micronutrients- Minerals

MINERALS AND THEIR FUNCTIONS

	Function (what does it do?)	Source (foods found in)
Calcium	• Build strong bones and teeth	• Yoghurt, cheese, milk, tofu
Sodium (salt)	• Keeps the correct water balance in the body	• Cheese, ready meals, salted nuts, bacon
Iron	• Keeps red blood cells healthy	• Dark green vegetables, beans, fish, egg yolk, red meat

Questions:

1. Explain the difference between a macronutrient and micronutrient?
2. Are macronutrients more important than micronutrients in the body?
3. Which vitamin helps the body absorb calcium?
4. Which vitamin helps the body absorb iron?

Homework 4 https://forms.office.com/r/iieHYqQhrm

Nutritional needs of different groups

Nutritional needs depend on: Gender, Age, Lifestyle, Activity level, Health condition(s), Weight

People can be classified into:

BABIES

Special diet needs: milk for the 1st 6 months. High energy needs. No added salt or sugar.

Need more: Food high in iron & vitamin C 6 months+

CHILDREN

Special diet needs: regular, smaller meals and snacks. High energy needs. Reduced salt and sugar. Eatwell Guide between 2-5 years

Need more: Calcium and Vitamin D. Iron and Vitamin C

TEENAGERS

Special diet needs: Eatwell Guide. Teenagers have growth spurts and high energy needs. Increased appetites mean larger portions.

Need more: Protein, Calcium & Vitamin D, C & Iron

ADULTS

Special diet needs: Lower energy needs. Eatwell guide. Avoid foods high in sugar and fat.

Need more: Calcium and Vitamin D, Iron and Vitamin C

PREGNANT AND LACTATING WOMEN

Special diet needs: Healthy balanced diet. Plenty of watery drinks. Higher energy needs for last 3 months of pregnancy

Need more: Folic acid, Protein, Calcium and Vitamin D, C & Iron

THE ELDERLY

Special diet needs: Bodies typically slow down, so less energy is needed. Don't absorb nutrients as easily. Plenty of watery drinks

Need more: Fibre, Calcium, Vitamin D & C, Iron

Questions:

1. Why do teenagers need extra protein in their diets?
2. Which foods should adults avoid to prevent weight gain?
3. What type of drinks are suitable for pregnant women?
4. Why do the elderly need less energy than younger adults?

Homework 5 https://forms.office.com/e/kV8DAFWxAY

Allergies

Definitions:

Allergen – a substance or food that may cause an allergic reaction.

Allergic reaction – Where the body reacts suddenly and often seriously to certain foods.

In the worst cases of food allergies, some people suffer severe reactions which can stop them breathing. They will need an injection of adrenaline from an EpiPen to help them recover.

Allergy information should be clearly shown on any ingredients list by highlighting the ingredient in bold.

The 2 main types of intolerance are lactose intolerance (dairy) and coeliac disease (gluten).

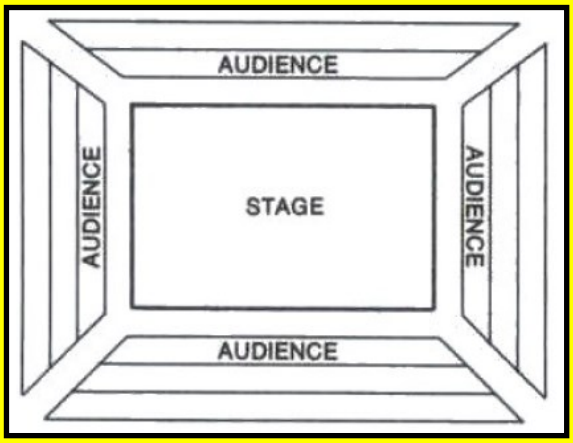
- Lactose intolerance = one of the most common. People who cannot digest lactose (natural sugar found in milk and other dairy foods).
- Intolerance to gluten is known as coeliac disease. Symptoms include Diarrhoea, Bloating and Weight loss

Questions:

1. What is the difference between a food allergy and intolerance?
2. Name 5 foods that could cause a food allergy?
3. What can happen to somebody who accidentally eats a food that they are severely allergic to e.g., nuts?
4. Plan a meal for a teenager who is a Coeliac. Explain what you would substitute and for what?

Drama Knowledge 8

Theatre in the Round



The diagram is a **ground plan** of a **Theatre in the Round stage** (it is sometimes referred to as an Arena stage). A ground plan is an overhead view of the theatre stage area or of a **set design.**

Pros of a Theatre in the Round Stage—The audience feel included and an **intimate atmosphere** is created.

Cons of a Theatre in the Round Stage— **Sight lines** might be an issue and there needs to be **lots of movement around the space.**

Standing Ovation

A standing ovation is a form of **applause** where members of a seated audience stand up while applauding.

This is only done after **extraordinary** performances. Standing ovations are considered to be a special honour.

Emotion Memory — a **rehearsal technique** used by actors to find a real past **experience** where they felt a similar emotion to that demanded by the role they are playing. They then 'borrow' those feelings to bring the role to life.

Vocal Skills

Emphasis - This is the pressure on individual words that makes them stand out. Emphasis or **stress** for a particular effect is significant and can change the meaning of a sentence as well as the feeling behind it.

Physical Skills

Fluency — This is the flow of the drama. It can refer to how smooth actors move around the stage but also how the play is **structured**. Long and messy scene changes break the fluency of a **performance.**

Colour Symbolism

Colour can be used in **costumes, set, props and lighting** to communicate a deeper meaning to the audience.

Example:

INNOCENCE **PURITY**

WHITE

HOPE **CLEANLINESS**

Drama Techniques and Terminology

Auditorium—The area within the **theatre** that accommodates the audience.

Naturalism – A **genre** that attempts to present events and characters on stage as though they are from real life. Naturalism tries to give the **illusion** that the characters are actual people in real-life situations using everyday language.

Drama Knowledge 9

Areas of the Stage

- The area closest to the audience is considered **downstage.**
- The area furthest away from the audience is considered **upstage.**
- **Stage right** and **stage left** are from perspective of an actor standing on stage, facing the **audience.**

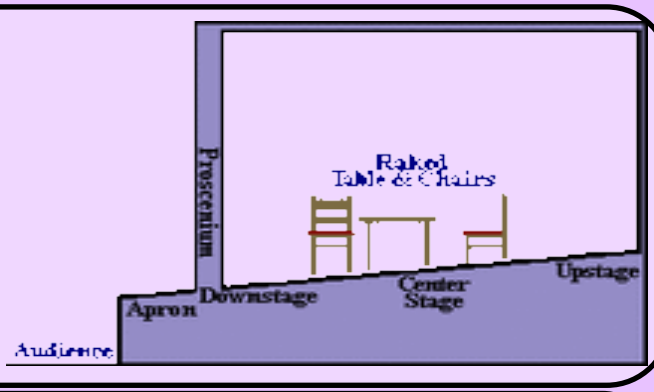
Crossover

Wings	**Upstage Right**	**Upstage Centre**	**Upstage Left**
	Centre Stage Right	**Centre Stage**	**Centre Stage Left**
	Downstage Right	**Downstage Centre**	**Downstage Left**

Wings

Audience

Raked Stage or Raked Seating — Older theatres used a sloping or **Raked Stage** to improve the view for the audience. Modern theatres like the Templer Theatre at Teign School use **Raked Seating** for the same reason.



Colour Symbolism

Colour can be used in **costumes, set, props and lighting** to communicate a deeper meaning to the audience.

Example:

COWARDICE YELLOW **OPTIMISM**

DISHONESTY **POSITIVITY**

Wings — The wings are space just off stage. It is used by actors preparing to enter and to store sets for scene changes.

Crossover—The **crossover** is the area used by **performers** to travel from stage left to right out of sight of the audience.

English Year 8 Cycle 2 Monologues and Voices (Page 1)

You will be expected to know the information in this Knowledge Organiser by the end of Cycle 2. You will learn a little at a time each week. Your teacher will tell you what to focus on.

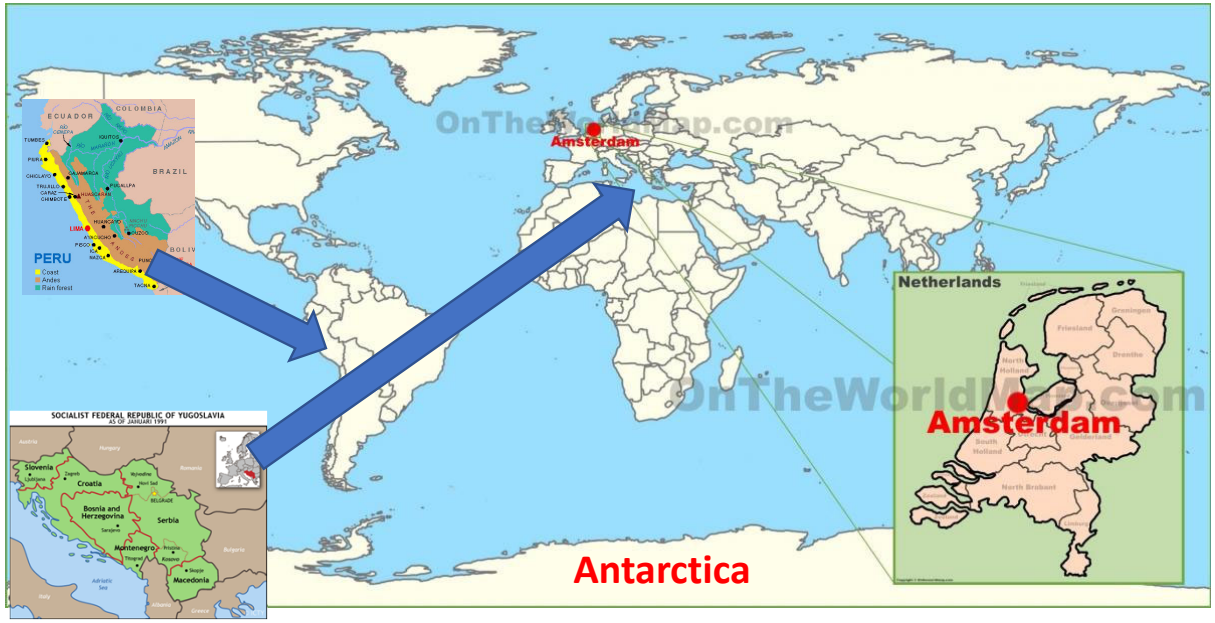
The key vocabulary on Page 2-3 of this Knowledge Organiser is presented in the order that you'll study these terms and ideas. Some of these words will be used very frequently in many of our English lessons; others specifically relate to our Cycle 2 topic. The definitions are simplified, so you may find the words being used in a slightly different way in other subjects or in different books – that's a good learning opportunity, so ask about them!

Key Authors and Dates	
Alan Bennett 'Talking Heads' (fiction – monologues)	1998
Dennis Kelly 'DNA' (fiction- playscript)	2008
Anne Frank 'Diaries of a Young Girl'(non-fiction)	1942-44
Mark Haddon 'The Curious Incident of the Dog in the Night-Time' (Fiction – novel)	2003
Joe Simpson (non-fiction) 'Touching the Void'	1988
Captain Scott (non-fiction) 'Captain Scott's Diaries'	1911-1912
Dervla Murphy 'Full Tilt' (non-fiction)	1965

Key Historical Event: Second World War 1939-1945

This is relevant when you study the Diaries of Anne Frank. On 1 September 1939, when Anne was 10 years old, Nazi Germany invaded Poland, and so the Second World War began. Not long after, on 10 May 1940, the Nazis also invaded the Netherlands (where Amsterdam is). Five days later, the Dutch army surrendered. Slowly but surely, the Nazis introduced more and more laws and regulations that made the lives of Jews more difficult. This resulted in the continued persecution of the Jews and the use of concentration camps such as Bergen Belsen and Auschwitz.

