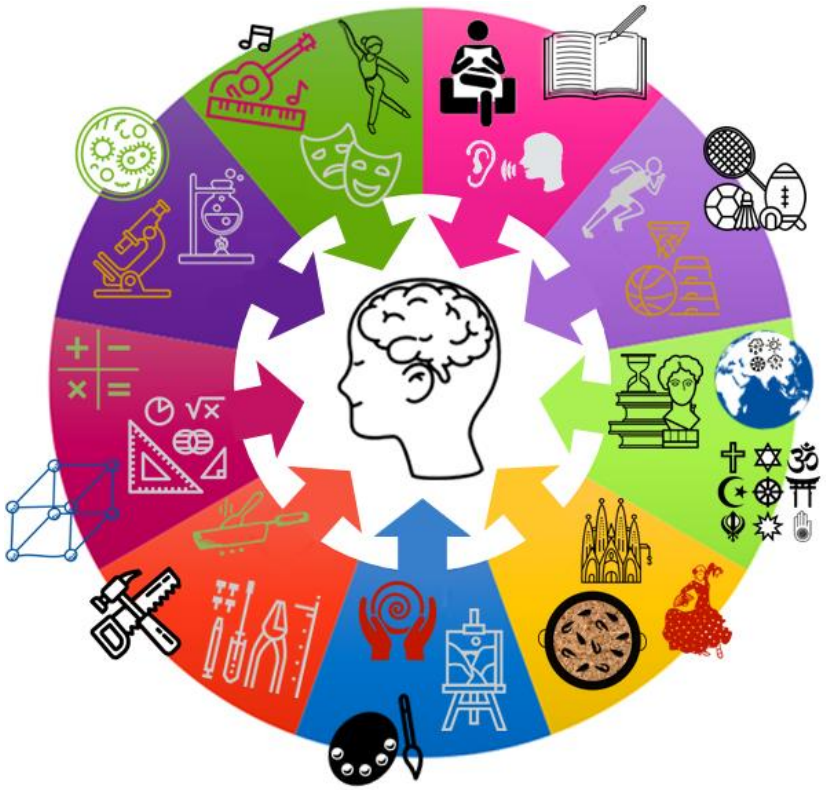
100% book - Year 11 Grammar Stream

Aim to memorise 100% of the knowledge on these Knowledge Organisers.



Term 3

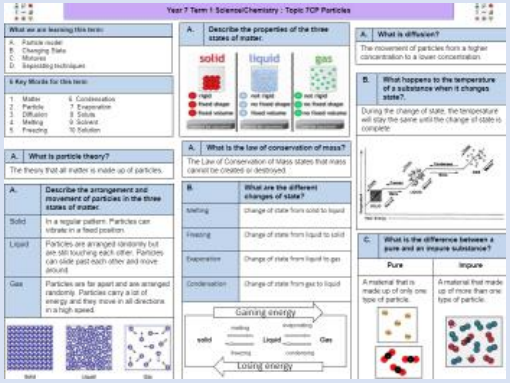
Swindon Academy 2023-24	
Name:	
Tutor Group:	
Tutor & Room:	

"If you are not willing to learn, no one can help you.
If you are determined to learn, no one can stop you."

Swindon Academy The best in everyone™ Part of United Learning
Swindon Academy The best in everyone™ Part of United Learning
Swindon Academy The best in everyone™ Part of United Learning
Swindon Academy The best in everyone™ Part of United Learning

How to use your 100% book of Knowledge Organisers and Quizzable Organisers

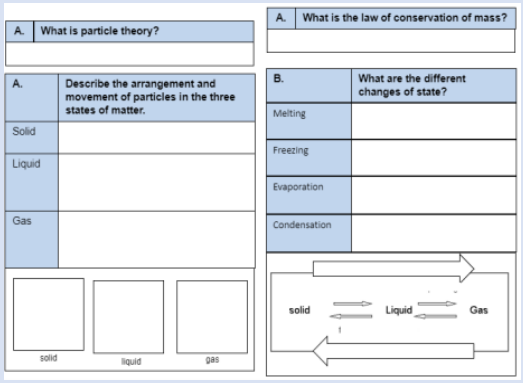
Knowledge Organisers



Knowledge Organisers contain the essential knowledge that you MUST know in order to be successful this year and in all subsequent years.

They will help you learn, revise and retain what you have learnt in lessons in order to move the knowledge from your short-term memory to long-term memory.

Quizzable Knowledge Organisers



These are designed to help you quiz yourself on the essential Knowledge.

Use them to test yourself or get someone else to test you, until you are confident you can recall the information from memory.

Top Tip

Don't write on your Quizzable Knowledge Organisers! Quiz yourself by writing the missing words in your prep book. That way you can quiz yourself again and again!

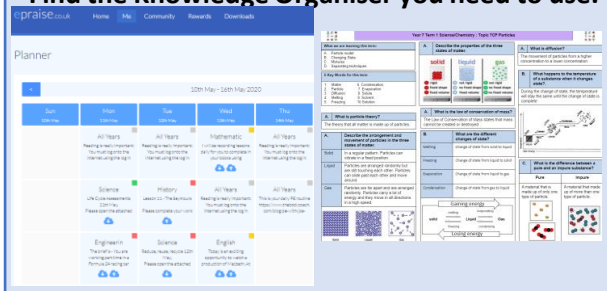
Expectations for Prep and for using your Knowledge Organisers

1. Complete all prep work set in your subject prep book.
2. Bring your prep book to every lesson and ensure that you have completed all work by the deadline.
3. Take pride in your prep book – keep it neat and tidy.
4. Present work in your prep book to the same standard you are expected to do in class.
5. Ensure that your use of SPAG is accurate.
6. Write in blue or black pen and sketch in pencil.
7. Ensure every piece of work has a title and date.
8. Use a ruler for straight lines.
9. If you are unsure about the prep, speak to your teacher.
10. Review your prep work in green pen using the mark scheme.

How do I complete Knowledge Organiser Prep?

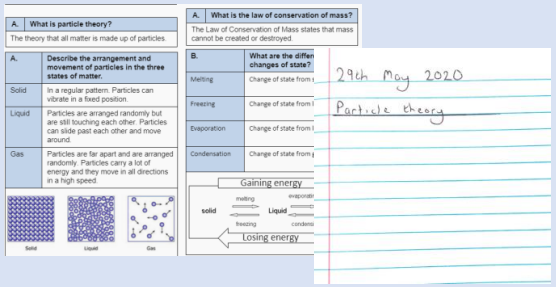
Step 1

Check Epraise and identify what words /definitions/facts you have been asked to learn. Find the Knowledge Organiser you need to use.



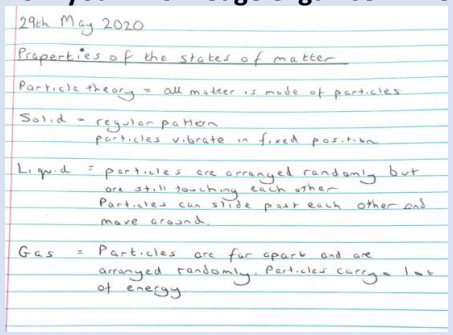
Step 2

Write today's date and the title from your Knowledge Organiser in your Prep Book.



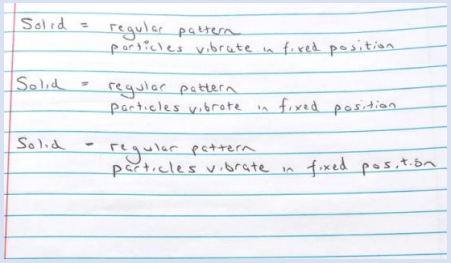
Step 3

Write out the keywords/definitions/facts from your Knowledge Organiser in FULL.



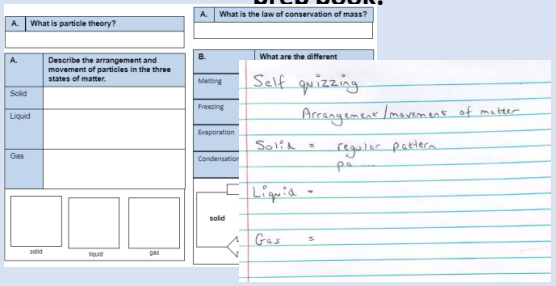
Step 4

Read the keywords/definitions/facts out loud to yourself again and again and write the keywords/definitions/facts at least 3 times.



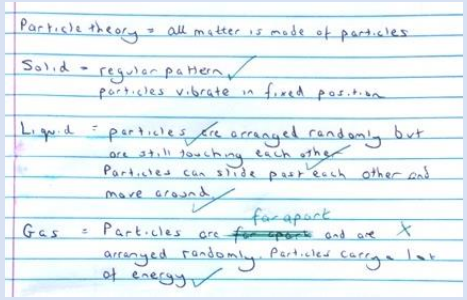
Step 5

Open your quizzable Knowledge Organiser. Write the missing words from your quizzable Knowledge organiser in your prep book.



Step 6

Check your answers using your Knowledge Organiser. Repeat Steps 3 to 5 with any questions you got wrong until you are confident.



Make sure you bring in your completed Prep notes to demonstrate that you have completed your prep.

An Inspector Calls grammar

1. Context

Playwright: John Boynton Priestley (1894-1984)
Dates: Written in 1945
First performed: In Moscow, Russia, in 1945
Era: Edwardian
Genre: Drama
Set: Fictional town Brumley 'an industrial city in the north Midlands' in 1912
Structure: Three Act Play

Biography of Priestley

- Born in Yorkshire in 1894.
- Fought in the first world war and became politicised by the suffering of it
- Became concerned with the effects of social inequality in Britain in 1930s
- Set up a new political party in 1942, The Commonwealth Party. It merged with the labour Party and was integral in developing the welfare state

Pre and Post War – Before the first world war there was deemed to be a general air of complacency regarding the prospect of any war taking pace. There were strong distinctions between upper and lower classes, society was deeply patriarchal. After the second word war ended in 1945, class distinctions had been greatly reduced by the two wars and women had earned a more valued place in society After 1945 there was a desire for more sweeping social change.

Socialism – Socialism is an approach to economic and social systems that is characterised by social ownership, democratic control and high levels of equality. Socialism is generally concerned with ensuring that disparities between wealth and social status are erased from society. After the two World Wars British society was far more open to socialist ideas. In *An Inspector Calls*, the Inspector harbors socialist attitudes.

Social and Moral Responsibility – Attitudes towards social and moral responsibility changed rapidly in the tine between when the play was set (1912) and the time the play was written (1945). In 1912 the general attitude of those with social status and wealth was towards looking after one's own. By the mid-1940s however, the Labour party under Attlee won a landslide election reflecting a wave of enthusiasm towards communal responsibility for everyone in society.

The Titanic – RMS Titanic was a British passenger liner that sank in the North Atlantic ocean in the morning hours of 15th April 1912, killing around 1500. The Titanic was designed to be the pinnacle of both safety and comfort, and due to its enormous size and quality was frequently labeled 'unsinkable'. In *An Inspector Calls* Birling claims this, thus immediately losing the respect of the audience. It can serve as a symbol of the hubris and arrogance of man.

FORM – The play fits into three possible forms:

Well-Made Play

- A popular type of drama from the 19th century
- The events build to a climax
- Primarily concerned with events that happened before the play
- Plot is intricate and complex

Morality Play

- Most popular during 15th and 16th centuries
- They taught the audience lessons that focused on the seven deadly sins
- Characters who committed those sins were punished

Crime Thriller

- Involves a gripping tale based around a crime
- The audience receives clues and must guess what has happened before the end
- All is revealed by the climax

2. Key Characters

Inspector Goole: An enigmatic (mysterious) figure who serves as Priestley's mouthpiece and advocates social justice. He serves as the Birling's conscience and exposes their sins.

Mr Arthur Birling: A capitalist and business owner who opposes social change and greater equality. He is a self-made man and lacks the refined manners of the upper classes. Made a fool by Priestley to highlight the arrogance and absurdity of his views.

Mrs Sybil Birling: Her husband's social superior, Mrs Birling is involved in charity work but contradictorily believes in personal responsibility and looking after one's-self. Fails to understand her own children.

Shelia Birling: Young and initially enthusiastic, Sheila grows and changes throughout the play, embracing the views of the Inspector and challenging the social indifference of her parents. She becomes wiser and more cautious in her relationship with Gerald.

Eric Birling: In his early twenties, he drinks too much and forces himself upon Eva Smith. Whilst she is pregnant with his child, he steals from his father to attempt to support her. Grows and changes, realises his own wrongs along with everyone else's. Critical of parents.

Gerald Croft: A businessman engaged to Sheila, Gerald a relationship with Daisy Renton (Eva Smith). Even though he sits between he two generations he is politically closest to Birling and fails to embrace the Inspector's message, instead seeking to prove he wasn't real.

Eva Smith: Doesn't appear in the play, but her suffering and abuse represents that of all the working classes. She also calls herself both Daisy Renton and Mrs Birling. The older characters begin to question whether she really is one person.

3. Central Themes

Social Responsibility	Priestley advocates a socialist message of collective responsibility for one another. The Inspector serves as his voice in conveying this ideology, but the younger generation also come to embrace it. The suffering of Eva Smith highlights the powerlessness of the working classes and the need for a society that protects is most vulnerable.
Age and the Generational Divide	Priestley presents a view that there is hope for change and that it lies with the younger generation. Both Sheila and Eric change for the better, maturing and becoming more empathetic as they come to embrace the Inspector's message. They also become vocal critics of their parents' indifference to Eva's suffering.
Class and Power	Priestley highlights the immense power that business owners wielded over their workers and presents them as arrogant and lacking in empathy. He demonstrates Edwardian society's preoccupation with wealth and status at the cost of the individual as a way of promoting change in post-WW2 Britain.
Gender	At the time the play was first performed, women had just played a pivotal role in World War 2 and were empowered by the freedom work provided them. In the 1912 setting, we see Sheila's growing independence vs her mother. However, the play still highlights the awful vulnerability of women and the outdated stereotyping of them.

4. Key Vocabulary

Capitalist	Believing in private wealth and business aimed at making profit for business owners. Independent and self-reliant.
Socialist	Believing in shared ownership, collective responsibility for one another and social equality for all.
Ideology	A political viewpoint or set of beliefs, for example socialism.
Responsibility	Being accountable or to blame for something, or having a duty to deal with something.
Hierarchy	A ranking of status or power e.g. the strict class hierarchy of Edwardian England.
Patriarchy	A society in which power lies with men.
Prejudice	An opposition to or opinion about something/someone based upon what they are e.g. working class, female etc.
Morality	The belief that some behaviour is right and some is wrong.
Proletariat	The working class.
Bourgeoisie	The capitalist class in possession of the means of acquiring wealth.
Aristocracy	The highest class in society and often holding titles passed from father to son, for example Lord and Lady Croft.
Façade	A false front or surface-level illusion, for example the façade of family happiness in the opening scene of the play.
Catalyst	Someone or something that speeds up or triggers an event.
Antithesis	When something is the opposite of something else.