In this cycle, we study different texts from different places in the world.
Anne Frank's Diaries: **Amsterdam, The Netherlands**
Captain Scott's Diaries: **Antarctica**
Alan Bennett's 'Talking Heads': UK
Joe Simpson 'Touching the Void': **Peruvian Andes**
Dervla Murphy: **Former Yugoslavia** (now Bosnia and Herzegovina, Croatia, Kosovo, Serbia, Montenegro, Slovenia and North Macedonia)



English Year 8 Cycle 2: Monologues and Voices (Page 2)

Key Vocabulary	Definition	In a sentence
Voice	The **voice** is the person or character behind the words in a text, and the way that person or character sounds.	Reynolds used the voice of Will as the narrator in 'Long Way Down.'
Informal Language	**Informal** language is more commonly used in situations that are more relaxed and involve people we know well. Informal language is more common when we speak.	Informal language is common amongst teenagers.
Formal Language	We use **formal language** in situations that are serious or that involve people we don't know well. Formal language is more common when we write.	We use formal language in our academic writing.
Monologue	a **monologue** is **an extended speech by one person**. It is a speech given by a single character in a story.	Doris' monologue helped reveal her character.
Tone	**Tone** typically refers to the mood implied by an author's word choice and the way that the text can make a reader feel.	The character used a tone of frustration when describing the events.
Declarative	**Declarative sentences** are simply statements that relay information. They are the most common type of sentences in the English language	Doris uses the declarative 'It's such a silly thing to have done'
Flashback	**Flashback** is a device that moves an audience from the present moment in a chronological story to a scene in the past.	The use of flashback revealed more about Doris' past.
Imperative	**Imperative sentences**, or imperatives, make commands or requests	The imperative 'Get out!' showed how she was commanding the boy.
Motif	A **motif** is a repeating image in a text that suggests, represents or symbolises something else.	The motif of the cream cracker suggested how Doris was neglected.
Stereotype	A **stereotype** is a set idea that people have about what someone or something is like, especially an idea that is wrong.	The stereotype of old people was clearly used in the scene.
Ellipsis (punctuation)	An **ellipsis** (plural: **ellipses**) is a punctuation mark consisting of three dots. Ellipses can express hesitation, changes of mood, suspense, or thoughts trailing off.	The writer used ellipsis to show the characters hesitation.
Ellipsis (grammar)	**Ellipsis** happens when we leave out (in other words, when we don't use) items which we would normally expect to use in a sentence if we followed the grammatical rules	The ellipsis in the sentences helped us understand the way Doris spoke.

English Year 8 Cycle 2: 'Monologues and Voices' (Page 3)

Key Vocabulary	Definition	In a sentence
False start	**False starts** include both sentences and words that are cut short before they are finished.	Leah's use of false starts shows she keeps changing her mind.
Fillers	A **filler** is a word or short phrase such as "er", "well", or "you know", used when a person pauses to think about what to say next.	Leah used several fillers to show she was unsure of what to say.
Stage directions	**Stage directions** are an instruction in the text of a play indicating the movement, position, or tone of an actor, or the sound effects and lighting, often shown in italics.	The stage directions revealed how Phil was ignoring Leah.
Diary	A **diary** is a type of autobiographical writing – this means it is written personally about your own experiences, thoughts and feelings.	Anne kept a diary for two years whilst in the secret annexe.
Persecution	**Persecution** is cruel and unfair treatment of a person or group, especially because of their religious or political beliefs, or their race.	The Frank family left their home to escape persecution by the Nazi's.
Complex sentence	A **complex sentence** contains a main clause and a subordinate clause. (It can also include other fragments).	Anne uses complex sentences as her writing is more formal.
Infer	To **infer** is to derive from evidence or by reasoning, rather than from explicit statements.	We can infer that Anne is afraid through her tone.
Autism	**Autism** is a condition where an individual experiences difficulties in social communication and may show restricted and repetitive patterns of behaviour.	Christopher's autism is revealed through the way he speaks and behaves.
Matter of fact language	**Matter of fact** language is an unemotional and practical way of speaking or writing.	Christopher's language was very matter of fact when describing the events.
Paragraph	A **paragraph** is a short part of a text, consisting of at least one sentence and beginning on a new line. It usually deals with a single event, description, idea, etc.	Haddon uses short paragraphs to show the build up of Christopher's emotions.
Peril	**Peril** is being in serious or immediate danger	Joe was in considerable peril during his time in the Peruvian Andes.
Viewpoint	Viewpoint is a persons opinion or point of view	Simon and Joe had different viewpoints on his accident.
Perspective	a particular way of viewing things that depends on one's experience and personality.	The characters perspectives were different because of their ages.

Geography Knowledge Organiser

Year	8	Cycle	2	Topic	Ecosystems

Subject vocabulary

Ready to test your knowledge? Scan this QR code to access Quizlet

Ecosystem	An ecosystem is a community of interacting living (biotic) and non- living (abiotic) organisms and their environment.
Food web	Numerous food chains joined together, showing multiple reliances (interdependence)
Food chain	A series of simple links showing the transfer of energy in an ecosystem (who eats who!)
Biome	A large geographical area characterised by a particular climate and vegetation
Biodiversity	The variety of living organisms within a given space/ habitat
Insolation	The amount of solar radiation (sun's energy) received on a given surface in a given time
Evapotranspiration	Evaporation and transpiration combined. Evaporation, when water (liquid) turns to water vapour (gas). Transpiration, water vapor coming from vegetation (pores under leaves)
Leaching	(usually precipitation) washing nutrients out of the soil. This happens a lot in rainforests
Resource	Something which human society attaches value to due to its usefulness
Epiphyte	A plant in the rainforest that gets its nutrients and water from the air (it doesn't need soil- so often grows high up in the under canopy to reach sunlight)
Buttress roots	Large, wide shallow root system common to trees in rainforest regions. Adapted to stabilise the tree, and with thin source of organic matter/ nutrients on the forest floor, being shallow optimises the uptake of nutrients
Deforestation	The removal of trees for an alternative land use
Hydroelectric power (HEP)	Renewable source of electricity (doesn't run out). Usually installed in dams, whereby turbines are moved by the flow of water to generate electricity
Ecosystem service	A benefit an ecosystem provides to humans
High pressure	When air is descending, this creates clear skies and stable weather
Low pressure	Associated with air rising, condensing and forming clouds. Showers and thunderstorms are common under these conditions
Precipitation	Anything water based falling from the sky: Rain, hail, snow, sleet
Carbon sink	Something that stores carbon
Diurnal	Daily; of each day
Succulent	A plant that stores water
Tap roots	Deep roots, able to tap into underground sources of water (and aquifers)
Desertification	When fertile land turns infertile, due to a mix of human and physical causes
Soil	A mixture of tiny particles of rock, dead plants and animals (organic matter/humus), air and water.
Soil profile	A vertical cross-section of the soil, made of layers running parallel to the surface. Each layer is called a horizon.
Overgrazing	Excessive grazing (cattle eating) which causes damage
Agriculture	The practice of farming, including cultivation of the soil for the growing of crops and the rearing of animals to provide food, wool, and other products
Famine	Widespread scarcity (lack of) food
Irrigation	The supply of water to land or crops to help growth, typically by means of channels
Mangrove	Salt tolerant woody tree plants that grow in salt marshes and muddy coasts
Ocean acidification	A reduction in the pH of the ocean over time, caused primarily by uptake of CO_2

Lesson content

(If you cannot access the QR code, ask your teacher to share the folder with your school email)

1. What are global ecosystems?	This lesson begins by recapping some knowledge from KS2; we identify what an ecosystem is, how food chains work, and what producers, consumers and decomposers do. We use this knowledge to learn terms: abiotic and biotic, alongside food webs. The concepts interdependence and processes. Our second progression step leads us to define and give examples of biomes, before looking at the variety of biomes in Asia.
2. Tropical rainforests	We begin by locating tropical rainforests in the world; they typically occur 5-15° north and south of the equator. We explain this pattern by referring back to cycle 1, when we looked at the sun's insolation being the most concentrated at the equator. This creates convectional rainfall, which is responsible for the humidity, 27°c average temperature and >2000mm of precipitation annually. We then look at processes such as 'leaching' being partly responsible for infertile soils, and how soils act as carbon sinks.
3. Adaptations in the rainforest	We begin this lesson by identifying the various layers of rainforest vegetation: Shrub layer/forest floor, under-canopy, canopy and emergent layer. We then look at plant adaptations in more detail; lianas climb to reach sunlight, buttress roots stabilise tall trees, drip tip leaves shed water to reduce damage, and epiphytes get their nutrients and water from the air. We finish this lesson by looking at animal adaptations, specifically the toucan, tree frog, flying squirrel and sloth.
4. Rainforest resources	This lesson begins by defining the word 'resource'. Malaysia is introduced as a country containing rainforests and their resources. We look at three main areas of resource exploitation; electricity (through flooding rainforest areas and creating hydroelectric power), mining for precious metals and jewels and palm oil production.
5. Biomes in Russia and threats to the tundra	We begin by identifying Russia's location in the world. Russia has a variety of biomes due to its large geographical size- tundra, deciduous forest, grassland and taiga (coniferous forest). We investigate these in more detail by identifying their characteristics, resources, services and threats to them. We then explore the impacts of climate change to the tundra biome, one of the threats is melting permafrost (frozen soil) which poses hazards to infrastructure and releases vast amounts of greenhouse gasses into the atmosphere.
6. The Arctic	The Arctic refers to the location above 66.5° north of the equator. There is no single landmass, with approximately eight countries having territory within the Arctic circle. We then explore animal adaptations, The Arctic fox, hare, polar bear and seal.
7. Threats to the Arctic	We begin this lesson by explaining why the Arctic is so dry (cold air sinking creating a high pressure zone). We identify the tensions appearing in the Arctic, due to multiple countries' land masses being within it and the resources that can be exploited (oil, gas, precious gems and metals). This is the point where we look at EEZs, and Russia's ice breaking tanker ship. We finish by examining the activities in the Arctic, whether they are threats or opportunities.
8. Mid cycle knowledge quiz	

Lessons:





If you cannot scan the QR code, head to the Kahoot website and type in the name of the quiz (below)

Kahoot!

Teign School Year 8 Cycle 2 - Mid cycle revision

Key concepts

These are '**big ideas**' in Geography. They help us link different areas of the subject together through a common thread.

Processes
A sequence of actions, natural and/or cultural, that shape and change environments, places and societies. Processes are the driving forces (cogs) behind natural and human change.

Risk
The probability of an event causing harmful consequences (loss of life, injuries damage) to humans and the environment. Humans can become resilient towards risk.

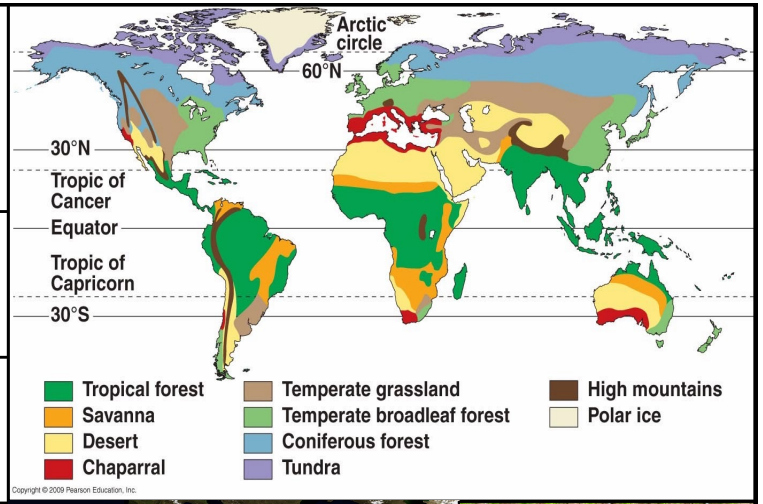
Sustainability
Meeting our needs today without compromising future generations to meet their own needs. It is all about being caring and considerate of the present and the future.

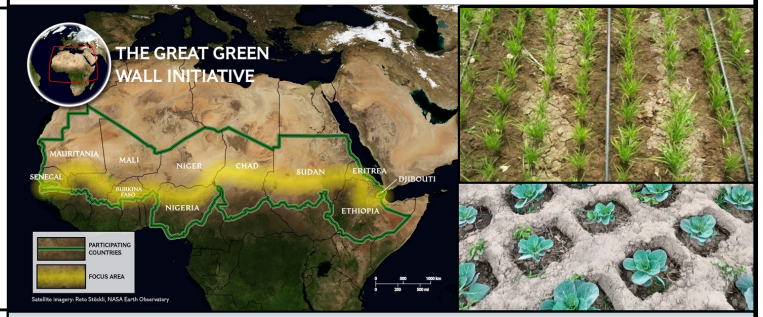
Adaptation
The process of change. This can be how humans alter their behaviour in order to become more resilient, or can refer to organisms adapting in order to suit their environment better.

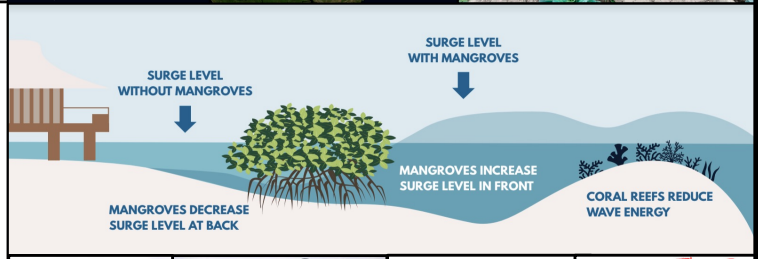
Interdependence
When two more more components rely on each other. Often referred to as a web of connections.

Causality
The relationship between cause and effect. Think of the domino effect; how toppling one domino leads to a chain reaction of them all falling over.

9. Africa's grasslands	This lesson begins by looking at the global distribution of savanna grasslands. They are situated between the Tropics of Cancer and Capricorn, with the largest grassland being in Africa. We look at climate graphs to identify a wet season, followed by a dry season with elevated temperatures. We revisit the concept of 'adaptation' by looking at grasses, and then by exploring the acacia and baobab tree in more detail.
10. Hot deserts	We identify that deserts are anywhere with a moisture deficit. Their location is on the Tropics of Cancer and Capricorn, 20-30° north and south of the equator. As high pressure zones, we explore why hot deserts have a high diurnal temperature range. We then investigate specialised adaptations of the cactus and camel.
11. Desertification	This lesson introduces the meaning of desertification, before exploring soil formation in more detail. We are then able to identify how desertification interrupts the soil formation process. We then complete some reading that explores the causes and effects of desertification.
12. Responses to desertification	We explore the various strategies being deployed in the Sahel region in Africa to try and combat desertification. Planting trees (roots bind soil, prevent erosion, leaves provide nutrients and shade to the soil- Great Green Wall in Africa), rock bunds (low lying rock walls designed to slow down the flow of water, to recharge the soil- Magic stones in Burkina Faso), Zai pits (holes in the ground lined with leaves and manure to provide nutrients to the plant and store water- being used in many countries in the Sahel belt of Africa) and smart irrigation (narrow pipes with tiny holes to drip water right over the plant's roots- Senegal). We explore their strengths and weaknesses before completing some extended writing.
13. Mangroves	Mangroves can be found on tropical and subtropical coastlines around the world. They thrive in warmer temperatures. They are found in warm shallow tidal areas with slow water and fine organic sediment. They are adapted to living in salt water. We explore mangrove's specific adaptations which enable it to thrive in salt waters. We look at the term 'biodiversity' and revisit the term 'ecosystem service'. We then identify the importance of mangrove habitats (nurseries to fish, support lots of amphibian and mammals, reduce coastal erosion, help filter out pollutants and store carbon). Lastly, we look at threats to them, which mostly are human destruction and climate change induced.
14. Mangroves and oil spills	We begin this lesson by identifying where Nigeria is on the map and using data to justify its status as a NEE. We then look at the Bodo oil spills of 2008 and 2009, a 55-year-old pipeline owned by Shell ruptured twice, throwing up 600,000 barrels of oil. We then explore the social, economic and environmental effects of this disaster, followed by a discussion on who is to blame.
15. Oceans	This lesson starts by defining oceans, currents, layers and importance of oceans. We explore coral reefs by identifying key parts of its food web, then looking at the looming threat of coral bleaching. We then look at the current threats that our oceans face: overfishing, coastal pollution, habitat destruction, warming and acidification. One of the most pertinent threats being humans overfishing- causing the collapse of food webs and ecosystems.
17. End of cycle knowledge quiz	







Kahoot!

Teign School Year 8 Cycle 2 – End of cycle revision

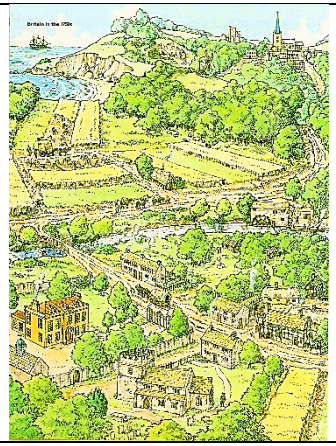
If you cannot scan the QR code, head to the Kahoot website and type in the name of the quiz (above)

History Year 8 Knowledge Organiser: The Industrial Revolution 1750-1900

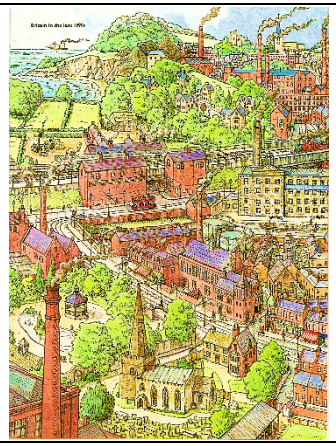
Overview of the Industrial Revolution:

From 1750 to 1900 Britain went through a process of rapid change in:
•**Agriculture**– (farming) New tools, fertilizers and harvesting techniques were introduced, this meant more farming became more efficient and more food was grown. This supported the growing **population.**
•**Industry** – Before the **Industrial Revolution** people had worked in their own homes, working on their own. The **Industrial Revolution** brought factories and **mass production**, meaning more goods could be produced, quicker and cheaper.
•**Transport and communications** -Thomas Telford built roads and canals in the 1700s and George Stephenson and Isambard Kingdom Brunel oversaw the 'Railway Mania' of the 1800s. There had previously been no very fast, cheap way of transporting goods and people around the country, steam power changed this.
•**Technology** - There were also many scientific discoveries and **technological** inventions that changed society and industry. Changes to sanitation (hygiene) and medical treatment such as the work of John Snow and Edward Jenner improved people's quality of life.

From this…



To this…



Key dates	
1750-1900	The period in which the **Industrial Revolution** took place in Britain. Britain was the first country to industrialise.
1712	Thomas Newcomen invents the first usable steam engine. It could be used to power machines in factories.
1825	The first steam railway is opened between Stockton and Darlington. It used engines created by George Stephenson.
1829	The Metropolitan Police Force was formed. (London only).
1832	The Great Reform Act gave more people the right to vote
1847	The 10 Hours Act is passed – the law made it illegal for women & children to work more than 10 hours per day in textile **mills**
1858	Joseph Bazalgette begins the building of 1300 miles of sewers in London.

Key concepts	
Working conditions	Conditions for workers were generally poor. Jobs were very dangerous, children were expected to work, pay was poor, especially for women and children.
Living conditions	Life in towns/cities was very unhygienic. Only the wealthy had water supplies to their homes. The poor lived in overcrowded, unhygienic, poor quality **slum** homes. They often lived in lodging houses with strangers. The lack of proper sewage systems meant that even the wealthy couldn't avoid the smell and disease. Cholera and other 'filth diseases' were common and there were no cures.
Law and order	There was no police force until 1829, and that was only in London. Crime was common, especially theft. Poor people had nowhere safe to keep valuables and unlit streets made crime easy to get away with. The police were distrusted as they were new. There was also lots of violent crime, e.g. Jack the Ripper murders.
The political system	Before 1832 only 3% of the **population** could vote! It was only after 1867 that some working-class men were allowed to vote. No women were allowed to vote at all. Politicians were rich, white men who were often business owners. They didn't want to change the rules as it would make them lose money.

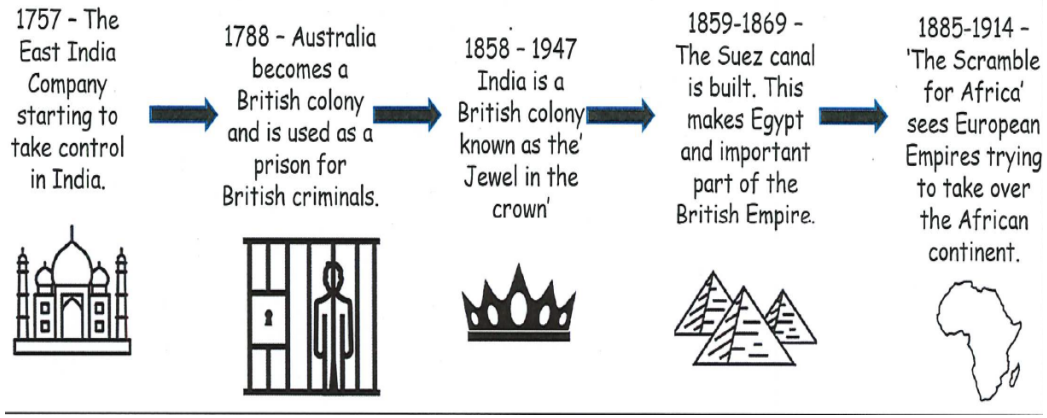
Key vocab	
population	The amount of people who live in a particular place. The population of the Britain rose over 600% during the **Industrial Revolution** – 6 million to 37 million!
mass production	Producing large quantities of identical goods, in a factory, often using machines.
urbanisation	The movement of people from the countryside to towns and cities. By the end of the **Industrial Revolution**, the majority of people lived in towns.
Industrial Revolution	A time of rapid change in the way that things are manufactured (made), going from being hand made at home, to using machines in factories. E.g. Britain between 1750 and 1900.
interpretation	An historian's view of the past. E.g. Emma Griffin has a positive **interpretation** of the **Industrial Revolution**.
technology	Anything that is man-made in order to make life easier or more enjoyable.
agriculture	farming
mechanisation	Changing from things being made by hand to things being made with the help of machines.
cottage industry	When people worked from their homes e.g. weaving cloth on a hand loom.
labour	Work, especially hard, physical work (done with your hands).
child labour	When children work. This was common in the Industrial Revolution, e.g. in mines, factories, on farms or as chimney sweeps.
slums	Poor quality housing,
rotten boroughs	Areas which still got to send MPs to parliament, but only had a few people living there. In other areas, e.g. Manchester, thousands of people lived, but were not allowed to send any MPs to parliament.

Overview of The British Empire

An 'empire' is a group of countries ruled over by one country. An empire doesn't need an 'emperor'. The British Empire was made up of Britain, the 'mother country', and the colonies (countries that were controlled by Britain).

In the 19th century, the British built a worldwide empire. It covered 1/4 of the world's land mass and included countries like India, Australia, Canada, New Zealand, and Kenya. Having a global Empire gave Britain access to raw materials, large trading markets and strategic military ports. The British made some improvements to the countries they ruled. For example, they build railways and roads, schools and hospitals.

However, it came at a cost. The countries they ruled were taxed heavily, their resources and land given to British companies, and control maintained through violence and massacres.
After World War II, Britain started to give back the colonies, known as decolonization. Britain decided to give back nations because World War II left the British Empire essentially bankrupt. Also, many of the persons the Empire had ruled over wanted to be in charge of their own country. One of the last parts of the British Empire was Hong Kong. Hong Kong was given back to China in 1997.