5. Key Terminology, Symbols and Devices

Dramatic Irony	When the audience is aware of something that a character is not aware of, for example Birling believing war won't happen.
Plot Twist	When a story suddenly departs from its expected path and something very unexpected happens. The final phone call.
Cliffhanger	Each act ends on a particularly dramatic, revealing moment that creates a sense of tension and anticipation.
Stage Directions	When the playwright instructs actors/director to perform in a particular way. Priestley's are unusually detailed.
Entrances/Exits	Characters frequently leave or enter the stage at dramatic moments. Some characters miss important events.
Lighting	Priestley uses stage directions to indicate how the stage should be lit. Changes to 'brighter and harder' for Inspector.
Props	Physical objects used in the play. The photograph plays a key role in identifying Eva. The doorbell interrupts Birling.
Contrast and Juxtaposition	Deliberately placing two very different things along side one another to draw comparisons e.g. Birling and the Inspector.

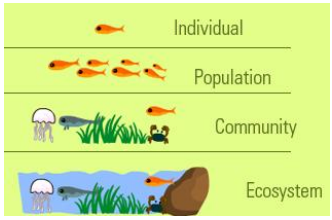
An Inspector Calls grammar

The Big Ideas	Notes	The Methods	Notes
Priestley promotes a socialist ideology in which he **argues for collective social responsibility.**		1. Priestley uses **contrasts** in character, setting and language to emphasise the different conflicts at work in society.	
Priestley suggests that change is possible, and that **hope lies with the younger generation.**		2. Priestley uses the **characterisation** of the Inspector and the family as a means of highlighting his view of different groups in society.	
Priestley **challenges existing social hierarchies** of class and gender.		3. Priestley uses **entrances, exits, beginnings and endings** as a means of building and maintaining dramatic tension.	

T3 Y11 GS – B7 Ecology

Ecosystems

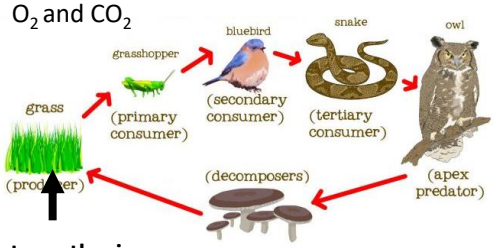
An ecosystem is all the living organisms within an area (community) plus the physical habitat



Interdependence

Organisms rely on each other for…

- Food
- Shelter / nesting sites
- Seed dispersal
- O_2 and CO_2



photosynthesise s

Competition

Competition between organism occurs when resources within an ecosystem are limited.
Animals and plants compete for different resources.

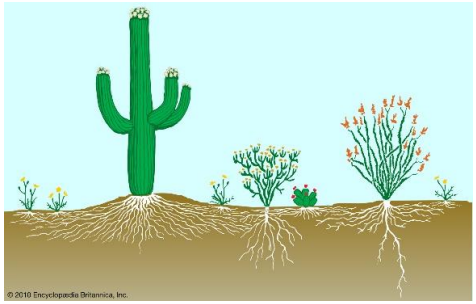
Plants	Animals
Light Space Minerals ions Water	Food Mates Territory

Biotic and Abiotic Factors

Factors that affect the number of organisms

Biotic – living	Abiotic – non-living
• availability of food • new predators arriving • new pathogens • one species outcompeting another so the numbers are no • longer sufficient to breed.	• light intensity • temperature • moisture levels • soil pH and mineral content • wind intensity and direction • carbon dioxide levels for plants • oxygen levels for aquatic animals.

Plant adaptations



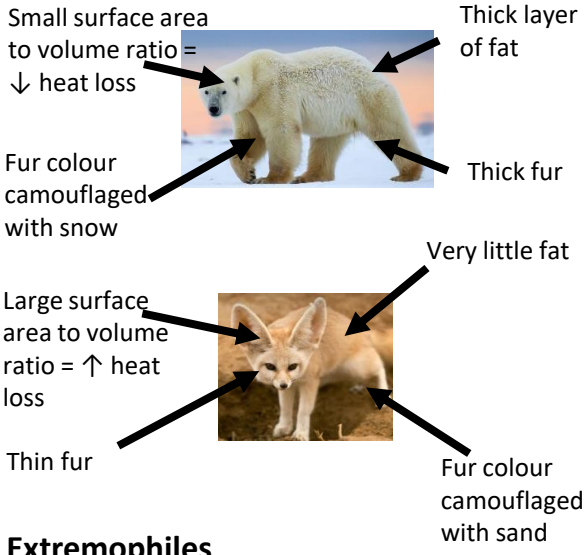
Plants in desert areas have :

- deep roots to maximise water uptake
- thin/no leaves to minimise water loss
- Spines to stop them being eaten

Animal Adaptations

Can be:

- Structural – a feature of the organism's body (e.g. thick fur, bright colours, camouflage)
- Behavioural – responses from the organism (e.g. hibernation, migration, huddling together)
- Functional – a body process (e.g. camel breaking down hump of fat into water, producing little urine



Extremophiles

Extremophiles are organisms that live in extreme environments.
Extreme environments = high temperatures, high pressure or high salt concentration.

E.g. bacteria living in deep sea vents = extremophiles.

T3 Y11 GS – B7 Ecology

1. What is a community?
2. What is an ecosystem?
3. Give two things that animals rely on plants for
4. Give two things that plants rely on animals for
5. What is the term given to the predator at the very top of a food chain?
6. Why are green plants known as producers?
7. Name two resources plants compete for
8. Name two resources animals compete for

1. Name two biotic factors that can affect organisms within a habitat
2. What does the term 'abiotic' mean?
3. Name two abiotic factors
4. Why do some plants have spines instead of leaves?
5. Name two ways plants are adapted for living in desert climates.

1. Name the three types of adaptations
2. Name one behavioural adaptation
3. How are animals adapted to live in cold climates?
4. What are extremophiles?
5. What is the surface area : volume ratio like on desert animals?
6. Give an example of an extremophile

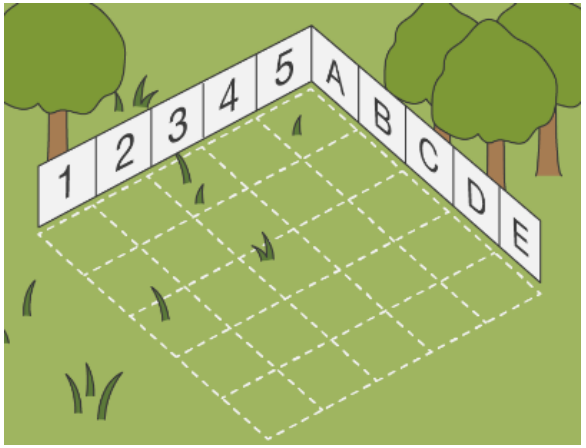
T3 Y11 GS – B7 Ecology

Required practical – Estimating Populations (Measuring abundance)

1. Calculate area of site.
2. Divide site up into a numbered grid
3. Use a random number generator to pick coordinates.
4. Randomly throw the 0.25m^2 quadrat at those coordinates.
5. Count the number of particular organism in the quadrat.
6. Repeat steps 3-5 **ten times (minimum).**
7. Calculate mean number of organism.
8. Calculate estimated number organism in site using the following equation:

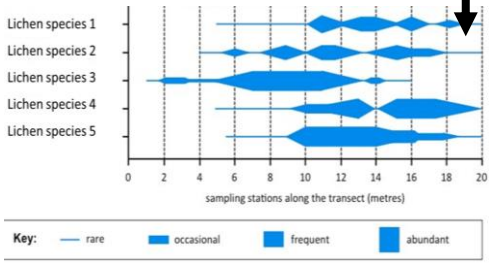
$$\frac{area\ of\ site}{area\ of\ quadrat}\ x\ mean$$

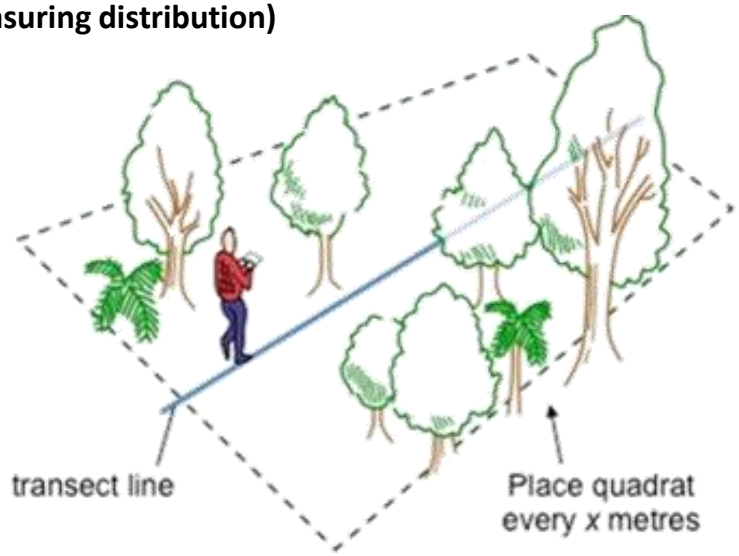
a quadrat



Required Practical – How populations may change over a distance (Measuring distribution)

1. Place tape measure (a transect line) through ecosystem being investigated.
2. Place quadrat at regular, random intervals along the transect line and count the number of particular organisms.
3. Draw a distribution graph of your results. (They might look like this.)





T3 Y11 GS – B7 Ecology

1. What is the minimum number of times the organism should be counted when estimating population size?

2. What is a quadrat?

3. What is the equation used to estimate population size?

4. How can you ensure the quadrat is randomly placed throughout the site?

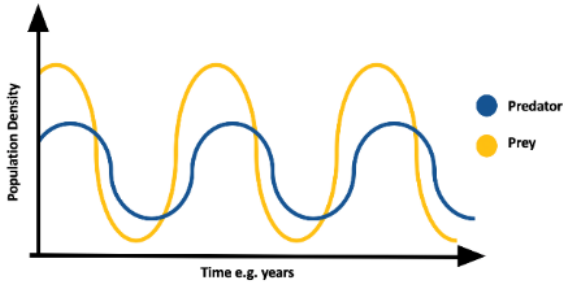
1. What is a transect line?

2. What is a transect line used to investigate?

3. How is the quadrat placed?

T3 Y11 GS – B7 Ecology

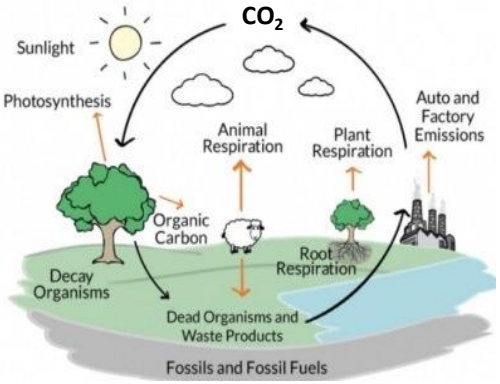
Predator-Prey Relationships



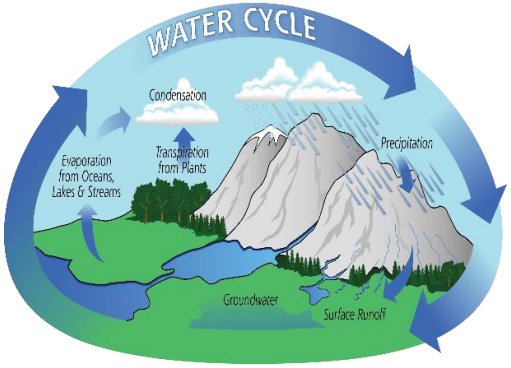
Population increases and decreases follow similar pattern in a cycle because they affect each other – more prey = more food for predator.

However predator and prey not 'in phase', e.g. predator population changes are delayed as it takes time for the predator population to grow.

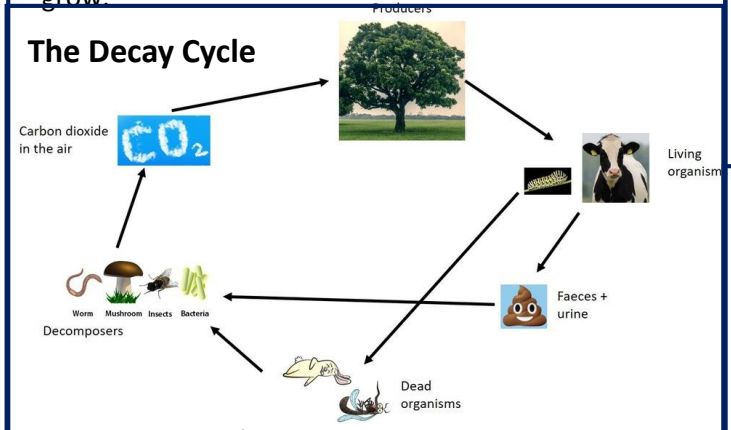
The Carbon Cycle



The Water Cycle



The Decay Cycle



Microbes such as fungi and bacteria break down dead or dying material. This returns carbon to the atmosphere as carbon dioxide and mineral ions to the soil.

RP10 – Investigate the effect of temperature on the rate of decay of fresh milk.

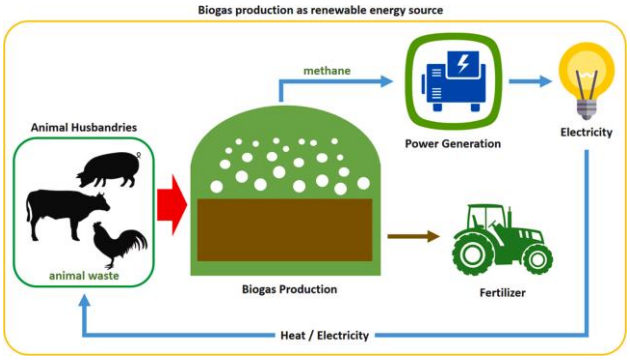
Factors that affect the rate of decay are temperature, oxygen availability, moisture levels.

As milk decays it forms lactic acid, which lowers the pH.

Independent variable: temperature
Dependent variable – pH of milk
Control variables – Oxygen availability, moisture level.