Key concepts	
Imperialism	Imperialism is when one country shows power over another through various methods of control. It describes an economic, political, and social system in which one country takes others, and brings them under its control.
Power	Power means the right or ability to govern, rule, or strongly influence people or situations. Power is a general word that suggests the ability to control or influence what is done and felt. If a country has "power" (as influence) in military, diplomatic, cultural, and economic spheres, it might be called a "power" (as status).
Civilisation	A society with a system of government and writing. A civilization is often defined as a complex culture with five characteristics: advanced cities, specialized workers, complex institutions, record keeping, and advanced technology.

Key vocab	
Empire	A group of countries that are ruled or controlled by another country
Humanity	The concept of humanity describes the human race, which includes everyone on earth.
Reasonable	Having a sound, fair, and sensible judgement
Mutiny	A revolt by the military
Interpretation	An historian's view of the past. E.g. Emma Griffin has a positive **interpretation** of the **Industrial Revolution**.
Colony	The countries that are controlled by an empire
Legacy	A legacy is what is left behind after something ends of someone dies.
Commonwealth	Name given to a group of former British colonies who chose to remain allies with the British after the British allies
Scramble for Africa	The name given to a fight between European empires to gain control of large parts of Africa

Y8C2 Maths Key knowledge

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>The multiplication rule of indices</td><td>$a^m \times a^n = a^{m+n}$ (Add the indices)

Example $13^4 \times 13^6 = 13^{10}$</td></tr>
<tr><td>The division rule of indices</td><td>$a^m \div a^n = a^{m-n}$ (Subtract the indices)

Example $x^5 \div x^2 = x^3$</td></tr>
<tr><td>The brackets rule of indices</td><td>$(a^m)^n = a^{mn}$ (Multiply the indices)

Example $13^4 \times 13^6 = 13^{10}$</td></tr>
<tr><td>The equation of a straight line</td><td>An equation that describes the coordinates(x, y) of all of the points on a straight line.
For example
<table>
<tr><th>Equation</th><th>Meaning</th></tr>
<tr><td>$y = 6$</td><td>Any point with a y coordinate of 6 is on this horizontal line.</td></tr>
<tr><td>$x = 6$</td><td>Any point with an x coordinate of 6 is on this horizontal line.</td></tr>
<tr><td>$y = 2x$</td><td>The y coordinate of each point is double the x coordinate.</td></tr>
<tr><td>$y = 2x - 5$</td><td>To find a y coordinate, double the x coordinate and subtract 5</td></tr>
</table></td></tr>
<tr><td>Gradient</td><td>The amount a straight line goes up or down for every unit it moves to the right.</td></tr>
<tr><td>Gradient</td><td>$$gradient = \frac{change\ in\ y}{change\ in\ x}$$</td></tr>
<tr><td>y intercept</td><td>The place where a line crosses the y axis.</td></tr>
<tr><td>The general equation of a straight line</td><td>$$y = mx + c$$
m is the gradient
c is the y intercept</td></tr>
<tr><td>Prism</td><td>A 3D shape with a</td></tr>
<tr><td>Volume of a prism</td><td>$volume\ of\ a\ prism = area\ of\ the\ cross\ section \times length$</td></tr>
<tr><td>Volume of a cylinder</td><td>$volume\ of\ a\ cylinder = \pi \times radius^2 \times length$</td></tr>
</table>

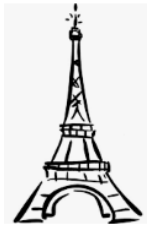
Y8 French LC2 : Sentence Builder 1 : Visiting cities - Tu es allé à Paris ?

Time marker	verb phrase	Verb phrase 2	Noun	Negative	past tense	adjective
L'année dernière (last year) **L'**été dernier (last summer) Récemment (recently) Hier (Yesterday) **La** semaine dernière (last week) 	**je suis** allé(e) **à** Paris (**I** went **to** Paris) **je suis** allé(e) **à** Londres (**I** went **to** London)	**j'ai** visité l**a** tour Eiffel (I visited **the** Eiffel Tower) **j'ai** mangé **au** restaurant (**I** ate **in a** restaurant) **j'ai** admiré Big Ben (**I** admired Big Ben) **j'ai** acheté **des** souvenirs (**I** bought souvenirs) **j'ai** pris **des** photos (I took photos) **j'ai** vu l**a** Joconde (I saw **the Mona** Lisa) **on a fait les** magasins (**we** went shopping) **on a fait un** tour **en** bus (**we did a** tour **by** bus) **on a fait une** balade **en** bateau (**we did a** trip **by** boat) **on s'est** promenés (**we** went for **a** walk)	**mais (but)** cependant (however) pourtant (however)	**je n'ai pas** visité **la** tour Eiffel (**I didn't** visit **the** Eiffel Tower) **je n'ai pas** mangé **au** restaurant (**I didn't** eat **in a** restaurant) **je n'ai pas** admiré Big Ben (**I didn't** admire Big Ben) **je n'ai pas** acheté **de** souvenirs (**I didn't** buy souvenirs) **je n'ai pas** pris **de** photos (**I didn't** take photos) **je n'ai pas** vu l**a** Joconde (**I didn't** see **the** Mona Lisa) **on n'a pas fait les** magasins (we didn't go shopping) **on n'a pas fait de** tour **en** bus (**we didn't do a** tour **by** bus) **on n'a pas fait de** balade **en** bateau (**we didn't do a** boat trip) **on ne s'est pas** promenés (**we didn't** go for **a** walk)	**c'était (it was)** **ce n'était pas (it wasn't)**	**bien (good)** bizarre (weird) cher (expensive) effrayant (scary) fabuleux (fabulous) marrant (funny) passionnant (exciting) barbant (boring) nul (rubbish)

Y8 French LC2: Sentence Builder 2: How I travel - Tu as voyagé comment?

Time marker	Verb Phrase	Transport	Connective	Past Tense Verb	Comparative	Adjective	Comparative	Transport
L'année dernière (Last year) **L'**été dernier (Last summer) Récemment (Recently) Hier (Yesterday) L**a** semaine dernière (Last week) 	je suis allé(e) **à**… (Paris) (I went **to**…)	**en** avion (**by** plane) **en** bus (**by** bus) **en** car (**by** coach) **en** bateau (**by** boat) **en** métro (**by** underground) **en** train (**by** train) **en** voiture (**by** car) **à** vélo (**by** bicycle) **à** moto (**by** motorbike) **à** pied (**on** foot)	**car** **parce que**	**c'était (it was)**	plus (more) moins (less)	rapide (fast) facile (easy) amusant (fun) sain (healthy) tranquille (calm) confortable (comfortable) intéressant (inter**est**ing) cher (expensive) lent (slow)	**qu'** **que (than)**	**en** avion (**by** plane) **en** bus (**by** bus) **en** car (**by** coach) **en** bateau (**by** boat) **en** métro (**by** underground) **en** train (**by** train) **en** voiture (**by** car) **à** vélo (**by** bicycle) **à** moto (**by** motorbike) **à** pied (**on** foot)

Y8 French LC2 : Sentence Builder 3 : What you can do in Paris - Qu'est-ce qu'on peut faire à Paris ?

Place marker	Noun	verb phrase	activities	opinion phrase	verb	adjective
À Paris **il y a** (**In** Paris **there is**) 	**la** tour Eiffel (**the** Eiffel Tower) **le** Musée du Louvre (**the** Louvre museum) **la** Cathédrale Notre Dame **de** Paris (**the** Notre Dame Cathedral) **l'**Avenue **des** Champs-Elysées (**the** Champs-Elysées Avenue) **le** Musée **d'**Orsay (**the** Orsay museum) **le** Palais Garnier (**the** Garnier Palace) **les** Catacombes (**the** Catacombs) **le** Centre Pompidou (**the** Pompidou Centre) **le** Sacré-Cœur (**the** 'Sacred Heart' Basilica **l'**Arc **de** Triomphe (**the** 'Arc **de** Triomphe')	**où on peut (where you can**)	voir **des** vues spectaculaires (see **some** spectacular views) voir **la** Joconde (see **the Mona** Lisa) admirer **l'**architecture (admire **the** archictecture) **faire des** courses (go shopping) voir **l'**art impressionniste (see **the** Impressionist Art) regarder **un** opéra (watch an opera) voir **les** squelettes (see **the** skeletons) voir **l'**art moderne (see modern art) voir **le** beau dôme (see **the** beautiful dome) profiter de l**a** vue (enjoy **the** view)	**à mon** avis (**in my** opinion) selon **moi** (according **to me**) **je pense que** **(I think that)** **je crois que** **(I believe that)** **je trouve que** **(I find that)**	**c'est (it is)**	**bien (good)** fabuleux (fabulous) génial (great) intéressant (interesting) marrant (funny) passionnant (exciting) bizarre (weird) cher (expensive) effrayant (scary) ennuyeux (boring) horrible (horrible) nul (rubbish)

Y8 French LC2 Sentence Builder 4: Ordering food : Vous désirez?

<table>
<tr><th>Verb</th><th>object</th><th>noun</th><th></th></tr>
<tr><td rowspan="3">Je voudrais
(I would like)

Je prends
(I take)

 
</td><td>un
(a)

le
(the)</td><td>sandwich au fromage (cheese sandwich)
sandwich au jambon (ham sandwich)
coca (coca cola)
jus d’orange (orange juice)
jus de pomme (apple juice)
gâteau (cake)
croissant (croissant)
thé (tea)
café (coffee)
hamburger (hamburger)</td><td rowspan="3">S’il vous plaît
(please)

  </td></tr>
<tr><td>une
(a)
la
(the)</td><td>pizza (pizza)
salade (salad)
soupe à la tomate (tomato soup)
casserole (stew)
banane (banana)
glace au chocolat (chocolate ice cream)
glace à la fraise (strawberry ice cream)</td></tr>
<tr><td>des
(some)
les
(the)</td><td>bonbons (sweets)
frites (chips)
macarons (macaroons)
pâtes (pasta)
escargots (snails)</td></tr>
<tr><td colspan="2">Ça fait combien ?
(How much is it?)</td><td colspan="2">Ça fait … euros
(it is … euros)</td></tr>
<tr><td colspan="4">Merci
(thank you)</td></tr>
</table>

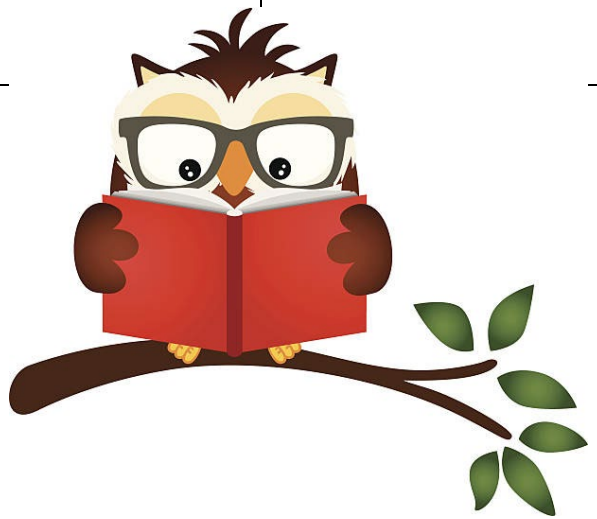
Y8 French LC2 : Sentence Builder 5 : Which French speaking countries I can visit - Dans quel pays francophone vas-tu aller ?