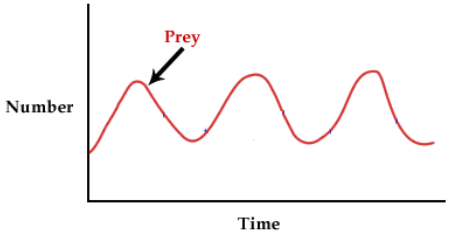
Anaerobic Decay

Anaerobic decay produces methane.
This process is used in biogas generators to produce methane gas as a fuel.



T3 Y11 GS – B7 Ecology

1. Sketch the line to show how the predator population would change on the graph below



1. Which process takes carbon into plants?
2. What do plants make with the carbon (and water)
3. Name 2 process that releases carbon into the atmosphere as carbon dioxide.
4. What happens to carbon that gets trapped deep underground for millions of years?

1. What are the main stages in the water cycle?

1. Which types of microbes cause decay?

1. What can decay release into the environment?

1. What factors affect the rate of decay?
2. What are the variables in an investigation into the effect of temperature on the rate of decay of fresh milk.

1. What is produced during anaerobic decay?
2. What does a biogas generator do?

T3 Y11 GS – B7 Ecology

Biodiversity

Biodiversity is a measure of the variety of different organisms living in an area/ecosystem.

Human Impact on Biodiversity

Waste management	Rapid growth in the human population = more resources are used and more waste is produced – this contributes to pollution. Can occur in water, in air and on land.
Land Use	Humans reduce the amount of land available for other animals and plants by building, quarrying, farming, dumping waste and the destruction of peat bogs.
Deforestation	In tropical areas it has occurred to provide land for cattle and rice fields or grow crops for biofuels.
Global Warming	Levels of carbon dioxide, methane and water vapour in the atmosphere are increasing, and contribute to 'global warming'. This can cause sea level rises, flooding, changes in species distribution, changes in migration patterns.

Maintaining Biodiversity

- breeding programmes for endangered species
- protection of rare habitats
- reintroduction of hedgerows
- reduction of deforestation and CO_2 emissions
- increased recycling to avoid landfill

Water pollution

- Fertilisers: nitrates from fertilisers are easily washed from the soil into stream, lakes and river.
- Untreated sewage: contains high levels of nitrates and can be washed into rivers or pumped into the sea.
- Toxic chemicals: from landfill sites can also be washed into waterways.

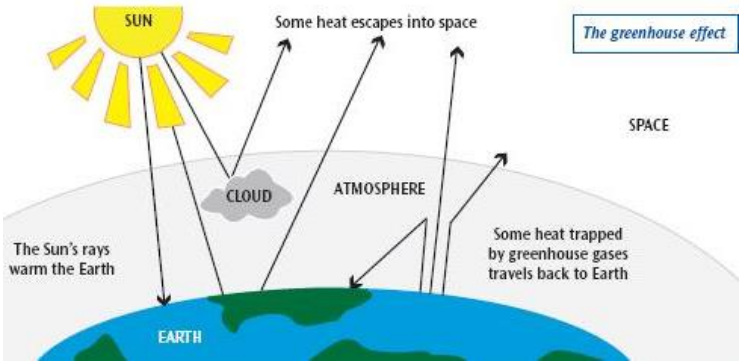
Land pollution

- Household waste: toxic chemicals from landfill sites can leak into the soil.
- Industrial waste: toxic chemicals from industrial process can poison large areas.
- Agricultural waste: pesticides and herbicides get into the soil and can be washed into streams and rivers. They can also become part of the food chain and be passed up the food chain causing dangerous levels in the top predators (bioaccumulation).

Air pollution

- Acid rain: sulphur dioxide and nitrogen dioxides dissolve in rain turning it acidic.
- Smog: a haze caused by smoke particles and acidic gases.
- Smoke pollution: particulates (tiny solid particles) reflect the sunlight causing global dimming.

The greenhouse effect



T3 Y11 GS – B7 Ecology

1. What is biodiversity ?

1. What is the impact of waste management on biodiversity?
2. What is the impact land use on biodiversity?
3. What is the impact of deforestation biodiversity?
4. What is the impact of global warming on biodiversity?

1. How is biodiversity maintained?

1. Give three causes of water pollution?

1. Give three causes of land pollution?

1. Give three examples of air pollution?

1. What is the greenhouse effect?

T3 Y11 GS – B7 Ecology

Environmental changes

- Seasonal: In temperate parts of the world, changes in rainfall, availability of water, daylight hours, levels of dissolved gases in water change between seasons, and the distribution of plant s and animals changes with it.

- Geographical: differences between one area and the next can include soil composition, soil pH, altitude, saltiness, availability of water. Plants and animals have adaptations that enable them to survive in specific geographical locations.

Human interactions

Human activities can cause many changes in the environment.

Positive Effects	Negative effects
Maintaining rainforests	Global warming / climate change
Reducing water pollution and monitoring pH	Acid rain effects on soil/lakes
Restricting access to sites of special scientific interest	Increased nitrate levels in water
Conservation measures e.g. replanting hedgerows and woodlands.	Waste chemicals in the soil

Trophic levels

A trophic level is the position of an organisms within a food chain.

- Trophic Level 1: Producers (organisms that make their own organic nutrients from raw inorganic materials.
- Trophic Level 2: Primary consumers (herbivores that eat plants or algae).
- Trophic Level 3: Secondary consumers (carnivores that eat herbivores).
- Trophic Level 1: Tertiary consumer (carnivores that eat other carnivores). Apex predators are carnivores with no predators above them in the food chain.

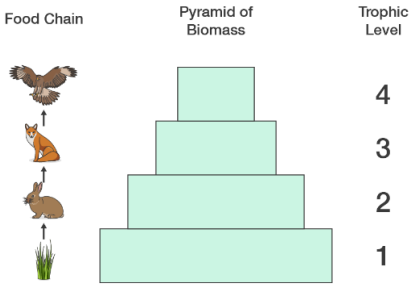
Biomass

Biomass is the mass of material in living organisms

Pyramid of biomass

Producers transfer about 1% of the incident energy from light for photosynthesis.

Approximately 10% of the biomass in a trophic level is passed to the level above.



Only biomass that has been taken in and used to build new biomass can be passed up to the next trophic level.

- Not all parts of the organism are eaten by the stage above.
- Some biomass is lost in the waste materials of the organism.
- Large amounts of biomass taken in at each level is broken down during respiration and transferred to the surroundings. This happens more in birds and animals as they use energy from respiration to maintain a constant body temperature.

Biomass of decomposers

Detritivores and decomposers that feed off waste or dead matter do not appear in pyramids of biomass. There is probably more biomass in decomposers than any other group of organisms.

T3 Y11 GS – B7 Ecology

1. What factors change with the seasons?

2. What factors change between different geographical locations?

1. What are the positive effects of human activities on the environment?

2. What are the negative effects of human activities on the environment?

1. What organisms are found at each trophic level?.

1. What is biomass?

Pyramid of biomass

1. How much of the incident energy from the sun is transferred during photosynthesis?

2. Approximately how much energy is passed on at each trophic level?

3. Why is biomass lost at each trophic level?

1. What do detritovores and decomposers feed off?

T3 Y11 GS – B7 Ecology

Food Security

Having enough food to feed population.

Factors affecting food security

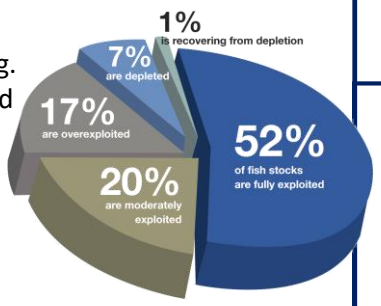
- Increasing birth rates
- Change in diets in developed countries leading to scarce food resources being transported around the world.
- New pests ad pathogens affecting farming.
- Environmental changes affecting food production
- The cost of agricultural inputs e.g. seeds
- Conflicting access to water or food.

Sustainable Food Production

- Maintaining soil quality so that crops can be well grown year after year
- Researching more efficient food production methods
- Conserving fish stocks in the oceans so they do not run out

Conserving Fish Stocks

Ocean fish stocks are declining. Fish stocks need to maintained at a level where breeding continues otherwise some species may become extinct. This can be achieved by:



- Controlling net size so that smaller fish can escape and survive to breed.
- Introducing fishing quotas so that breeding populations can be conserved.

Efficient Food Production

Food production can be mad more efficient by reducing the biomass lost at each trophic level. This can be achieved by:

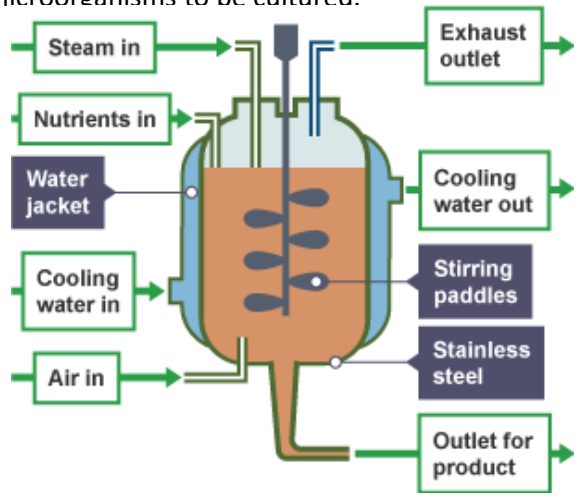
- Restricting animal movement.
- Controlling the temperature of the surroundings
- Using high protein animal feed to increase growth.

Biotechnology

Biotechnology allows large quantities of microorganisms to be cultured.

Mycoprotein

- Mycoprotein is made from a fungus. It is a protein rich food that is suitable for vegetarians.
- The fungus is grown inside a fermenter in glucose under aerobic conditions.
- The biomass is harvested and purified.



Genetically Modified (GM) Organisms

Bacteria

Bacteria can be genetically modified to produce drugs such as insulin. These modified bacteria are grown in fermenters on an industrial scale.

Crops

Crops can be genetically modified to produce food with an improved nutritional value or increased yield.

T3 Y11 GS – B7 Ecology

1. What is food security?
2. What are the factors affecting food security?

1. How is food production made more sustainable?

1. Why do fish stocks need to be conserved?
2. What methods are being used to conserve fish stocks?

1. How can food production be made more efficient?

1. What is mycoprotein?
2. What is mycoprotein grown in?
3. What conditions are used to produce mycoprotein?
4. What happens to the mycoprotein after it is harvested?

1. Give an example of a use of genetically modified bacteria.
2. Give two reasons why some crops genetically modified.

T3 Y11 GS - C10 Chem – Using Resources

Potable Water

- Water is **essential** for life.
- **Potable water is** water that is safe to drink.
- Potable water is not pure as it contains some dissolved substances.

In the UK – rain water provides water with low levels of dissolved substances that collects in the ground and in lakes and rivers. This is fresh water.

Most potable water is produced by:
1) Choosing an appropriate source of fresh water
2) Passing the water through filter beds
3) Sterilising to kill bacteria

Sterilising agents used for potable water include:
- Chlorine
- Ozone
- Ultraviolet light

Desalination of Sea Water

- **Potable** water can be made from sea water through desalination.
- Required a lot of **energy** to **remove salt** in sea water.

Can be done by:

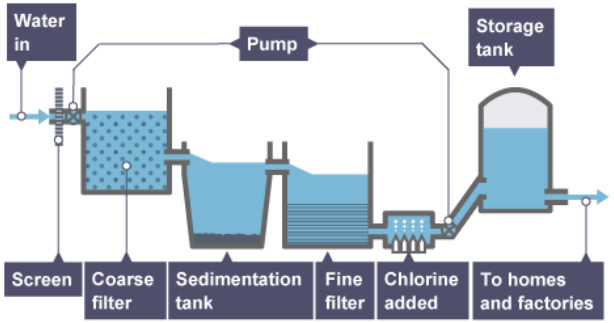
Distillation
- Sea water heated until it boils
- Steam is **condensed** to make potable water
- Requires a lot of **energy**

Reverse Osmosis
- Water put under **high pressure** and passed through **membrane** with tiny holes in.
- Holes allow water through but not salt/ions
- Very **expensive**
- Produces **large volumes** of waste water.

Waste Water Treatment

- Waste water needs to be treated before being released back into environment

Pollutants can be present in waste water including:
- Human waste contains harmful **bacteria** and nitrogen – can harm aquatic ecosystems.
- Industrial waste can contain **toxic** substances
- Agricultural waste water can contain **fertilisers** or **pesticides** – disrupt ecosystems.



Sewage treatment involves:

1) Screening and grit removal to remove large particles

2) Sedimentation – allows tiny particles to settle – produces sewage sludge and effluent (liquid that remains on the top)

3) Sewage sludge is digested anaerobically by specific bacteria

4) Effluent is treated with aerobic bacteria to reduce volume of solid waste.

T3 Y11 GS - C10 Chem – Using Resources

1. What is potable water?

2. What is fresh water?

3. Where does fresh water collect in the UK?

4. After finding an appropriate source of water, what two stages are needed to make it potable?

5. What are the 3 methods of sterilising water?

6. Why is water treated with chlorine?

1. How can potable water be made from sea water?

2. Give a disadvantage of this technique.

3. Describe the process of distillation.

4. Describe the process of reverse osmosis.

1. State three pollutants that may be present in waste water.

2. Complete the table to explain the steps in treating waste water.

Step	**Explanation**
Screening	
Sedimentation	
Anaerobic digestion	
Aerobic digestion	

T3 Y11 GS - C10 Chem – Using Resources- Required Practical – Analysis and purification of water

Analysing the pH of Water Samples

- Test pH of each water sample using pH probe or universal indicator.
- Compare to pH chart if using universal indicator

Analysis the Mass of Dissolved Solids

1) Measure out 50 cm^3 of water sample using measuring cylinder.

2) Take the mass of evaporating basin using top pan balance.

3) Heat the sample in the evaporating basin gently until all liquid evaporates.

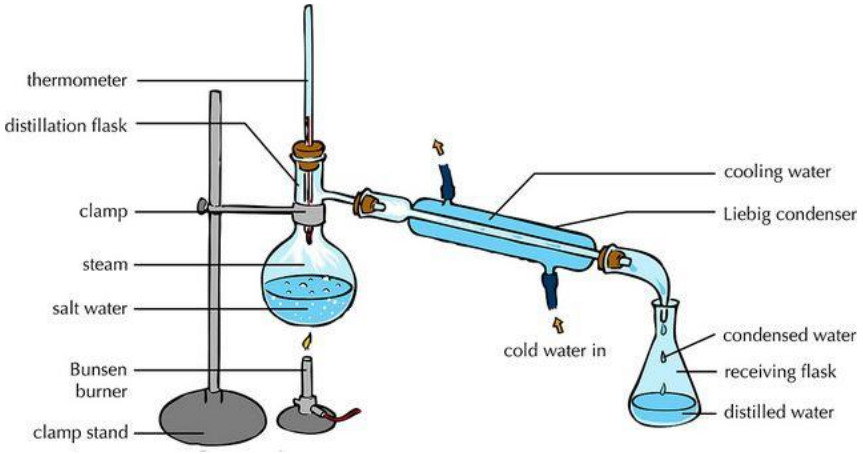
4) Let the evaporating basin cool

5) Re-take the mass of the evaporating basin.

6) Calculate the mass of the solid left behind by doing: final mass – initial mass.

7) Repeat with different water samples (e.g. rainwater, salt water, spring water)

Distillation of water Sample



1) Set up apparatus as shown in picture with the sample of water in the round bottom flask.

2) Heat water sample until it boils gently.

3) Water vapour enters the tube at the side (condenser)

4) There is cold water surrounding the tube

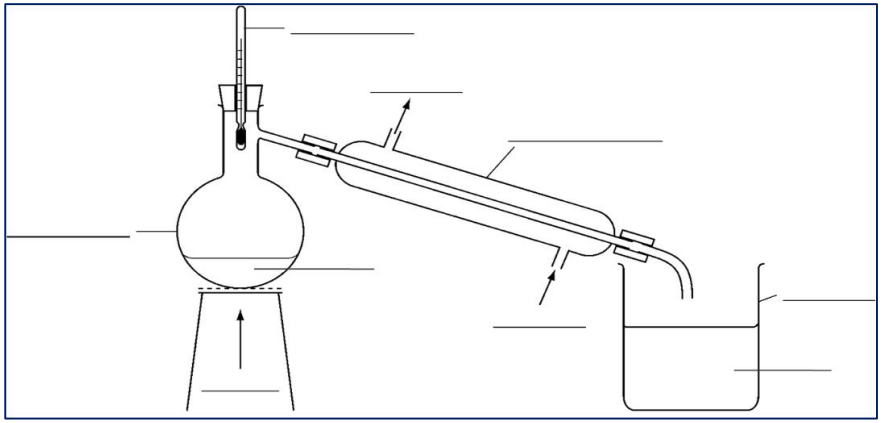
5) The water vapour cools and condenses and collects in the flask.

6) The water collected should be **pure**.

T3 –Y11 - C10 Chem – Using Resources - Required Practical – Analysis and purification of water

1. Write a method of how to investigate the mass of solids in different samples of water.

1. Label the diagram below to show how to purify salt water.



Bunsen, water sample, water, beaker, condenser, water in, water out, thermometer, round bottom flask

2. What is the name of this technique?

3. What two changes of state happen during this?

4. Describe the water that is collected in the beaker

T3 –Y11 - C10 Chem – Using Resources

The Haber process and the use of NPK fertilisers

The Haber process is used to manufacture ammonia, which can be used to produce nitrogen-based fertilisers. The raw materials for the Haber process are nitrogen (extracted from the air) and hydrogen (obtained from natural gas).

The purified gases are passed over a catalyst of iron at a high temperature (about 450°C) and a high pressure (about 200 atmospheres). Some of the hydrogen and nitrogen reacts to form ammonia. The reaction is reversible so some of the ammonia produced breaks down into nitrogen and hydrogen:

nitrogen + hydrogen ⇌ ammonia

On cooling, the ammonia liquefies and is removed. The remaining hydrogen and nitrogen are recycled.

Production and uses of NPK fertilisers

Compounds of nitrogen, phosphorus and potassium are used as fertilisers to improve agricultural productivity. NPK fertilisers contain compounds of all three elements. Industrial production of NPK fertilisers can be achieved using a variety of raw materials in several integrated processes. These fertilisers are formulations of various salts.

Ammonia can be used to manufacture ammonium salts and nitric acid. Potassium chloride, potassium sulfate and phosphate rock are obtained by mining, but phosphate rock cannot be used directly as a fertiliser.

Phosphate rock is treated with nitric acid or sulfuric acid to produce soluble salts that can be used as fertilisers.

T3 –Y11 - C10 Chem – Using Resources

1. What does the Haber process make?
2. What are the raw material for the Haber process?
3. Where does the nitrogen come from?
4. Where does the hydrogen come from?
5. What is the reaction for the Haber process?
6. What are the conditions for the Haber process?
7. How is the ammonia extracted from the reaction?

1. What fertilisers made from?
2. What is an NK fertiliser?
3. What can ammonia be used to manufacture?
4. How are potassium chloride, potassium sulfate and phosphate rock obtained?
5. What is phosphate rock treated with to obtain salts for fertilisers?

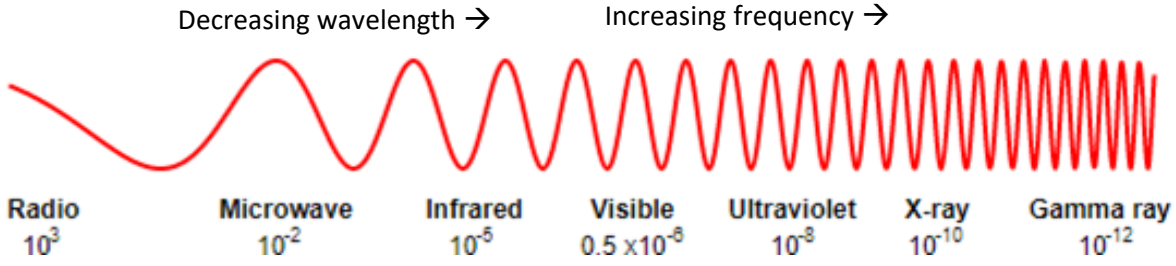
T3 Y11 GS - P8 Space

Orbit - the curved path taken by a moving body around another larger (more massive) body, due to mutual gravitational attraction.

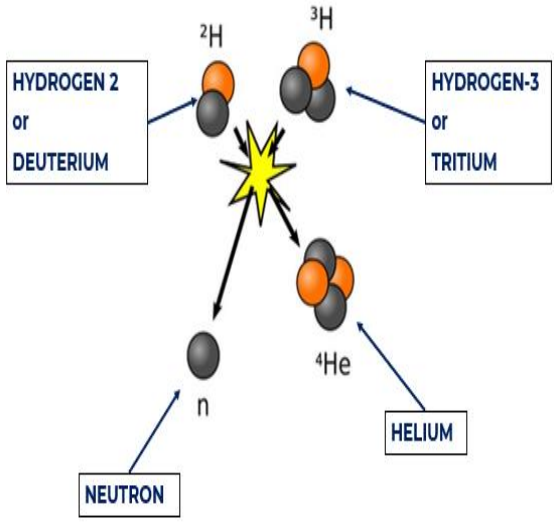
8 Celestial bodies (in order of decreasing size)

1. **Universe** - The entire cosmos and everything within it; all of space and time
2. **Galaxy** - Billions of stars, gravitationally bound, e.g. the Milky Way
3. **Nebula** - Cloud of gas and dust from which stars and planets are formed
4. **Solar System** - A star and all local bodies in orbit around it
5. **Star** - Large mass of mainly hydrogen, undergoing nuclear fusion and emitting electromagnetic radiation
6. **Planet** - A spherical body (rocky/gaseous) in a cleared orbit around a star
7. **Dwarf Planet*** - A mostly spherical body in orbit around a star which has not cleared it orbit
8. **Moon*** - A body in orbit around a planet; a natural satellite

*in either order

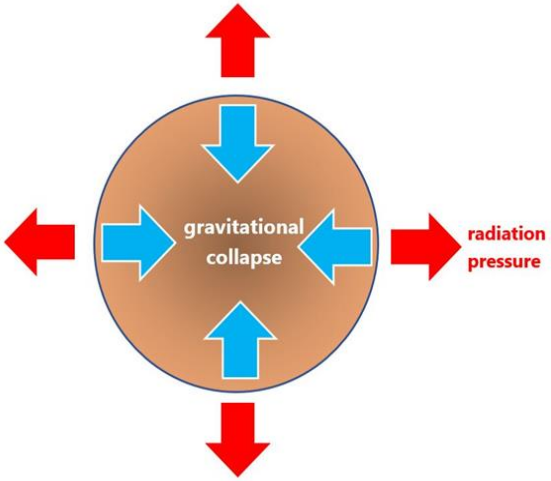


Nuclear Fusion



Description:
Small hydrogen nuclei join to form larger helium nuclei and a small quantity of mass is converted into energy.

Stellar equilibrium



Description:
Two forces are equal in magnitude and in opposition, due to radiation pressure outwards and gravitational collapse/force/gravity inwards.

T3 Y11 GS - P8 Space

1. What is an orbit?

2. Give the 8 celestial bodies in order of **increasing** size?

1. What is a planet?

2. What is a dwarf planet?

3. What is a nebula?

4. What is a galaxy?

List the regions of the electromagnetic spectrum in order of:

a) increasing frequency?

b) Increasing wavelength?

Draw a labelled diagram of nuclear fusion of H into He

Description:

Draw a labelled diagram of stellar equilibrium

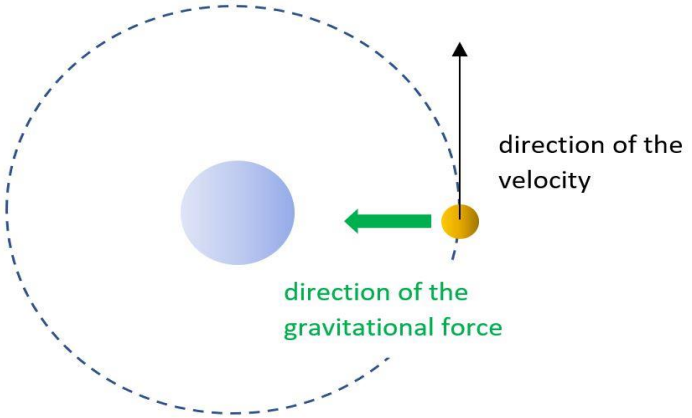
Description:

T3 Y11 GS - P8 Space

Circular motion (eg orbits) the body is accelerating but speed is constant

Velocity – speed with direction (vector)

Acceleration - a change in velocity (ie speed or direction)



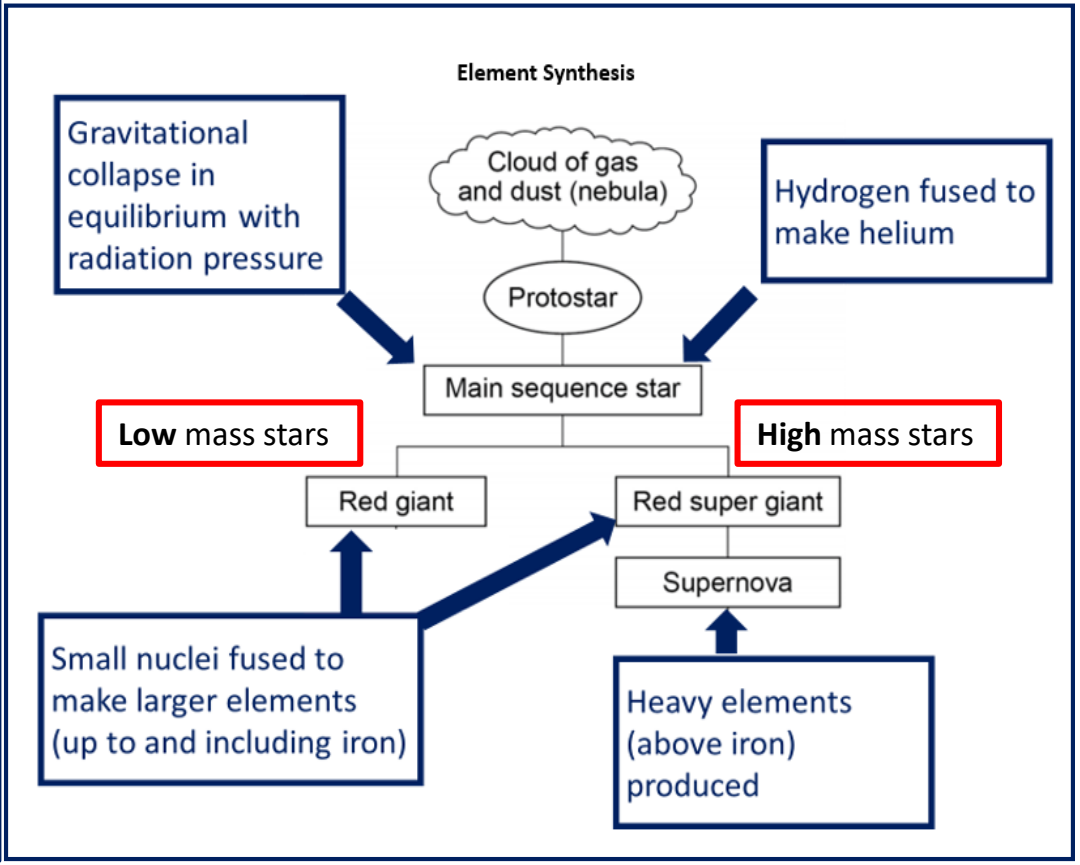
Gravity is perpendicular to direction of velocity in circular motion

The further away from the sun, the weaker the force of gravity

The further away from the sun, the slower the orbital speed

Life cycle of low mass stars:
Nebula → protostar→ main sequence → red giant → white dwarf → black dwarf

Life cycle of high mass stars:
Nebula → protostar→ main sequence → red supergiant → supernova → neutron star or black hole



T3 Y11 GS - P8 Space

1. What do we mean by circular motion?

2. Why are planets in orbit said to be accelerating?

3. Sketch a diagram of circular motion of a planet orbiting a star, label both the direction of velocity and the direction of gravitational force

4. Describe the direction of gravity in relation to the direction of velocity

5. Describe the relationship between distance from the star and orbital speed

Describe the stages of the life cycle of a:

1. **low** mass star

2. **high** mass star

In which stage of a stars life cycle does the following take place:

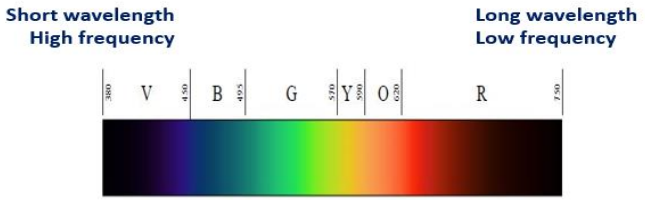
1. Gravitational collapse in equilibrium with radiation pressure

2. Hydrogen fused to make helium

3. Elements larger than helium (up to and including Iron) are made

4. Elements larger than Iron are made

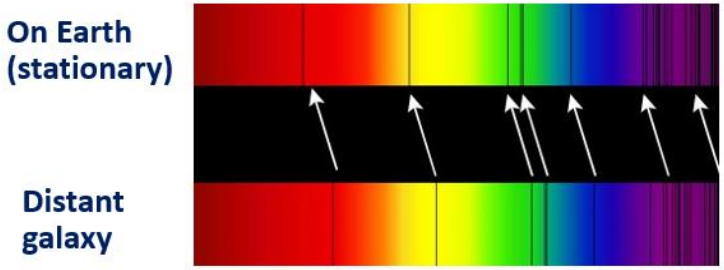
T3 Y11 GS - P8 Space



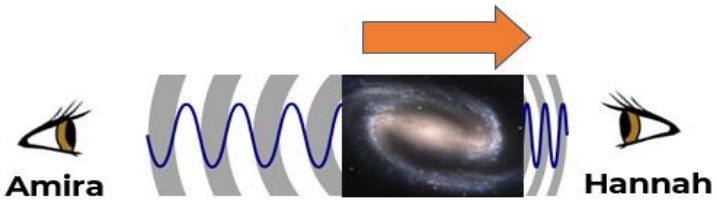
Emission spectra - unique 'bar code' pattern because every element has a different number and arrangement of electrons which emit specific wavelengths of light.