Time marker	Future tense	French speaking country	Future tense	place/activity	Adjective/Opinion
La semaine prochaine (Next week) **Le** mois prochain (Next **mon**th) **L'**été prochain (Next summer) **L'**année prochaine (Next year) **Dans le** futur (**In the** future) **À l'**avenir (**In the** future) 	**je vais aller (I am going to go)** **on va aller (we're going to go)** **Nous allons aller (we're going to go)**	**en** France (**to** France) **en** Belgique (**to** Belgium) **en** Suisse (**to** Switzerland) **à la** Martinique (**to** Martinique) **au** Canada (**to** Canada) **au** Sénégal (**to** Senegal) **au** Mali (**to** Mali) **au** Cameroun (**to** Cameroon) **au** Luxembourg (**to** Luxembourg) **à la** Réunion (**to la** Réunion)	**je vais aller (I'm going to go)** **on va aller (we're going to go)** **nous allons aller (we're going to go)**	**à la** plage (**to the** beach) **à la** montagne (**to the** mountains) **en** centre-ville (**to the** town centre) **en** forêt (**to the** for**est**) **au** lac (**to the** lake) **au** marché (**to the** market	**j' ai** hâte **d'y être** (I can't wait to be there) **je suis un** peu nerveux/se (**I'm a** bit nervous) **je suis très** impatient(e) (**I'm very** excited)
			je vais faire (I'm going to do) **on va faire (we're going to do)** **nous allons faire (we're going to do)**	**du** shopping **du** vélo (cycling) **de l'**escalade (climbing) **de la** natation (swimming) **des** randonnées (hiking)	

Year 8 Spanish Learning Cycle 2 Sentence Builder 1:

¿Por qué lees? – Why do you read?

Pronoun	Verb	Noun	Time phrase	Connective	Verb
(Yo) = I	leo = I read	novelas = novels biografías = biographies revistas = magazines periódicos = newspapers blogs = blogs libros de… = the books of…	**todos los** días =**every (the)** day **cada** día = **each** day dos **veces** a la semana = two **times** a week tres **veces** al mes = three **times** a month a menudo = often **a veces = at times** (sometimes) de vez en cuando = now and again **casi nunca = almost never** **nunca = never**	**y = and** **también = also** **pero = but** **sin embargo = however** **porque = because** ya que = since dado que = given that	**me encantan = I love them** **me gustan = I like them** **me** inspiran = they inspire me **me** interesan = they interest me **me** fascinan = they fascinate me **me** preocupan = they worry me **me** aburren = the bore me **me** fastidian = they irritate me
(Él) = He **(Ella) = She** **Mi** padre **= my** dad **Mi** madre **= my** mum	lee = he/she/it reads				
Nosotros = we	leemos = we read				
Vosotros = you (pl)	leéis = you (pl) read				
Ellos/Ellas = they	leen = they read				



Year 8 Spanish Learning Cycle 2 Sentence Builder 2:

¿Qué música escuchaste recientemente? – What music did you listen to recently?

Time phrase	Verb	Noun	Connective	Noun	Verb	Qualifier	Adjective
Ayer = Yesterday Anoche = Last night Recientemente = Recently	escuché = I listened escuchaste = you (s) listened escuchó = he/she/it listened escuchamos = we listened escuchastéis = you (pl) listened eschucharon = they listened	pop rock rap RnB música clásica = classical music música latina = latin music la música de … = the music of … de todo = everything	**porque = because**	**el** ritmo = **the** rhythm **la** letra = the lyrics **la** melodía = the tune	**es = (he/she/it) is**	**muy = very** **bastante = quite** **más = more** **menos = less**	**buen@ = good** **mal@ = bad** guay/chul@ = cool interesante = interesting gracios@ = funny aburrid@ = boring repetitiv@ =repetitive fatal = terrible triste = sad alegre = happy deprimente = depressing entretenid@ = entertaining informativ@ = informative

Year 8 Spanish Learning Cycle 2 Sentence Builder 3:

¿Qué viste en la tele anoche? = What did you watch on TV last night?

Time Phrase	Verb	Noun	Verb	Quantifier	Adjective	Con.	Noun
Ayer = Yesterday Anoche = Last night	**vi = I watched**	los programas de música = music shows los programas de deportes = sports shows los realities = reality TV shows los concursos = gameshows los documentales = documentaries las comedias = comedies las series policiacas = cop shows las telenovelas = soap operas las noticias = the news	**son = (they) are**	**más = more** **menos = less**	interesantes = interesting informativ@s = informative entretenid@s = entertaining divertid@s = fun gracios@s = funny aburrid@s = boring rar@s = weird emocionantes = exciting deprimentes = depressing	**que = than**	los programas de música los programas de deportes los realitys los concursos los documentales las comedias las series policiacas las telenovelas las noticias
Normalmente= Normally	**veo= I watch**						

Year 8 Spanish Learning Cycle 2 Sentence Builder 4:

¿Te gusto Voces Inocentes? = Did you like Innocent Voices?

Time Phrase		**Opinion**	**Verb**	**Adjective**	**Noun**	**Verb**	**Noun**
Ayer = yesterday **Hace** dos días = two days **ago** La semana **pasada** = **last** week	**vi** <<Voces Inocentes>> **con mi** clase **de** español = **I watched** "Innocent Voices" **with my** class **of** Spanish	**para mí = for me** **creo que = I think that**	**era = it was**	emotivo = emotional deprimente = depressing interesante = interesting educativo = educational aburrido = boring raro = weird alegre = happy triste = sad histórico = historical	**lo mejor = the best thing** **lo peor = the worst thing**	era = was	el argumento = the plot el ambiente = the atmosphere los actores = the actors la banda sonora = the soundtrack los personajes = the characters el protagonista = the main character los efectos especiales = the special effects 

Year 8 Spanish Learning Cycle 2 Sentence Builder 5:

¿Cuándo usas la tecnología? – When do you use technology?

<table>
<tr><th>Time Phrase</th><th>Verb</th><th>Noun</th><th>Prep</th><th></th></tr>
<tr><td rowspan="4">**todos** los días = **every** day
cada día = **each** day
dos **veces** a la semana = two **times** a week
tres **veces** al mes = three **times** a month
a menudo = often
a **veces** = sometimes
de vez en cuando = now and again
casi nunca = almost never
nunca = never

normalmente = normally
ayer = yesterday</td><td rowspan="2">Uso = I use
Usas = you (s) use
Usa = he/she/it uses
Usamos = we use
Usáis =you (pl) use
Usan = they use</td><td>**mi** móvil = my mobile
mi ordenador = my computer</td><td rowspan="4">**para = (in order) to**</td><td rowspan="4">sacar fotos = to take photos
hablar por Skype = to talk on Skype
mandar SMS = to send texts
jugar = to play
leer = to read
descargar melodías = download ringtones
chatear = to chat (online)
compartir vídeos = to share videos
ver películas = to watch films
estudiar = to study
escuchar música = to listen to music
organizar las salidas = to organise going out
hacer compras = to do shopping</td></tr>
<tr><td>**tu** móvil = your (s) phone
tu ordenador = your (s) computer</td></tr>
<tr><td rowspan="2">Usé = I used
Usaste = You (s) used
Usó = he/she/it used
Usamos = we used
Usásteis = you (pl) used
Usaron = they used</td><td>**su** móvil = his/her phone
su ordenador = his/her computer</td></tr>
<tr><td>**nuestros** móviles = our phones
nuestros ordenadores = our computers
vuestros móviles = your (pl) phones
vuestros ordenadores = your (pl) computers
sus móviles = their phones
sus ordenadores = their computers</td></tr>
</table>

TEIGN SCHOOL MUSIC
Y8 Cycle 2 Knowledge Organiser: FILM MUSIC

FILM MUSIC

Exploring Film Music: We will look at and play famous film themes. We will explore how music is used in film and create our own music to a film extract.

The Role of Music in Film

Film Music is a type of **DESCRIPTIVE MUSIC** that represents a **MOOD, STORY, SCENE** or **CHARACTER** through music, it is designed to **SUPPORT THE ACTION AND EMOTIONS OF THE FILM ON SCREEN**. Film Music can be used to:

- Create or enhance a mood (though the **ELEMENTS OF MUSIC**) ->
- Function as a **LEITMOTIF** (see below)
- To emphasise a gesture (**MICKEY-MOUSING –** when the music mimics actions on screen e.g. cartoons – Roadrunner falling off a cliff)
- Provide unexpected juxtaposition/irony (using music the listener wouldn't expect to hear giving a sense of uneasiness or humour!)
- Linking scenes providing continuity
- Influence the pace of a scene making it appear faster/slower
- Make extra income/money (released as a **SOUNDTRACK**) – sometimes a song, usually a pop song is used as a **THEME SONG** for a film.
- To set the geographic location (using instruments associated with a particular country) or historical era (using music 'of the time').

Leitmotifs

LEITMOTIF – A frequently recurring short melodic or harmonic idea which is associated with a character, event, concept, idea, object or situation which can be used directly or indirectly to remind us of one not actually present on screen. Leitmotifs can be changed through **SEQUENCING, REPETITION** or **MODULATION** giving a hint as to what may happen later in the film or may be heard in the background giving a "subtle hint" to the listener *e.g. the "Jaws" Leitmotif*

Potted History of Film Music

Early films had no soundtrack **("SILENT CINEMA")** and music was provided live, usually **IMPROVISED** by a pianist or organist. The first **SOUNDTRACKS** appeared in the 1920's and used existing music **(BORROWED MUSIC –** music composed for other (non-film) purposes) from classical composers. In the 1930's and 1940's Hollywood hired composers to write huge Romantic-style soundtracks. Today, film music often blends **POPULAR** and **CLASSICAL** music together in a flexible way that suits the needs of a particular film.

How the Elements of Music are used in Film Music

PITCH AND MELODY – **RISING MELODIES** are often used for increasing tension, **FALLING MELODIES** for defeat. **Q&A PHRASES** can represent good versus evil.

DYNAMICS – **FORTE (LOUD)** dynamics to represent power; **PIANO (SOFT)** dynamics to represent weakness/calm/resolve. **CRESCENDOS** used for increasing threat, triumph or proximity and **DECRESCENDOS** or **DIMINUENDOS** used for things going away into the distance. Horro Film soundtracks often use **EXTREME DYNAMICS** or **SUDDEN DYNAMIC CHANGES** to 'shock the listener'.

HARMONY – **MAJOR** – happy; **MINOR** – sad. **CONSONANT CHORDS** for "good" and **DISSONANT CHORDS** for "evil".

DURATION – **LONG** notes often used in Westerns to describe vast open spaces and in Sci-Fi soundtracks to depict outer space; **SHORT** notes often used to depict busy, chaotic or hectic scenes.

PEDAL NOTES – long held notes in the **BASS LINE** used to create tension and suspense.

TEXTURE – **THIN/SPARSE** textures used for bleak or lonely scenes; **THICK/FULL** textures used for active scenes or battles.

ARTICULATION – LEGATO for flowing or happy scenes, **STACCATO** for 'frozen' or 'icy' wintery scenes.

OSTINATO - rhythms for repeated sounds *e.g. horses.* Repetative motifs to hold suspense.

Film Composers and their Soundtracks

Hans Zimmer
The Lion King
Gladiator
Dunkirk
Blade Runner 2049
No Time to Die

John Williams
Star Wars
Jaws
Harry Potter
Indiana Jones
Superman, E.T.

James Horner
Titanic
Apollo 13
Braveheart
Star Trek II
Aliens

Klaus Bedalt
Pirates of the Caribbean.
Often works with Hans Zimmer

Film Music Key Words

LEITMOTIF – short motif used to identify a character/object or mood.

MICKEY MOUSING – Where music mimics an action on screen

DIEGETIC MUSIC – Music that appears to originate from something on screen. It can be heard by the characters
e.g. a car radio, a band in a nightclub or sound effects.

NON-DIEGETIC FILM MUSIC – Music which has been composed to accompany events on screen but which visibly is not part of the action. It can NOT be heard by the characters only by the audience – also known as **UNDERSCORE**.

SOUNDTRACK – The music and sound recorded on a motion-picture film. The word can also mean a commercial recording of a collection of music and songs from a film sold individually as a CD or collection for digital download.