Red-shift – emission spectra shifted to the red region of the spectrum when a luminous object is moving away from the observer.

Blue-shift - emission spectra shifted to the blue region of the spectrum when a luminous object is moving towards the observer.



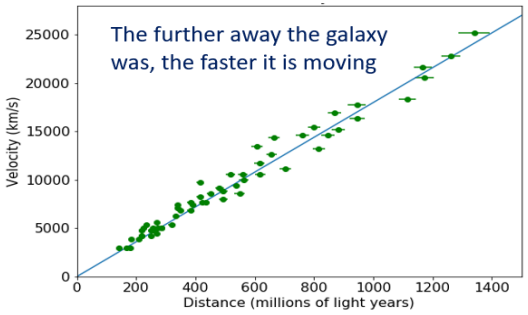
- Spectral lines are red-shifted
- Therefore the galaxy is moving away from Earth
- This is evidence the universe is expanding



Moving away:
- longer wavelength
- red-shifted

Moving towards:
- shorter wavelength
- blue-shifted

Hubble's Law – the evidence of an expanding universe



Hubble's Law - velocity ∝ distance

Big Bang - universe started very small, containing all matter & energy, therefore was hot and dense, since then, **space** has been expanding.

Dark matter and **dark energy** are two things about the universe that we don't yet understand

CMBR
- Space is expanding
- The ancient radiation's wavelength is stretched
- Red –shifted to the microwave region of EM spectrum
- This is called the **Cosmic Microwave Background Radiation** (CMBR)

T3 Y11 GS - P8 Space

1. Which colour of visible light has the longest wavelength?
2. What is an emission spectra?
3. What do we mean by red-shift?
4. What does the red-shift of light from most galaxies tell us about the universe?

1. What does red shift tell you about an observed object **and** its wavelength?
2. What does blue-shift tell you about an observed object **and** its wavelength?

1. Sketch a graph of velocity against distance for galaxies
2. Describe the relationship shown in the graph

1. What do we mean by the Big Bang?
2. Give two things that we do not understand about the universe

1. What is the CMBR?
2. Why has the ancient radiation become microwaves?

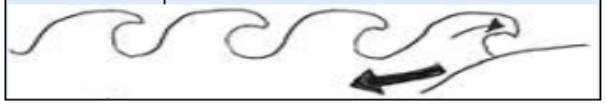
1. The UK's diverse landscapes

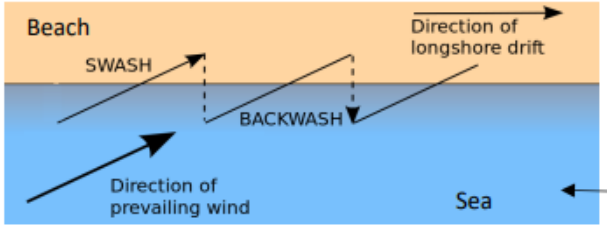
Term	Definition
Relief	Shape of the land.
Upland areas	Land over 200m. Highlands. Steep.
Lowland areas	Land below 100m. Flat or rolling hills

2. Waves

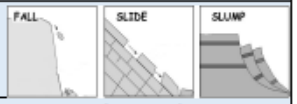
Term	Definition
Swash ↗	Movement of the water UP the beach in the direction of the prevailing wind.
Backwash ↓	Movement of water DOWN the beach at right angles (90°) due to gravity.
Constructive waves	Build up the beach. Strong swash. Weak backwash. Low height, long wave length. Low frequency.

Destructive waves	Erode the coast. Weak swash. Strong backwash. Tall height, short wave length. High frequency.



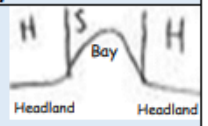


3. Processes

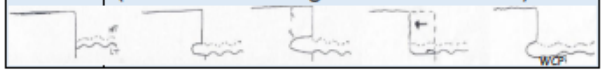
Sub-aerial processes (above the sea)	
Weathering	
Wearing away of rocks in situ. Material not removed.	
Mechanical weathering	The breaking down of rock without changing its composition. Freeze thaw.
Chemical weathering	The breaking down of rock caused by chemicals. (*e.g.* weak acid rain).
Mass movement	
The downhill movement of material under the force of gravity.	
Rockfall	Free fall of rocks under force of gravity.
Sliding	Material collapsing in a straight line.
Slumping	Downward rotation of sections of cliff along a slip plane. Worse when saturated.

Marine processes	
Erosion	
The wearing away and removal of material by a moving force such as a breaking wave.	
Hydraulic power	The sheer force of the water compressing air into cracks causes bits to break off.
Abrasion	Sediment scraping against the cliff (like sandpaper) removing small pieces.
Attrition	The 'smashing' of sediment against each other to become more rounded.
Solution	Chemical erosion caused by the dissolving of rocks by sea water.
Deposition	
Dropping of material	Occurs when there is a loss of energy. e.g.. Sheltered bays, when the wind drops.
Transportation	
Longshore drift	Zig zag movement of sediment along the coastline.

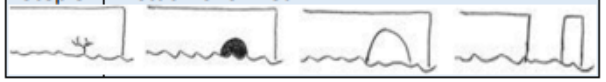
4. Erosional landforms

Headlands and bays	
Step 1	Discordant coastlines have alternating bands of more resistant (chalk) and less resistant rock (clay). 
Step 2	The less resistant rock is **eroded** faster through **abrasion,** creating bays.
Step 3	The more resistant rock **erodes** slower and is left jutting out to sea forming a headland.

Wave cut platforms	
Step 1	Waves **erode** cliff base between high+ low tide
Step 2	**Abrasion** create a wave cut notch which enlarges over time.
Step 3	The rock above the notch is unsupported so will collapse due to **gravity (mass movement).**
Step 4	Cliff **retreats**, leaving a wave cut platform (the un-eroded original cliff left behind).

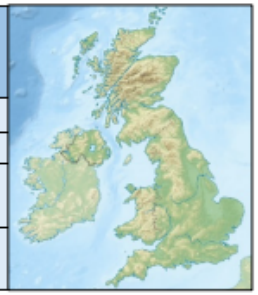


Cave, arch, stack	
Step 1	**Hydraulic power** enlarges cracks in headland
Step 2	Over time they turn into a cave.
Step 3	Back of cave is deepened by **abrasion** until it **erodes** through the headland > arch.
Step 4	**Weathering** and **erosion** wear away at the arch until it eventually collapses (gravity).
Step 5	A stack is formed.



Example of a UK coastline. Dorset coastline.	
Headlands and bays	Swanage Bay, Durlston Head
Wave cut platform	Kimmeridge
Arch	Durdle Door (concordant)
Stack	Old Harry

1. The UK's diverse landscapes



Term	Definition
Relief	
Upland areas	
Lowland areas	

2. Waves

Term	Definition
Swash ↗	
Backwash ↓	
Constructive waves	
Destructive waves	

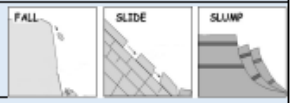
3. Processes

Sub-aerial processes (above the sea)

Weathering

Mechanical weathering	
Chemical weathering	

Mass movement



Rockfall	
Sliding	
Slumping	

Marine processes

Erosion

Hydraulic power	
Abrasion	
Attrition	
Solution	

Deposition

Dropping of material	

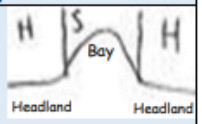
Transportation

Longshore drift	

4. Erosional landforms

Headlands and bays

Step 1



Step 2

Step 3

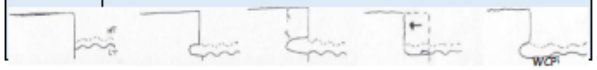
Wave cut platforms

Step 1

Step 2

Step 3

Step 4



Cave, arch, stack

Step 1

Step 2

Step 3

Step 4

Step 5

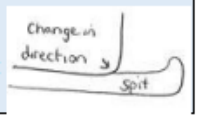
Example of a UK coastline. Dorset coastline.

5. Depositional landforms

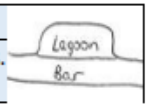
Beaches Swanage	
Step 1	Beaches form when **deposition** occurs.
Step 2	There needs to be a source of sediment nearby like soft cliffs.
Step 3	Constructive waves **deposit** material in sheltered areas like bays.

Sand dunes Studland	
Step 1	Wind blows sand up the beach (**saltation**).
Step 2	Obstacles such as seaweed cause the wind speed to decrease resulting in **deposition**.
Step 3	Over time sand dunes build up and are colonised by marram and lyme grass.
Step 4	This vegetation stabilises the sand dunes.

Spits Sandbanks	
Step 1	Longshore drift transports sediment along the coast in the direction of the prevailing wind (**swash** and **backwash**).
Step 2	Where the coastline changes direction…
Step 3	Sediment is **deposited** in calm weather out to sea.
Step 4	Can form a hooked end and a salt marsh behind the spit where it is sheltered.



Bar	
Step 1	When a spit joins two headlands.
Step 2	A lagoon forms behind the bar.



6. Coastal management

Hard engineering

Man made structures built to control the sea. Reduces flooding and erosion.

Strategy	Explanation	Costs	Benefits
Sea walls	A hard wall made out of concrete that reflects waves back out to sea	Expensive (£2000 per/m). Life span 75 years.	Prevents erosion / flooding. Often protects tourist resorts.
Rock armour	Boulders piled up along the coast. These erode rather than the coast.	Boulders can be moved by waves and need replacing.	Gaps allow water through, reducing wave energy. Cheap
Gabions	Wire cages filled with rocks at the base of cliffs. Absorb wave energy.	Ugly to look at. £100 per/m Metal corrodes over time.	Cheap and easy to build. Reduce erosion.
Groynes	Wooden fences at right angles to the coast, preventing sand moving by longshore drift = wider beach.	Starve beaches further along the coast = more erosion there. Life span only 25 years	Stops longshore drift removing beaches. Fairly cheap.

Soft engineering

Schemes set up using a natural approach to managing the coast.

Strategy	Explanation	Costs	Benefits
Beach nourishment	Sand and shingle from elsewhere is added to beaches. Wider beaches stop erosion and flooding	Needs redoing every 5 years. Sand has to be brought from elsewhere. Expensive.	Blends with existing beach. Larger beaches = tourists.
Reprofiling	Sediment is redistributed from the lower part to the upper part of the beach. Increases gradient.	Only works if wave energy is low. Needs to be redone lots.	Cheap and simple. Reduces energy of the waves.
Dune regeneration	Creating or restoring sand dunes by nourishment or planting marram grass to stabilise the sand	Protects only a small area. Areas zoned off from public which is unpopular.	Sand dunes create a barrier between the sea and land. Stabilisation is cheap.
Managed retreat Coastal realignment	Remove current defences, allow sea to flood the land behind. Over time land becomes a marshland.	Land is lost = conflict (farmers) Salt water can negatively impact existing ecosystems.	Cheap and easy. Doesn't need maintenance. New habitats created.

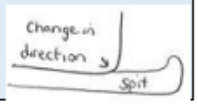
7. An example of a coastal management scheme

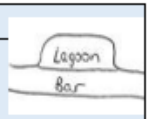
What?	Reasons for management	Management strategy	Effects and conflicts
Bournemouth Beach Management Scheme. Aim: Hold the line and protect tourism.	Coastline would erode at a metre a year. Beach important for tourism (£413million). 3114 homes at risk from collapsing cliffs.	3 phases costing £50 million. HARD: Replaced or added 53 groynes. SOFT: 3 lots of replenishment, every 5 yrs	✓ Beaches = More tourists = 9000 jobs ✗ Barton on Sea at risk from erosion. ✗ Conflict: locals vs construction.