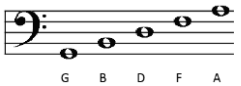
STORYBOARD – A graphic organiser in the form of illustrations and images displayed in sequence to help the composer plan their soundtrack.

CUESHEET – A detailed listing of **MUSICAL CUES** matching the visual action of a film so that composers can time their music accurately.

ARTICULATION – Staccato (spiky) or Legato (Smooth)

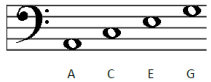
CRESCENDO – Getting louder

Notes on the **LINES** of the **BASS CLEF**



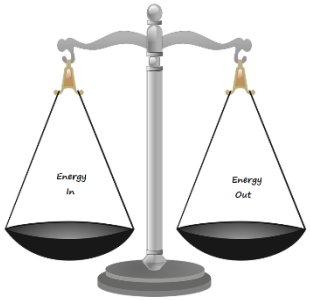
Green **B**uses **D**rive **F**ast **A**lways

Notes in the **SPACES** of the **BASS CLEF:**



All **C**ows **E**at **G**rass

Year 8 Cycle 2 - Sport and PE Knowledge Organiser

Week 1 and 2	Week 3 and 4	Week 5 and 6	Week 7 and 8	Week 9 and 10	Week 11 & 12
Macro Nutrients	**Balanced Diet**	**Balanced Diet**	**Hydration**	**Applying to sport**	**Sedentary Lifestyle**
A balanced diet should include: • 55-60% carbohydrates • 25-30% fat • 15-20% protein **Carbohydrates** Main energy source. Includes bread, pasta and potatoes. **Fat** Energy source and helps carry vitamins around the body. Avocado, nuts, butters **Protein** Used for growth and repair of body: Milk, Eggs, Fish, Meat, Nuts, Seeds	A balanced diet is eating the right number of **calories** to deal with the energy that will be needed to complete everyday tasks and exercise. It also means eating different food types to provide suitable nutrients, vitamins and minerals. A truly **balanced diet** contains lots of different food types and a mixture of carbohydrates, protein and fat from a variety of sources. You should aim to eat 5 portions of fruit and vegetables each day. 	The average adult male requires **2500 kcal/day** and the average adult female requires **2000 kcal/day**. The figures are dependent on; age, gender, height, energy expenditure and basil metabolic rate (BMR). **Foods that benefit the body** **High fibre** cereals and whole grains provide fibre – prevents constipation and reduces cholesterol. Milk, cheese and dairy products provide **calcium** – good for nerve and muscle function, teeth and bone growth. **Iron rich foods** such as spinach and liver – help the immune system and production of red blood cells. Oily fish, eggs and butter – provide **vitamin D** to help bones. Citrus fruits and broccoli – provide **vitamin C** and aid the immune system, skin elasticity and blood vessel function.	Water makes up more than half of the human body. We must maintain **hydration** levels to assist bodily functions. How much you drink depends on: • The environment • The temperature • Exercise levels  **Dehydration** has some harmful effects: • Blood thickens • Heart rate increases • Reaction time gets slower	Our **Diet and Hydration** levels will vary depending on how active we are. This can be referred to as **Energy balance**. The aim for most people to maintain a healthy body is to consume the same number of calories as you use.  How would you **vary** your intake of Carbohydrates, Fats, Protein and Water in you did the following activities? • A rugby match • A netball match • A marathon • Horse riding	A **sedentary** lifestyle is when there is very limited or no physical activity in a person's lifestyle. More people are leading sedentary lifestyles due to advances in **technology**. Instead of walking or cycling to places people are driven or take public transport. Individuals spend more time sitting & using computers. It is reports in the UK people spend 9hours a day sat down. Standing instead of sitting is a way to combat this. **What could the impact of a sedentary lifestyle be?**

RPE - Authority and Community

Citizen

Citizen – a legal member of a country/state, which involves being entitled to certain rights and completing certain duties. For example, obeying the law and voting in elections.

"Mutual respect for and tolerance of those with different faiths and beliefs and for those without faith"

Muslim Dress

- Muslims dress modestly. This means that many choose to cover their bodies up.
- There are 3 types of veil that some Muslim women wear:
- The Hijab – This is like a headscarf.
- The Niqab – This covers a ladies' face, leaving a slit for her eyes.
- The Burka – This covers a ladies' face completely. The area over the ladies' eyes is made of mesh so that she can still see.

The Qur'an

- The word of Allah given to Muhammad through Jibril
- Originally dictated in Arabic
- The original words have never been altered
- Divided into 'Surahs' (Chapters)
- Supplemented by the Hadiths and the Sunnah
- Treated with great respect – Muslims wash before reading from it and use a rehl (stand) to ensure it does not get dirty.

Community

Community – 1. A group of people living in the same area. 2. Sharing or having certain attitudes or interests in common.
The Ummah is the name given to the Muslim community, bound together by their faith.
One of the main things that unites the ummah are the Five Pillars of Islam.

Five Pillars of Islam

1. Shahadah (Declaration of faith) – All Muslims recite these words every day – "There is no God but Allah and Muhammad is His messenger."
2. Salah – Praying 5 times a day (Sunni Muslims)
3. Zakah – Giving 2.5% of earnings to charity once a year.
4. Sawm – Fasting (going without food and drink) during daylight hours in the month of Ramadan.
5. Hajj – Going on a pilgrimage (special journey) to Makkah in Saudi Arabia.

The attributes of Allah

Muslims believe that Allah has 99 names which all describe aspects of Him.

- Transcendent - Allah is above and beyond anything that exists in the world.
- Fair and just - Allah judges everyone equally.
- Immanent - Allah is close to every human and within all things on Earth.
- Omnipotent - Allah is all-powerful.
- Beneficent - Allah is all-loving.
- Merciful - Allah shows compassion and mercy.

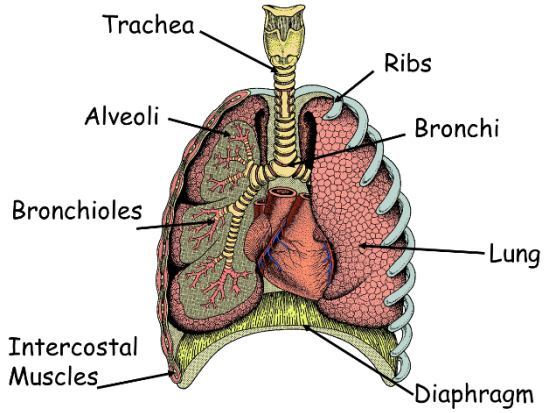
Authority

Authority – Having power, influence or control over something/somebody.
Sources of authority for Muslims:

- The Qur'an – the Muslim holy book.
- The Sunnah – the social and legal customs and practices of the Muslim community.
- The Hadith – A collection of sayings of the Prophet Muhammad.
- Shariah Law – Islamic law.

Biology Lesson 1
Human Breathing System

Humans breathe to ensure that oxygen enters the body and carbon dioxide leaves the body.



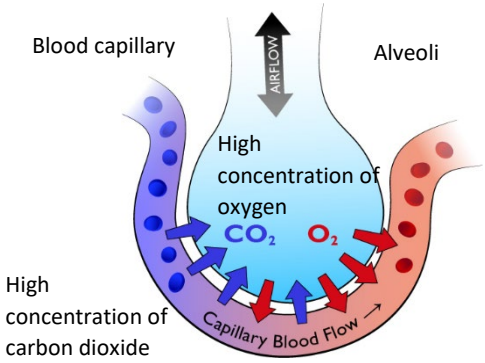
Structure	Function
Trachea	Also called your windpipe carries air into and out of lungs.
Alveoli	Found at the end of the bronchioles, they are tiny air sacs. This is where gas exchange happens.
Bronchioles	The bronchi branch in to smaller and narrower airways. These are too small to be seen with the naked eye.
Intercostal muscles	Muscles found between the ribs which are involved in moving the rib cage up and out during breathing
Ribs	Bones which form a cage which protect the breathing system.
Bronchi	There are two, the windpipe/trachea divides in to two smaller branches.
Lungs	There are two, protected by the ribs, airs moves in and out of them.
Diaphragm	A sheet of muscle, involved in moving air in to and out of the lungs.

Biology Lesson 2
Alveoli

When blood arrives at the lungs it is deoxygenated, When the blood leaves the lungs, it is oxygenated.

Oxygenated – Blood which is high in oxygen.
Deoxygenated – Blood which is low in oxygen.

<u>Gas exchange at the alveoli:</u>



- Oxygen diffuses from the alveoli into the red blood cells in the blood.
- Oxygen moves from where it is high concentration (alveoli) to where it is in low concentration (capillary).
- Carbon dioxide moves from where it is in high concentration (capillary) to where it is in low concentration (alveoli).

Oxygen travels in the red blood cells in the blood around the body where it diffuses into cells to be used.

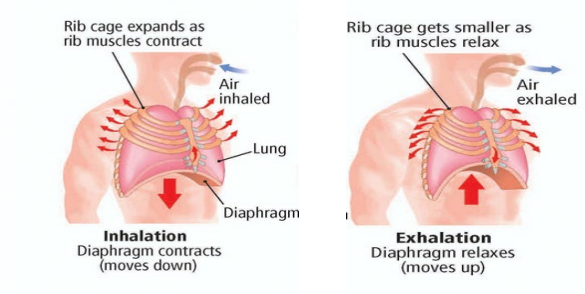
Biology Lessons 3 & 4
Ventilation

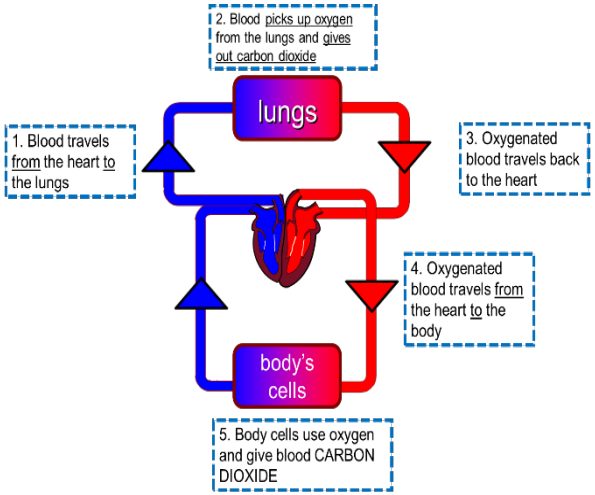
<u>Inhalation:</u>

- The intercostal muscles between the ribs contract pulling the ribs up and outward.
- At the same time, the diaphragm contracts and flattens.
- The volume inside the thorax increases and the pressure decreases. Atmospheric pressure is now greater than inside.
- As a result, air moves through the nose, mouth, bronchus and bronchioles gushes inside the lungs filling the alveoli with fresh air.

<u>Exhalation:</u>

- The intercostal muscles relax, meaning the ribs return back to their normal position, down and in.
- The diaphragm relaxes and returns to its normal structure, dome shaped.
- The thoracic volume is decreased, the pressure increases, atmospheric pressure is now less than pressure inside.
- The air in alveoli is pushed out through the bronchioles, bronchus and finally out by nasal cavity.



Biology Lesson 5 Lung Diseases	Biology Lesson 6 Heart and Circulation	Biology Lesson 7 Aerobic Respiration
Smoking: • Cigarettes contain nicotine, tar and carbon monoxide. • Nicotine – Highly addictive drug that acts directly on the brain. • Tar – black sticky substance that clogs the lungs and makes lung infections more likely. • Carbon monoxide – Reduces the amount of oxygen that is carried in your red blood cells. **Lung cancer** – Tar in cigarettes contains carcinogens. They change the DNA in cells in the lungs causing tumours. **Bronchitis** – Tar in cigarettes leads to a build-up of extra mucus in the bronchioles which stops the cilia from functioning. The airways become inflamed and air flow is reduced. **Emphysema** – When lungs are inflamed, the alveoli can become damaged or burst. Blood becomes less oxygenated so sufferers have trouble breathing. **Asthma** – A condition which affects the bronchioles. During an asthma attack: • The lining of the airways becomes inflamed. • Fluid builds up in the airways • The muscles around the bronchioles contract, which narrows the airways	**Circulation:** The movement of blood around the body. Circulatory system: = Oxygenated blood = Deoxygenated blood  **The Heart** The heart is an organ which pumps blood around the body by contracting.	The body needs a constant supply of energy which comes from digested food. Glucose from digested carbohydrate is a source of stored chemical energy. **Respiration** - the process that the body uses to release energy from digested food (glucose) **Aerobic means with oxygen** Aerobic respiration takes place in the mitochondria. **Aerobic respiration equation** Glucose + Oxygen → Carbon dioxide + Water (+ energy) Combustion – the scientific name for burning Combustion equation: Fuel + Oxygen → Carbon dioxide + water (+ energy)

Biology Lesson 8 Anaerobic Respiration in Animals	Biology Lesson 9 Anaerobic Respiration in Plants and Micro-organisms	Biology Lesson 10 Comparing Aerobic and Anaerobic Respiration
When the body cannot supply the cells with the oxygen needed to break down glucose (e.g. during exercise), then it has to carry out anaerobic respiration. **Anaerobic means without oxygen** Anaerobic respiration takes place in the cytoplasm **Anaerobic respiration equation** Glucose → Lactic Acid (+ energy) The lactic acid produced by anaerobic respiration causes muscle fatigue and cramps. The lactic acid must be removed after anaerobic respiration. Oxygen Debt – The amount of oxygen needed to remove the lactic acid built up in the muscles following anaerobic respiration.	Anaerobic respiration in plant and yeast cells is different to animals. **Anaerobic respiration in plants & yeast:** Glucose ⟶ ethanol + carbon dioxide **Fermentation** - Using Yeast micro-organisms to breakdown glucose without oxygen, releasing ethanol and carbon dioxide. Yeast fermentation is used to make beer and wine, it is also used in baking, the carbon dioxide bubbles produced by anaerobic respiration makes bread rise. Rate of fermentation can be increased by: • Increasing the amount of glucose • Increasing the amount of yeast • Increasing the temperature	Comparing aerobic and anaerobic respiration in animals **Aerobic Respiration** • Produces carbon dioxide • Water is a product • Requires oxygen as a reactant • Takes place in the mitochondria **Anaerobic Respiration** • Produces lactic acid • Is the main cause of oxygen debt • Causes muscles to become tired quickly • Can be switched on suddenly • Takes place in the cytoplasm **Both** • Use glucose • Produce energy

Biology Lesson 11
Effects of Exercise

What happens during exercise?

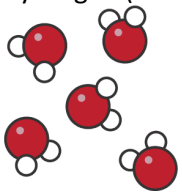
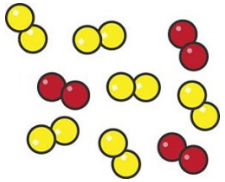
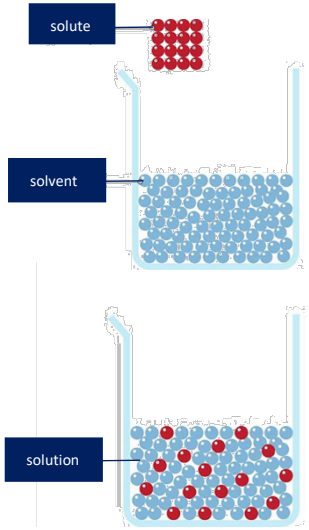
Heart rate increases to supply the cells of the body with **more oxygen and glucose** for respiration.

Breathing rate increases to supply the blood with **more oxygen** to take to the cells of the body for respiration.

Exercise causes the **frequency and depth of breathing** to increase. This can be measured by looking at the following:

- **Breathing rate** (the number of breaths you take per minute)
- **Tidal volume** (the volume of air breathed in and out in one breath)

Increasing the intensity of exercise will mean that the cells in your body are respiring more aerobically so will require more oxygen to be delivered to them, hence the increase in your breathing.

Chemistry Lesson 1 Pure and impure substances	Chemistry Lesson 2 Solutions	Chemistry Lesson 3 Solubility
Pure An **element** is made from just one type of atom.  A **compound** is a pure substance that is made from more than one element. In a compound, elements are **chemically bonded** together Water molecules are made up of two elements - hydrogen (white atoms) and oxygen (red atoms).  Compounds have a specific ratio of atoms. Water has a ratio of two hydrogen atoms to one oxygen atom. **Impure** A **mixture** is formed when two or more elements or compounds are present without being chemically bonded together. Mixtures are **impure**.  This particle diagram shows air. Air is a mixture which is made mainly of nitrogen molecules (yellow) and oxygen molecules (red).	**Dissolve:** The process when a solute is mixed with a solvent and the solute breaks into much smaller particles and spreads out. **Solute:** The solid (or occasionally a gas) which dissolves into a solvent (liquid) in order to make a solution. **Solvent:** The liquid in a solution which dissolves the solute. **Solution:** Made when a solute dissolves into a solvent.  	**Soluble** If a solid does dissolve in a specific solvent. **Insoluble** If a solid **does not** dissolve in a specific solvent. **Solubility** measures how much solute can dissolve in a volume of solvent at a specific temperature. Sugar has a higher solubility in water than salt. Therefore, more sugar than salt can dissolve in a volume of water at a specific temperature. The solubility of a solid solute usually increases when the temperature increases. **Saturation** There is a limit to the mass of solute that will dissolve in a particular volume of the solvent. When no more solute dissolves, the solution is saturated. 

Chemistry Lesson 4
Filtration

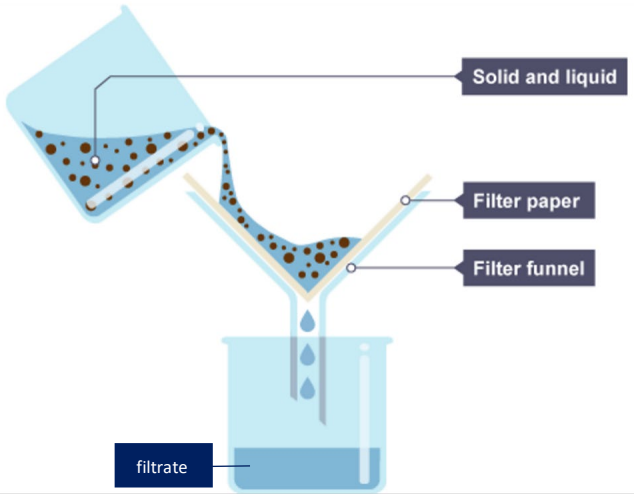
Filtration is used to separate an insoluble solid from a pure liquid or a solution.

The filtrate is the liquid which passes through the filter paper and the residue is the solid left on the filter paper.

Filtration usually involves a circle of filter paper folded to make a cone and placed into a filter funnel.

When a mixture of sand and water is filtered:

- the sand stays behind in the filter paper, it becomes the residue.
- the water passes through the filter paper, it becomes the filtrate.



Chemistry Lesson 5
Evaporation/Crystallisation

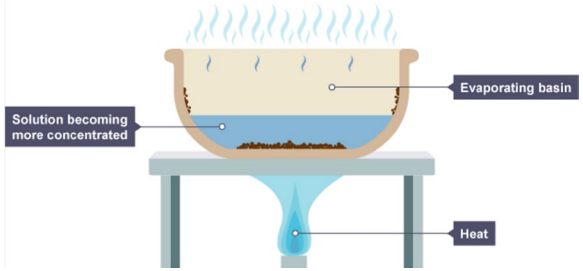
Evaporation occurs when a liquid slowly turns into a gas below its **boiling point**.

Evaporation occurs at all temperatures, boiling happens at a fixed temperature depending on the liquid.

Puddles dry up because of evaporation. Puddles do not boil because the temperature on earth is always below 100°C - the boiling point of water.

Crystallisation is a separation technique used to obtain crystals of a solid solute from a solution.

When a solution is heated, the solvent evaporates and crystals of the solute are left behind.



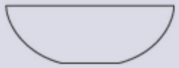
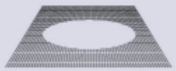
Crystallisation is similar to the evaporation technique used to separate a solid solute from a solution but is done over a longer period of time.
Rather than heating the evaporating basin directly, warm it gently and slowly over a beaker of boiling water, until half the solution evaporates, and leave it too cool.

Chemistry Lesson 6 &7
Separating Rock Salt-Plan & Investigation

A method describes how an experiment is carried out. It should contain a set of written instructions with numbers or letters to show the order in which the steps are carried out.

A diagram can be included to show how the experiment should look when it's set up.

Diagrams make it clear how pieces of apparatus are linked together.

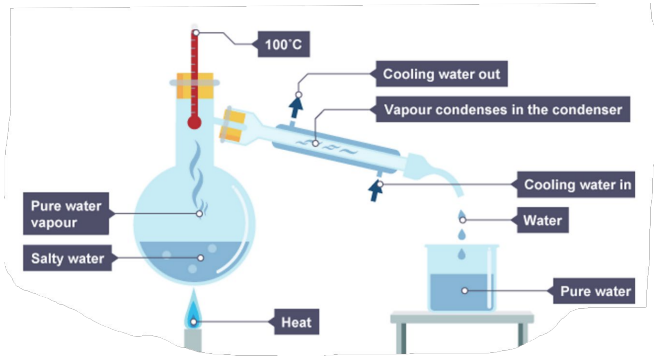
Name of apparatus	Drawing	2D cross section diagram
Bunsen burner		
Evaporating basin		
Filter funnel		
Tripod		
Gauze		
Beaker		

Chemistry Lesson 8
Distillation

Distillation is a separation technique used to separate a solvent from a mixture.

For example, water can be separated from salt solution by **distillation**.

Distillation involves boiling the mixture and then condensing the gas to produce a liquid.



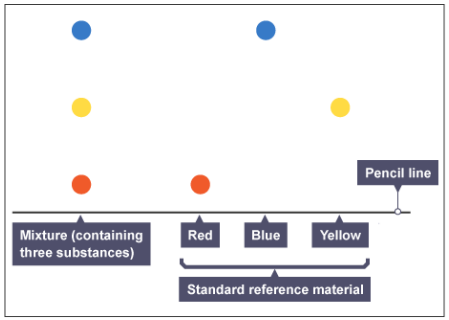
1. The salt solution is placed into a flask and heated until it boils.
2. The water turns into a gas but the salt stays behind in the flask.
3. The steam passes into the condenser. The condenser is a tube which is surrounded by a layer of cold water. This cools the steam, which turns it back into a liquid.
4. The distillate is pure water.

Chemistry Lesson 9
Chromatography

Chromatography is a separation technique used to separate mixtures of **soluble** substances.

Chromatograms can be used to match known pigments with those in a mixture.

On a chromatogram, one spot means that the substance is pure. An impure substance produces two or more spots.



From the chromatogram above, three conclusions can be drawn:

1. The mixture contained three substances because it separated into three spots in a vertical column.
2. The mixture contained the same red, blue and yellow pigments as the standard reference pigments because the coloured spots were the same height for each colour.
3. All of the pigments on the chromatogram were soluble in water, because they all moved up from the start line.

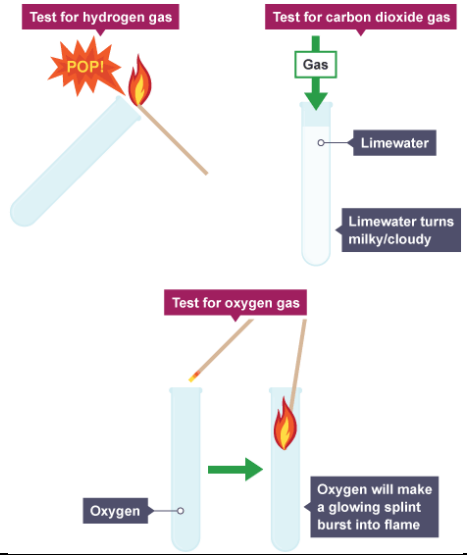
Chemistry Lesson 10
Testing for Gases

Hydrogen, oxygen and carbon dioxide can be identified using different tests.