5. Depositional landforms

Beaches Swanage	
Step 1 Step 2 Step 3	

Sand dunes Studland	
Step 1 Step 2 Step 3 Step 4	

Spits Sandbanks	
Step 1 Step 2 Step 3 Step 4	

Bar	
Step 1 Step 2	

6. Coastal management

Hard engineering			
Man made structures built to control the sea. Reduces flooding and erosion.			
Strategy	**Explanation**	**Costs**	**Benefits**
Sea walls			
Rock armour			
Gabions			
Groynes			

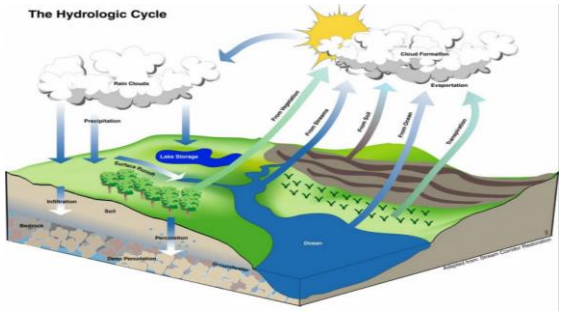
Soft engineering			
Schemes set up using a natural approach to managing the coast.			
Strategy	**Explanation**	**Costs**	**Benefits**
Beach nourishment			
Reprofiling			
Dune regeneration			

Managed retreat Coastal realignment			

7. An example of a coastal management scheme

What?	**Reasons for management**	**Management strategy**	**Effects and conflicts**

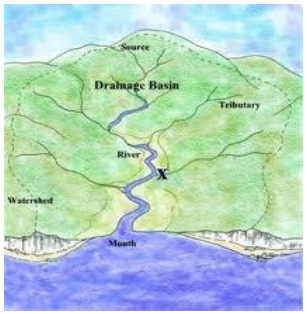
Geography Knowledge Organiser: Year 11 Term 3 Rivers



A.	The hydrological cycle
The hydrological cycle is a closed system. This means that water never leaves, or enters the cycle of water from sea, land and atmosphere. The cycle is important because it shows us how water can enter the drainage basin, and how water can be responsible for increasing or decreasing our risk of flooding. Key words include:	
Evaporation	the process of water turning from a liquid in to water vapour as it is warmed.
Transpiration	Transpiration – the loss of water from trees and plants
Condensation	water vapour returning to a liquid once cooled.
Interception	water being trapped by tree leaves and plant leaves
Surface run off	water travelling **over** the land
Infiltration	water soaking into the soil
Throughflow	water flowing downhill in the soil
Percolation	water passing vertically through soil and rock
Groundwater flow	water flowing vertically through rock.
Channel flow	water flowing in a river channel
Channel storage	water being stored in the river

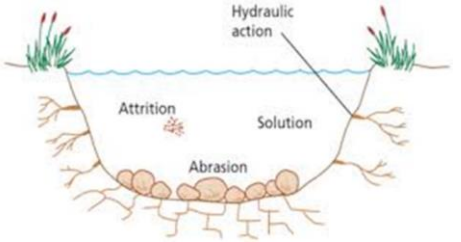
What are we learning this term

A. The Hydrological cycle
B. Drainage basins
C. Factors influencing the hydrological cycle
D. Key terms



Some factors will influence the way that water travels to the river – see below.

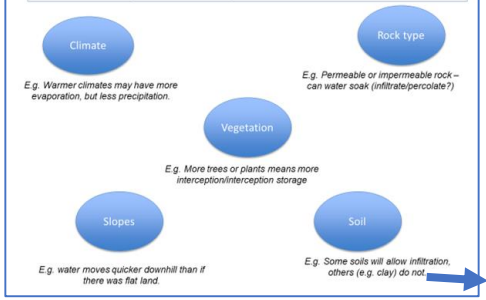
The drainage basin is the area of land drained by a river and it's tributaries. Its boundary is the *watershed.* The start of a river is called the *source*, and the end of the river as it enters the sea is the *mouth*. The main river channel may be joined by smaller rivers called *tributaries,* and this meeting point is called a *confluence.*



Erosion in a river has a number of different forms.

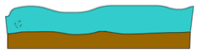
D	Key terms
Attrition	is the 'smashing' of sediment against each other to become more rounded.
Hydraulic action	is the sheer force of the water breaking down the river banks and bed.
Corrosion (solution)	is the dissolving of material.
Abrasion (corasion)	is the action of sediment scraping against the bed and bank of the river (like sandpaper

Factors influencing the hydrological cycle- what speeds it up, or slows it down?

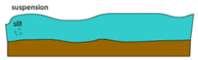


Transportation.

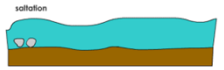
- Transportation happens in one of four ways:
- As solution: dissolved minerals carried in the water.



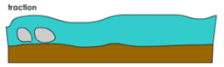
- Suspension: Small particles of rock and soil are carried along – they make the water look cloudy or muddy.



- As **saltation**: sand grains and small stones just bounce along.

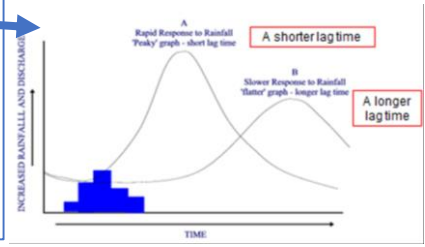


- As **traction**: Larger stones and rocks get rolled along.



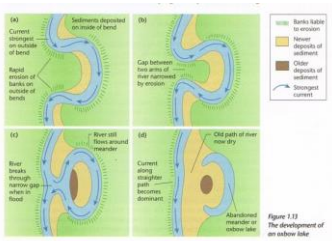
Hydrographs are a method to show us the relationship between rainfall and discharge (the amount of water in the river at a given time).
Hydrographs can help us to predict the risk of flooding, but also can help us to understand how water has made it's way the river…

The **lag time** of a hydrograph is the time between the peak rainfall and the peak discharge. If this is long (e.g. b) then it means water will have infiltrated rather than moved through surface run off, as surface run off would cause water to enter the river quickly, and so our hydrograph would have a shorter lag time (e.g. a).



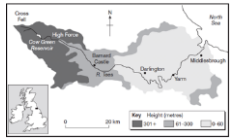
Geography Knowledge Organiser: Year 11 Term 3 Rivers

E	Reducing flooding
Rivers flooding can be caused by a number of factors. These could be human factors:	
Farming	ploughing can cause water to collect in the troughs and run directly in to the river.
Urbanisation	building with tarmac and concrete does not allow infiltration so water moves to the river through surface run off, or might sit on the land.
Deforestation	cutting down trees will reduce interception storage and increase surface run off.
Or physical factors:	Or physical factors:
Weather and climate:	hotter weather increases evaporation which will then decrease the amount of discharge. Colder weather will cause more surface run off as frozen ground cannot infiltrate water.
High amounts of rainfall	saturated ground will not infiltrate further rainfall, which increases surface run off, and therefore the discharge in the river.
Steep land	steep land increases surface run off and therefore the discharge in the river



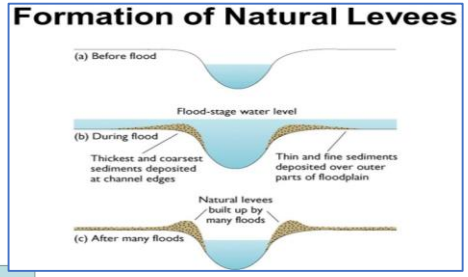
A meander is a bend in a river. Erosion happens on the outside of the bend as the velocity is faster. Deposition happens on the inside of the bend as velocity is slowest. This meander may over time become an oxbow lake as erosion on the outside of the bend exaggerates the bend, and when the river floods, water might take the quickest route – therefore cutting off the bend!

The river is 85 miles long, and drains an area of 710 square miles. Its source is in the Pennine hills, and flows in to the North Sea at Middlesbrough.

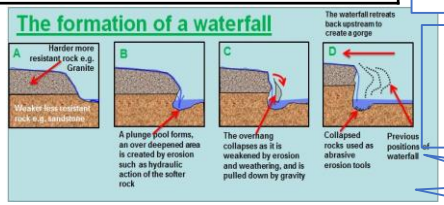


Upper course: The upper course of the river has impressive waterfalls. The river drops 20m in a single sheet of water – High Force Waterfall (tallest in England). The waterfall has retreated back overtime to form a gorge. There are high v-shaped valleys, and interlocking spurs in the upper course of the river.

Middle/lower course: There are good examples of meanders, levees and floodplains along the River Tees. The natural levees have built up over time as the river floods and sediment is deposited on the banks of the river. There are large industries in the lower course of the river, making the most of the flat land and river's flow in to the North Sea. This area of the river needs high levels of management. In Yarn there are extensive flood protection methods.



The image above tracks the journey of a river from source to mouth. Note that the river starts on high land, and meets the sea on flat land. The features of a river will change from source to mouth. This is due to erosion and transportation of material. Typically larger material is found in the upper course of a river, and the material reduces in size as it makes it way to the mouth. Erosion will change from vertical (downwards) to horizontal erosion.



A waterfall will form when bands of hard and soft rock lie on top of each other. Over time the hard (more resistant) rock will be eroded, and therefore the soft rock will be eroded vertically. This creates a plunge pool – and overtime the waterfall will retreat backwards creating a gorge.

The river has been straightened and widened over time to allow navigation for industry and trade.

Banbury Floods:

River flooding might bring a lot of effects to an area. They are worse in LICs as the countries are unable to prepare, or protect.
These impacts can be social, economic or environmental.

Social: loss of homes, death, loss of possessions etc.

Economic: Cost of repairs, loss of income from flooded farmland, loss of business, loss of jobs etc.

Environmental: Damaged habitats, destroyed land, contaminated water sources etc.

Banbury is located in the Cotswolds, north of Oxford.

Impacts of flooding:
In 1998 flooding led to the closure of the railway station, local roads and caused £12.5m damage. More than 150 homes and businesses were affected. In 2007 these impacts were repeated.

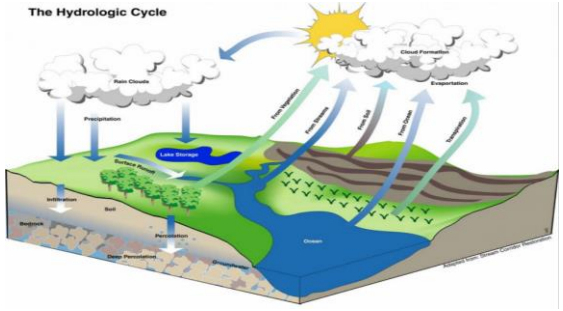
What has been done to reduce flooding?

- A361 raised, and drainage below the road improved.
- Earth embankments built.
- Floodwalls built.
- Pumping station to transfer excess water.
- Creation of new Biodiversity Action Plan to allow nature to 'soak' up excess water.

What were the costs/benefits?

Socially: quality of life has improved, reduced levels of anxiety of flooding, the A361 will no longer need to be closed.
Economically: Cost £18.5m, but benefits of protecting are over £100m!
Environmentally: Small reservoir created from earth taken for embankments, new Biodiversity Action Plan has created new habitats, and floodplain protected for flooding.

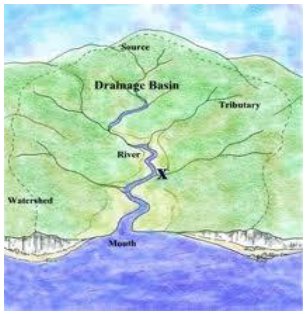
Geography Knowledge Organiser: Year 11 Term 3 Rivers - quizzable



A.	The hydrological cycle
The hydrological cycle is a closed system. This means that water never leaves, or enters the cycle of water from sea, land and atmosphere. The cycle is important because it shows us how water can enter the drainage basin, and how water can be responsible for increasing or decreasing our risk of flooding. Key words include:	
Evaporation	
Transpiration	
Condensation	
Interception	
Surface run off	
Infiltration	
Throughflow	
Percolation	
Groundwater flow	
Channel flow	
Channel storage	

What are we learning this term

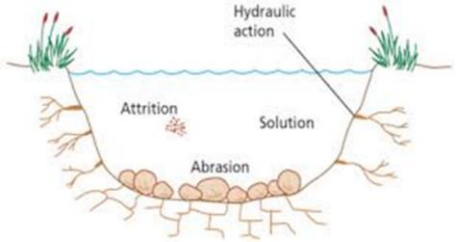
A. The Hydrological cycle
B. Drainage basins
C. Factors influencing the hydrological cycle
D. Key terms



Some factors will influence the way that water travels to the river – see below.

The drainage basin is the

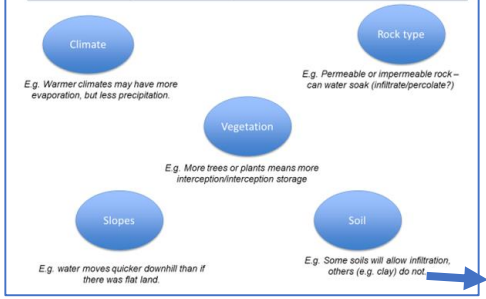
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____



Erosion in a river has a number of different forms.

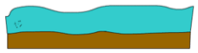
D	Key terms
Attrition	
Hydraulic action	
Corrosion (solution)	
Abrasion (corasion)	

Factors influencing the hydrological cycle- what speeds it up, or slows it down?

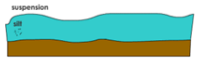


Transportation.

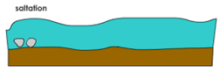
- Transportation happens in one of four ways:
- As solution: dissolved minerals carried in the water.



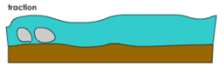
- Suspension: Small particles of rock and soil are carried along – they make the water look cloudy or muddy.



- As **saltation**: sand grains and small stones just bounce along.



- As **traction**: Larger stones and rocks get rolled along.

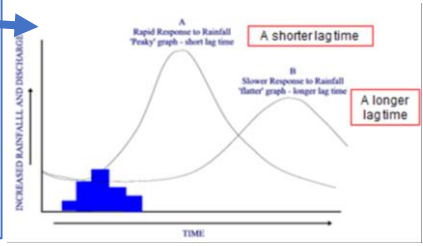


Hydrographs are

_____
_____
_____
_____
_____
_____
_____

The **lag time** of a hydrograph is

_____
_____
_____
_____
_____
_____
_____
_____
_____

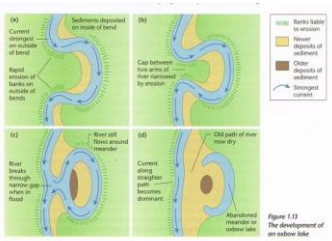


Geography Knowledge Organiser: Year 9 Term 3 Rivers - quizzable

E	Reducing flooding

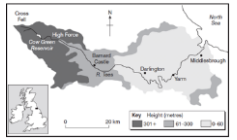
Rivers flooding can be caused by a number of factors.
These could be human factors:

Farming	
Urbanisation	
Deforestation	
Or physical factors:	
Weather and climate:	
High amounts of rainfall	
Steep land	



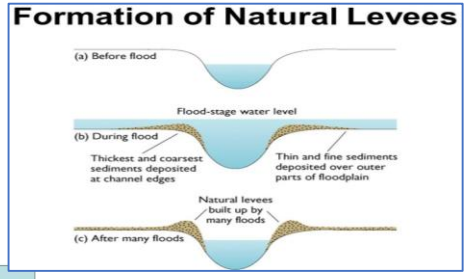
A meander is _____. Erosion happens on _____as the velocity _____. _____ happens on the inside of the bend as velocity _____. This meander may over time become _____as erosion on the _____ of the bend exaggerates the bend, and when the river floods, water might take the quickest route – _____!

The river is 85 miles long, and drains an area of 710 square miles. Its source is in the Pennine hills, and flows in to the North Sea at Middlesbrough.