Hydrogen
Putting the flame of a lighted wooden splint in a test tube of hydrogen makes a ‘squeaky pop’ sound.

Oxygen
Putting a glowing wooden splint in a test tube of oxygen, causing the splint to relight.

Carbon dioxide
Bubbling carbon dioxide through limewater changes it from colourless to ‘milky’.

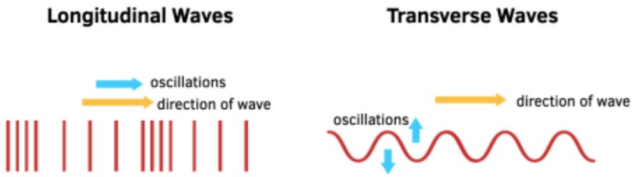


Physics Lesson 1
Types of Wave

Waves transfer energy from one place to another.

Some waves move through a substance because the particles vibrate at right angles to the direction that the wave is moving in, these types of waves are called **transverse waves**.

Other waves travel because the particles move backwards and forwards a short distance in the same direction as the wave is moving in. These types of waves are called **longitudinal waves**.



The following types of waves are **transverse** waves:

- ocean waves
- light waves
- microwaves
- radio waves

The following types of waves are **longitudinal** waves:

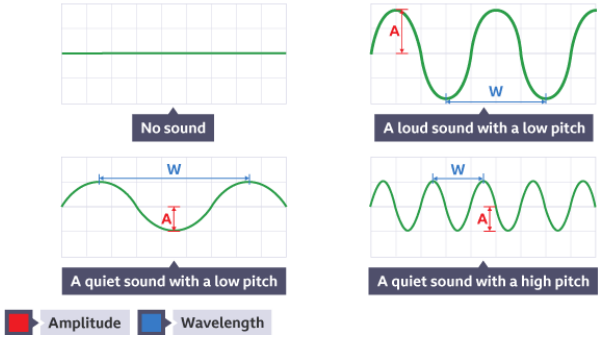
- sound waves
- pressure waves

Physics Lesson 2
Sound

A sound wave is a **vibration** that travels through a solid, liquid or gas such as the air or water.

A loud sound has a large amplitude, a high pitched sound has a high frequency.

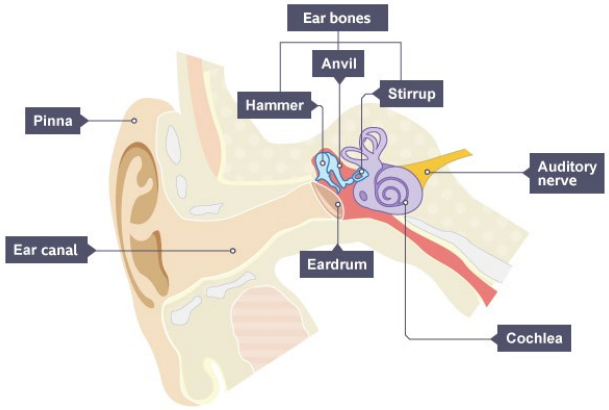
Musicians and scientists record and analyse sounds using wave traces.



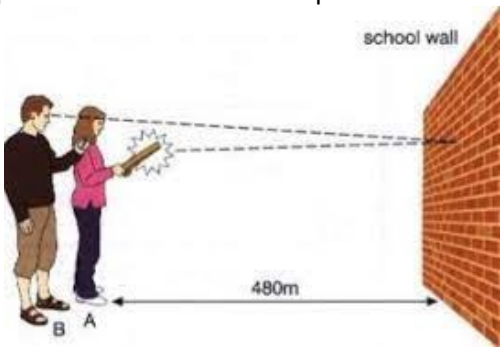
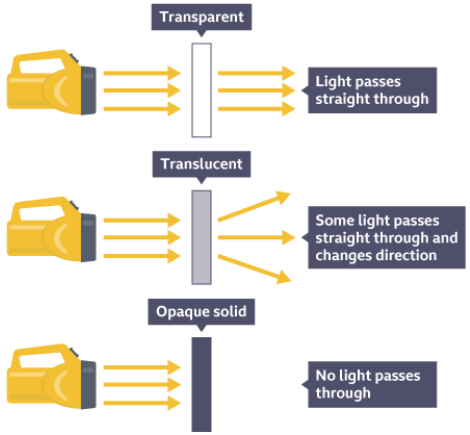
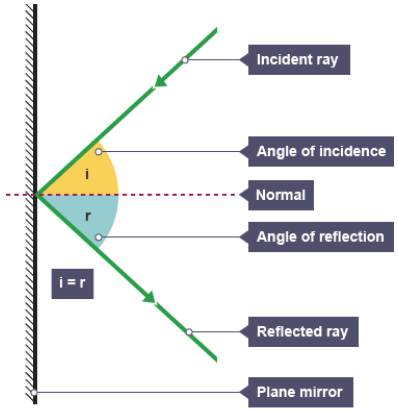
Physics Lesson 3
Human Hearing

We can't hear all levels of sounds. Sound waves with very high frequencies are called **ultrasound** and our ears can't detect them.

The range of frequencies for human hearing is 20Hz – 20000Hz

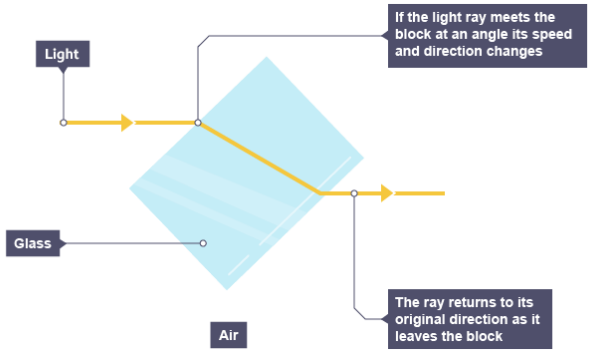


- The **Pinna** funnels the sound waves that the ear receives and sends them down the **ear canal**
- These sound waves vibrate the **eardrum**
- The three small bones (**hammer**, **anvil**, **stirrup**) pass the vibrations onto the **cochlea**
- The cochlea converts vibrations into electrical signals
- The electrical signals are transported to the brain up the **auditory nerve**.

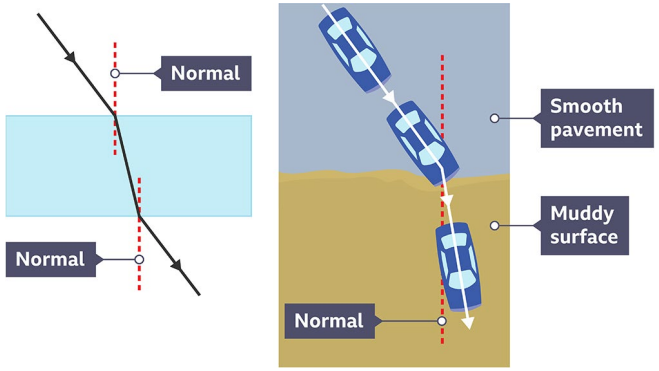
Physics Lesson 4 Speed of Sound	Physics Lesson 5 Properties of Light	Physics Lesson 6 Reflection
Sounds travel at different speeds through gases, solids and liquids. The speed of sound in air is around 340m/s Sound waves are vibrations that are passed on between particles. The speed of sound is the distance a sound travels divided by the time it takes. **Speed = distance ÷ time** How quickly sound travels depends on how close together the particles are. The particles in gases are further apart than liquids, and so sound travels slower in a gas than a liquid. The particles in a solid are closer still and so sound travels fastest in solids An experiment to calculate the speed of sound in air:  	Light is an electromagnetic wave and travels at an extremely high speed: the **speed of light**. The speed of light in a vacuum is around 300,000,000 metres per second Light travels as a transverse wave and moves in straight lines. Unlike sound waves, light waves can travel through a **vacuum** – they do not need a substance to travel through. Light can pass through **transparent** and **translucent** materials, but not **opaque** materials  	Light travels as a transverse wave and can be **reflected** by surfaces and objects. Smooth, shiny surfaces produce **specular** reflections, and rough surfaces produce **diffuse** reflections. Ray diagrams are used to show the path of light rays which are reflected and how images are formed in a mirror 

Physics Lesson 7
Refraction

Light is **refracted** when it enters a material like water or glass. Depending on the density of the material, light will reduce in speed as it travels through, causing it to change direction.



The car on the right hits the mud at an angle, so the front right wheel hit the mud first and slows down, causing the car to turn clockwise – towards the **normal**.

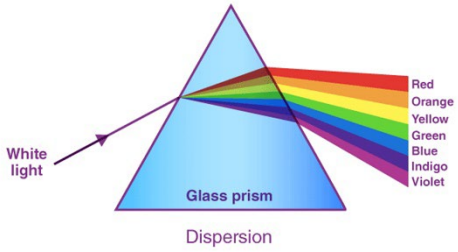


Physics Lesson 8
Colour & Dispersion

White light is made of a **spectrum** of different colours.

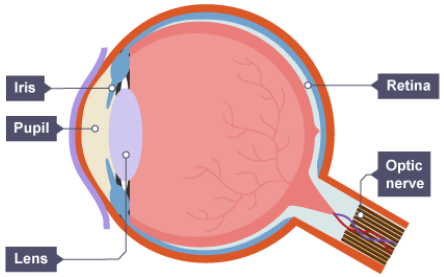
White light can be split up into a spectrum of these colours using a triangular block of glass or acrylic, known as a prism.

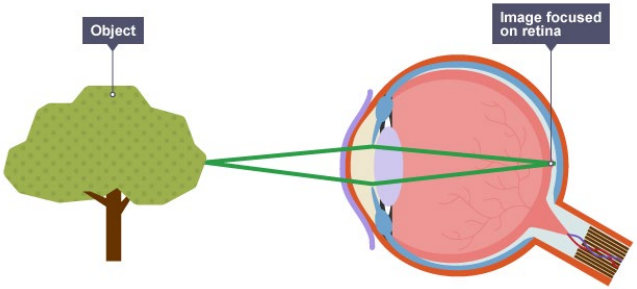
Light is refracted when it enters the prism, and each colour is refracted by a different amount. This means that the light leaving the prism is spread out into its different colours, a process called **dispersion**.



Physics Lesson 9
The Human Eye

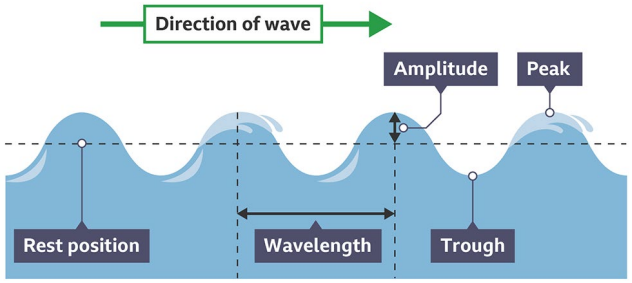
Cameras and eyes both detect light.
Both cameras and the human eye use lenses to focus light.





Iris – The coloured part of the eye, which contains muscles that control the size of the pupil. The purpose of the iris is to regulate the amount of light that enters the eye.
Pupil – The pupil is the hole located at the centre of the iris. Its function is to let in light and focus it on the retina.

Lens – The purpose of the lens is to focus light on the retina.

Physics Lesson 10 Water Waves		
Water waves are ripples that travel through water. Water waves are **transverse** waves and can be **reflected** from surfaces  Water waves can reflect or 'bounce off' a surface. For example, ocean waves are reflected when they hit a harbour wall, just like light waves reflect when they hit a mirror and waves in washing-up water are reflected off the sides of the sink.		