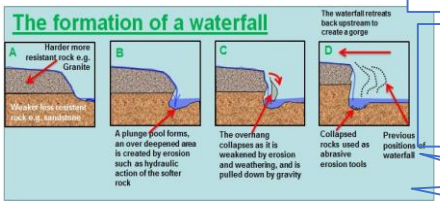


Middle/lower course:

Upper course:



The image above tracks the journey of a river from source to mouth. Note that the river starts on high land, and meets the sea on flat land. The features of a river will change from source to mouth. This is due to erosion and transportation of material. Typically larger material is found in the upper course of a river, and the material reduces in size as it makes it way to the mouth. Erosion will change from vertical (downwards) to horizontal erosion.



A waterfall will form when bands of hard and soft rock lie on top of each other. Over time the hard (more resistant) rock will be eroded, and therefore the soft rock will be eroded vertically. This creates a plunge pool – and overtime the waterfall will retreat backwards creating a gorge.

The river has been straightened and widened over time to allow navigation for industry and trade.

Banbury Floods:

What has been done to reduce flooding?

- .

Banbury is located in the Cotswolds, north of Oxford.

Impacts of flooding:

What were the costs/benefits?

River flooding might bring a lot of effects to an area. They are worse in LICs as the countries are unable to prepare, or protect.
These impacts can be social, economic or environmental.

Social: loss of homes, death, loss of possessions etc.

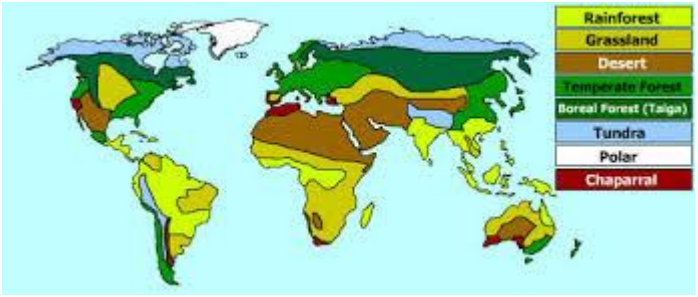
Economic: Cost of repairs, loss of income from flooded farmland, loss of business, loss of jobs etc.

Environmental: Damaged habitats, destroyed land, contaminated water sources etc.

The Living World:

Useful links:

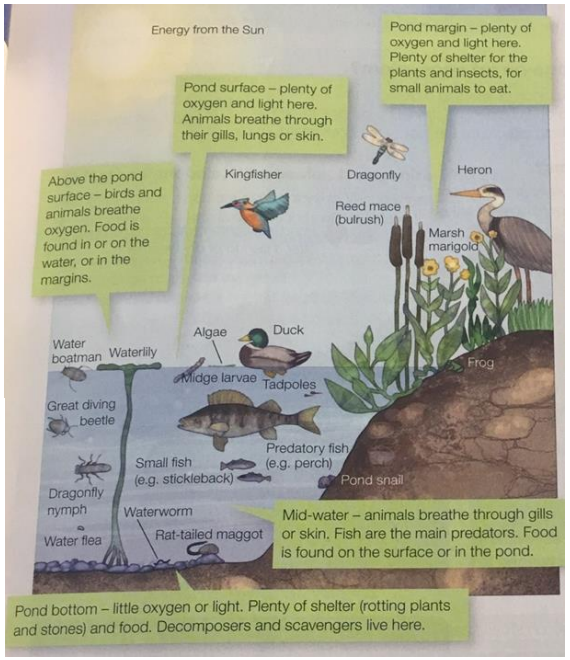
- http://www.worldbiomes.com/biomes_map.htm http://www.duckste rs .com/scie nce/e cosyste ms/w orld_biomes .php
- https://www.bbc.co.uk/education/topics/z2tqwxs
- http://www.softschools.com/fa cts/biomes/des ert_ biome _fa cts /167/
- http://www.softschools.com/facts/biomes/tropical_rainforest_biome_facts/160/

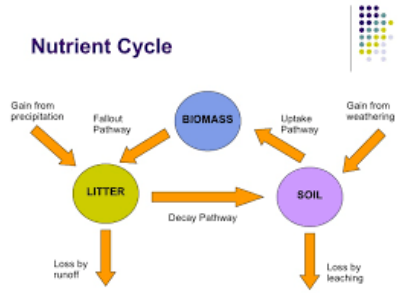


A **biome** is a large scale ecosystem. They are closely linked to climate belts globally. E.g. **Deserts** are found at 22.5°N/S where pressure is high so air sinks leading to a lack of precipitation. **Rainforests** are found along the equator, in areas of low pressure where the air rises, leading to condensation and precipitation.

Ecosystems can also be small scale. By definition an ecosystem is an environment where there is an interaction/relationship between the **abiotic** (non living, e.g. soils/rain/rocks), and the **biotic** (living, e.g. plants/animals) components.

- A freshwater pond is a good example of a small scale ecosystem. Check out the interactions….



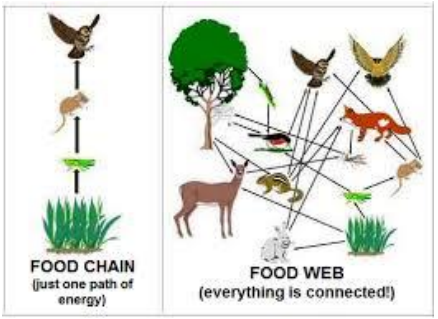


In an ecosystem there are three elements to it's existence.

- **A decomposer** (breaks down the waste e.g. Fungi)
- **A producer** (produces their own food e.g. grass)
- **A consumer** (eats the producer. Primary consumers may include snails/grasshoppers. Secondary consumers then refer to an animal that eats the primary consumer).

These three elements interact to recycle nutrients. Each one depends on one another.
Humans can upset the balance of ecosystems by introducing new consumers/producers; or removing consumers/producers. E.g. the introduction of the Grey Wolf in Yellowstone National Park meant that there was more competition for consumers, leading to an imbalance further down the food chain.
See an example of a food chain & food web opposite.

The nutrient cycle in an ecosystem is also incredibly important, and emphasises the links between the **abiotic** and **biotic** elements of the ecosystem.

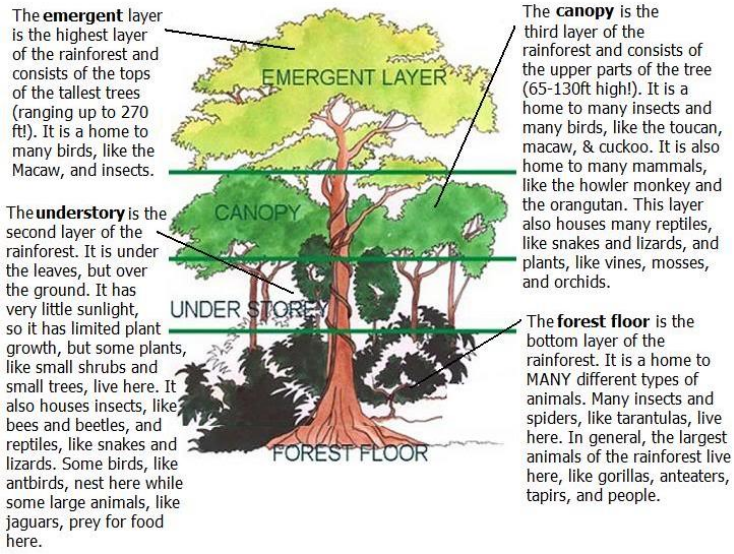


Carnivores (meat eaters), **herbivores** (plant eaters) and **omnivores** (meat & plant eaters) are all important too.

Biome case study 1: The Tropical Rainforest: The Amazon Rainforest:

Emergent trees have buttress roots to anchor them to the ground. Tress in the canopy/emergent layer will have drip tips to direct water to the floor.

Rainforests hold over ½ of the world's species of animals and plants. They are complex ecosystems with high levels of interdependence. The climate of the rainforest (humid, wet, high temperatures) means that there is huge competition between species, and therefore there is a high level of adaptation from plants and animals.



Causes of deforestation:

Logging *– this accounts for 3%. Timber companies are interested in trees such as mahogany and teak and sell them to other countries to make furniture (selective logging). Smaller trees are often used as wood for fuel or made into charcoal.*

Mineral extraction – *Some of the minerals that richer countries need are found beneath rainforest. In the Amazon, mining is mainly about gold. In 1999, there were 10, 0000 hectares of land being used for gold mining. Today, the area is over 50,000 hectares.*

Energy development *– The vast Amazon River has encouraged dams to be built to generate hydroelectric power. This involves flooding large areas of rainforest.*

Commercial Farming: *Cattle. This accounts for 80% of tropical rainforest destruction in Brazil. Crops. The forest is being cleared to make way for vast plantations, where crops such as bananas, palm oil, pineapple, sugar cane, tea and coffee are grown. The cultivation of soy bean has also caused a lot of clearance in the Amazon. The amount of rainforest cleared for this crop doubled between 1990 and 2010.*

Road building: *Roads are needed to bring in equipment and transport products to markets, but road building means cutting great swathes of rainforest. The Trans-Amazonian highway began construction in 1972 and is 4000km long.*

Impacts of deforestation:

Environmental:

- The Amazon stores around 100 billion tonnes of carbon, releasing this will contribute to global warming.
- Soil erosion is caused by deforestation which means that the soil loses its fertility and it takes a long time for things to grow.
- Loss of biodiversity – estimations that the Amazon could lose between 30-40% by 2030.

Economic:

- Wealth brought to countries that were very poor.
- Farming makes a lot of money for countries in the rainforest (E.g. Brazil made $6.9b in 2008).
- Mining creates jobs for people; and logging contributes to Brazil's economy.
- Decline of native (indigenous) tribes.

Sustainable management of deforestation:

Selective logging: Only some trees are cut down, reducing the pressure.

Replanting (afforestation) – replanting trees that are cut down.

Conservation: National parks/nature reserves set up to restrict activity.

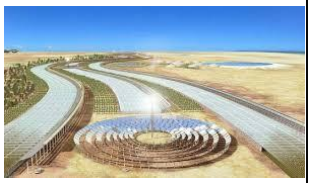
International policies: Putting laws into place internationally to encourage conservation. This could relate to countries only using sustainably sourced materials.

Education: Educating locally and globally to encourage sustainable use of the rainforest.

Biome case study 2: The Desert: The Thar Desert.

The desert is an ecosystem of harsh and extreme climatic conditions. During the day temperatures can hover near to 40°C, and during the night in some areas they can drop below freezing (due to lack of cloud cover because of the area being in high pressure zone). Deserts make living conditions difficult for both animals and plants, and adaptations are essential for these to survive.

Very low biodiversity in the desert, as seen by the image above.



Grand plans by the EU to use land in the Sahara Desert for a vast solar farm.

Development opportunities:

1. **Mineral resources** –Gypsum, Kaolin, Limestone
2. **Solar energy** – 12 or more hours of bright sunshine and cloudless skies everyday are perfect conditions. Badla Solar Farm produces enough energy to power factories and develop the Thar desert are
3. **Wind energy-** Jaisalmer Wind Farm
4. **Coal-** large coal ,mine owned by the Chinese however enough coal to provide energy to India for 200 years and allow development of factories
5. **Tourism** – camel trekking in the desert, Jaisalmer Fort to visit as a cultural experience
6. **Commercial Farming** – water is essential so farming only happens where there is enough water. Indira Ghandi Canal allows water to be used for commercial farming. Crops include, sesame, mustard and cotton.

Challenges to development:

- Extreme temperatures – daily temperatures can be as high as 40°C due to lack of cloud cover, and freezing at night.
- Inaccessibility – due to the sheer size of the desert it is often expensive and long distances for people to access the whole desert. Use of transport is limited due to poor quality roads and traditional use of camels
- Water supply – low annual rainfall (less than 70mm in some places) – unpredictable rainfall, and huge demand on rainfall/water means it is difficult to provide enough water for all.

Desertification is a huge threat to the desert ecosystem. As pressure is placed on land by human and physical factors such as:

- Removal of vegetation cover.
- Overgrazing.
- Uncontrolled fuel wood collection.
- Unsustainable farming practice and loss in fertility of soil.
- Excessive tree felling.

It can be reduced by:

- Appropriate technology (e.g. Stone Lines used to reduce soil erosion) & planting pits
- Tree planting (to hold soil in place)
- Water & soil management (E.g. restricting overuse of water for irrigating crops) Great Green Wall

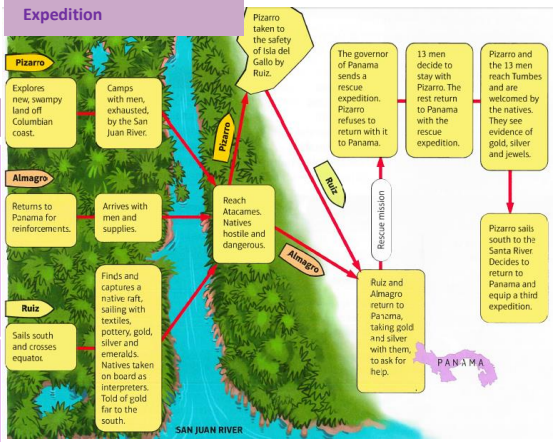
3. The Spanish Empire 1528-1555

Pizarro – First Expedition

Pizarro was with Balboa when they reached the Pacific. Pizarro was impressed by Cortes and his success in Mexico.
Tales of vast wealth in Peru encouraged Pizarro to find his own success.

November 1524 – First expedition
Not a success. Only reached Columbia before bad weather, lack of food and attacks by hostile natives forced Pizarro to turn back.
The mangrove swamps put off any idea of establishing a settlement too.

Pizarro's Second Expedition



Pizarro's appeal to the Spanish King Charles I

In 1528 Pizarro returned to Spain with evidence of Inca wealth, including Llamas, silver and gold.
Having been refused permission to launch a third expedition by the governor of Panama, he appealed to Charles I.
Pizarro received a licence, the *Capitulacion de Toledo*, in July 1529, authorising him to conquer Peru.

Pizarro and the Conquest of the Inca Empire

Date	Event
Dec 1518	Smallpox epidemic in Haiti.
Sept 1520	First cases of smallpox in Mexico
1525-1527	Smallpox spreads along the Caribbean coast.
1527	Smallpox reaches Peru. Huayna Capac dies from smallpox after returning to help his people.
1529	Civil War breaks out between Huascar and Atahuallpa (Huayna Capac's son).
April 1532	Huascar is captured and killed. Atahuallpa takes over Cuzco.
Nov 1532	The Battle of Cajamarca – Pizarro's men hid in the town square of Cajamarca. When Atahuallpa's men entered the town they met with a priest who showed them a bible. Atahuallpa threw the bible on the floor which was the signal needed for Pizarro's men to attack and they took Atahuallpa prisoner.
July 1533	Atahuallpa promised to fill his prison with treasure in order to secure his release. Although he did this, the Spanish still sentenced him to death. On 26th July he was garrotted.
1533	Manco made puppet ruler of the Inca Empire.

Revolt of the Incas 1536

The Spanish saw Manco as a puppet king who would rule on their behalf. When Manco escaped from the Spanish he assembled an army and attacked the base at Cuzco.

The Seige of Cuzco 1536-1537
-10,000 Inca warriors faced 150 Spanish and 1000 native allies.
-The Inca warriors broke into town , burning buildings to try to drive out the Spanish, but the Spanish were able to put the fires out.
-The Spanish used their cavalry to attack the Inca warriors.
-The Spanish captured the fortress of Sacsahuaman from the Incas, which the Inca army then besieged.
-The siege ended when Spanish forces exploring Chile returned.
-Manco withdrew and established a separate kingdom which lasted until 1572.

Governing the Empire

The Spanish needed to find a way to govern the discovered territories to restore peace and stability. They needed to make sure basic essentials were available, laws were in place, conquistadors didn't fight among themselves and ensure daily life was managed effectively.

Bartolome de las Casas – was a priest that tried to encourage the fair treatment of natives in the New World. 1527 he wrote a book 'A Short Account of the Destruction of the Indies'.

The New Laws:
- It was made illegal to enslave natives.
- The amount of tribute that could be collected was limited.
- Encomiendas had to be passed back to the Spanish government on the death of the encomendero.

The role of the Viceroys:
The Council of the Indies appointed two viceroys to govern Spanish territories: one in Mexico city and one in Lima (Peru).
They acted on behalf of the government.
Justice was managed through the audiencias (courts), with judges who were independent of the viceroys.

The role of the **encomienda system:**
This was imposed officially across the Spanish Empire.
An encomienda was land granted to a Spaniard, who was then called an encomendero. He could demand tribute from natives. In return he was responsible for their protection and their conversion to Christianity.

Significance of the New Laws 1542:
Laws introduce to improve the rights of native people, but encomenderos opposed them and the viceroy of Peru refused to implement them.
Revolts in Peru: the most serious in 1544 had to be put down by the Spanish government and led to a temporary halt in the Spanish conquest of the New World in 1550.
Although forced to suspend the laws, Charles I insisted encomiendas be passed back to the crown on the death of an encomendero. Natives continued to be exploited in the New World.

Impact of Gold and Silver on Spain

Used to make 8 sided coins – 'pieces of eight. Widely accepted in Europe due to high silver content.

The Crown took 25% of bullion coming into Spain .

75% of wealth went to Spanish merchants and conquistadors.

European traders put up prices for the wealthy Spanish merchants.

High prices led to inflation – workers demanded higher wages in Spain.

Charles I invested money in the military – not industry and business.

Spanish were getting wealthy by finding bullion instead of making products and selling.

Founding of La Paz, 1548

La Paz was founded to symbolise the end of the revolt and to demonstrate that Spain had the overall authority in the New World, not the conquistadors.
It became the administrative centre of the Spanish Empire. The Viceroy and the audiencias (courts) were based here.
It was founded close to trade routes to ensure it maintained control over the silver mines based in Potosi and Oruro.

Discovery of silver in Bolivia and Mexico

By 1550 silver had been discovered in Potosi (Bolivia) and in Guanajuato and Zacatecas (Mexico). Some was sent back to Spain but most was kept by the conquistadors.
Large mining towns developed to house workers for the mines.
Colonisation of the New World increased as adventurers, merchants, speculators and their employees came in search of wealth.
25% of silver shipped to Spain went straight into the treasury.

Conquistador Revolt in Peru 1544

A serious revolt took place as the encomenderos were unhappy with the New Laws. This revolt was led by Gonzalo Pizarro, brother of Francisco Pizarro.
It was a success and Gonzalo ruled over the Inca territory for 2 years.
The arrival of a Spanish army resulted in his execution and the restoration of Spanish authority.
The revolt raised the issue of control. Spain needed to govern its territories and control the rebellious conquistadors and encomenderos. This led to the founding of La Paz in 1548.

Pirates and Privateers

Spanish treasure was a target for Pirates and Privateers (funded by government/monarchy).

The ships were easy to find as they took well-defined and predictable routes across the Atlantic.

War with France (1542-46) meant Spain had to adapt ships and develop systems to deal with French privateers.

Galleons patrolled the sea routes and started carrying treasure as they were well armed.

Treasure fleet system developed: the **Tierra Firme** (went to S. America) and the **New Spain** (went to Mexico).

Growth of Seville
All goods imported to Europe had to go through Seville. Merchants travelled from all over Europe to buy and sell goods. This gave Spain a monopoly over trade with the New World.

The Slave Trade
Due to the number of deaths of natives in the New World, there was a labour shortage.
Under the Treaty of Tordesillas, Spain could not directly get slaves from W. Africa.
Spanish merchants could get licences (asientos) to supply slaves to the New World. Licences sold to the highest bidder who could then buy from Portuguese merchants and sell to merchants in the New World.

Casa de Contratacion (House of Trade)
Established in 1503 by Isabella. Collected colonial taxes. Approved voyages of exploration and trade and kept secret information on new lands and trade routes. Licenced captains of ships.
In theory, no Spaniard could sail anywhere without the approval of the Casa.

Council of the Indies
Formed in 1524 and based in Spain. Controlled all matters concerning the New World. Messages received from Viceroys would be discussed and advice given to the King. Decisions made were sent from the Council to the Viceroys. This was Spain's way of trying to maintain control over its empire in the New World.

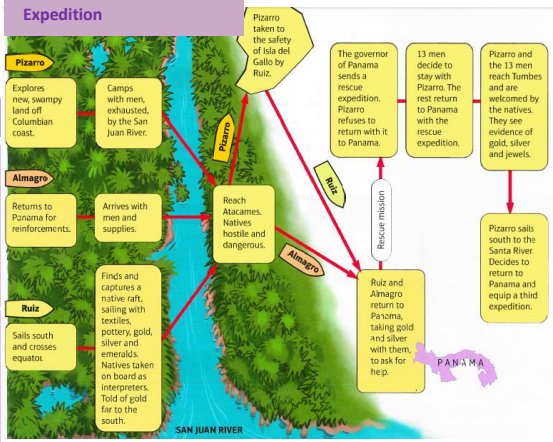
3. The Spanish Empire 1528-1555

Pizarro – First Expedition

Pizarro

November 1524 – First expedition

Pizarro's Second Expedition



Pizarro's appeal to the Spanish King Charles I

Pizarro and the Conquest of the Inca Empire

Date	Event
Dec 1518	
Sept 1520	
1525-1527	
1527	
1529	
April 1532	
Nov 1532	
July 1533	
1533	

Revolt of the Incas 1536

The Seige of Cuzco 1536-1537

-.

Governing the Empire

The Spanish needed to

Bartolome de las Casas –

The New Laws:

The role of the Viceroys:
(courts), with judges who were independent of the viceroys.

The role of the **encomienda system:**

Significance of the New Laws 1542:

Impact of Gold and Silver on Spain

Used to make 8 sided coins – 'pieces of eight. Widely accepted in Europe due to high silver content.

The Crown took 25% of bullion coming into Spain .

75% of wealth went to Spanish merchants and conquistadors.

European traders put up prices for the wealthy Spanish merchants.

High prices led to inflation – workers demanded higher wages in Spain.

Charles I invested money in the military – not industry and business.

Spanish were getting wealthy by finding bullion instead of making products and selling.

Founding of La Paz, 1548

Discovery of silver in Bolivia and Mexico

Conquistador Revolt in Peru 1544

Pirates and Privateers

Spanish treasure was a target for

The ships were easy to find as they took well-defined and predictable routes across the Atlantic.

War with France (1542-46) meant Spain had to adapt ships and develop systems to deal with French privateers.

Galleons patrolled the sea routes and started carrying treasure as they were well armed.

Treasure fleet system developed: the **Tierra Firme** (went to S. America) and the **New Spain** (went to Mexico).

Growth of Seville

The Slave Trade

Casa de Contratacion (House of Trade)

Council of the Indies

2. The Conquistadors 1513-1528

Balboa the Conquistador

1509
Balboa rescues Spanish expedition in trouble on mainland America.
1510
Founds first permanent settlement on mainland America, Santa Maria de la Antigua del Darien.
1511
Confirmed, by King Ferdinand, as captain general and governor of Darien.
1513
Expedition across Isthmus of Panama – finds the Pacific and claims it and surrounding lands for Spain.
1514
Plans an expedition to sail south on the Pacific. Replaced as governor by Pedrarias.
Arrested for treason, tried and beheaded.

Pedrarias and Espinosa: the significance of Panama

Pedrarias and Espinosa explored the south coast separately, but both ended up on the same point on the Pacific coast – this became Panama.
Panama significant because:
-Situated on Pacific coast – closest in distance to Nombre de Dios on the Caribbean Sea.
-a route between Panama and Nombre de Dios was the quickest way of moving goods, people and messages between the Pacific and the Caribbean sea.
-land surrounding Panama was fertile and had sea rich in fish.
-Panama was a port, well situated for Spanish treasure ships to off-load.

Velázquez conquers Cuba

1511 – Hatuey a native chief living in Haiti, flees to Cuba with 400 natives to escape Spanish cruelty. Velázquez and 300 conquistadors pursue them.

1512 – After strong native resistance, Hatuey is captured and burned alive.

1513 – Massacre at Canao – thousands of natives killed.

1514 – Conquest of Cuba complete. City of Santiago de Cuba founded and becomes capital of Cuba.

1515 – City of Havana founded.

Cortes' expedition to Mexico 1519

1519 February – Cortes sails from Cuba, despite Velázquez attempts to stop him.

March – Lands on Yucatan Peninsula and claims land for Spain.

April – Fights Tabascan natives and takes control of the city of Pontonchon. Makes peace with Tabascans. Given Malinche.

July – Re-establishes a Spanish settlement at Vera Cruz. Cortes also sinks his ships.

August – Cortes is met by cheering natives at Cempoala and allies with them.

September – Fights Tlaxcalans – enemies of the Aztecs – makes peace and allies with them.

Aztec religion

Quetzalcoatl

What beliefs did the Aztecs have towards the Spanish?

Some Aztecs wanted to treat Cortes and the Conquistadors as returning gods; others as dangerous invaders.
Aztecs worshipped many gods. They were usually connected to nature. Human sacrifices were common among the Aztecs.
The god Quetzalcoatl was the god of life. Aztecs believed he had vanished into the sea and would one day return.
Many Aztecs believed that Cortes and the conquistadors were returning gods.
Cortes and the conquistadors appeared from the same sea, and in the same spot, from which Aztecs believed Quetzalcoatl disappeared.

Magellan

Magellan and his ships managed to circumnavigate the world between 1519 and 1522 and claim the Phillipines for Spain.
This was important because:
- It meant that Spain could claim the Spice Islands – as they had found a western route to it.
- It brought prestige to Spain – Magellan and his ships were the first to complete a voyage of global circumnavigation.

Cortes removed as governor

Cortes had many enemies which were causing him problems back in Spain. In 1528 he was removed as governor because:
- Velázquez became a determined enemy.
- Rumours of greed reached the Spanish court.
- The king wanted to control Cortes.

In 1528 Cortes returns to Spain. Charles I was impressed with what Cortes had found but did not trust him. Cortes was no longer governor but he kept his land. An enemy of Cortes was installed so they could keep an eye on both, and to prevent one gaining too much power.

Date	Event
1519	
Feb	Cortes sails from Cuba
March	Lands on Yucatan peninsula and claims land for Spain
April	Fights Tabascan natives and takes control of Pontonchon. Makes peace with Tabascans. Given Mayan woman, Malinche.
July	Re-establishes Spanish settlement at Vera Cruz. Sinks his ships.
August	Met by cheering natives at Cempoala and allies with them.
Sept	Fights Tlaxcalans – enemies of the Aztecs – makes peace and allies with them.
October	Cortes and his forces massacre 3000 natives in the town of Cholula.
8th Nov	Cortes and his forces enter Tenochtitlan – welcomed by Montezuma.
14th Nov	Montezuma taken prisoner by Cortes – becomes a puppet emperor.
1520	
April	Spanish troops arrive at Vera Cruz under instructions from Velázquez, intending to arrest Cortes.
May	Cortes leaves Tenochtitlan to oppose Velázquez's troops. Cortes deputy, Alvarado, massacres thousands of Aztec nobles.
24-29 June	Spaniards trapped in Tenochtitlan as Aztecs rise against them.
29th June	Montezuma killed.
30th June	The Night of Tears: Spaniards are massacred as they flee from Tenochtitlan and spend nearly a year re-grouping and planning.
1521	
22nd May	Battle for Tenochtitlan begins.
1st Aug	Spaniards fight their way into the centre of Tenochtitlan.
13th Aug	Tenochtitlan falls to the Spaniards and the Aztecs surrender.

Cortes strengthens Spanish control

In the years to 1528, Cortes strengthened control in many ways:
-He continued killing Aztecs and natives that supported them.
-He took tribute from remaining Aztec chiefs.
-Tenochtitlan was rebuilt on the ruins of the Aztec city.
-He encourages exploration and establishment of new communities.
-Agriculture was developed.
-Industry was developed.
-He helped with the spread of Christianity.

Aztec priests killed

Temples pulled down

The Spanish impose the encomienda system of landholding

The fall of the Aztec Empire

Aztec leaders killed and Aztecs ruled by Spaniards

Millions of Aztecs die from smallpox

Christian priests and friars convert Aztecs to Christianity

Forced labour kills millions of Aztecs

2. The Conquistadors 1513-1528

Balboa the Conquistador

1509

1510

1511

1513

1514

Pedrarias and Espinosa: the significance of Panama

Velázquez conquers Cuba

1511 –	**1512 –**
1513 –	**1514 –**
1515 –	

Cortes' expedition to Mexico 1519

1519 February –	**March –**	**April –**
July –	**August –**	**September –**

Aztec religion

Quetzalcoatl

What beliefs did the Aztecs have towards the Spanish?

Magellan

Cortes removed as governor

Date	Event
1519	
Feb	
March	
April	
July	
August	
Sept	
October	
8th Nov	
14th Nov	
1520	
April	
May	
24-29 June	
29th June	
30th June	
22nd May	
1st Aug	
13th Aug	

Cortes strengthens Spanish control

Aztec priests killed

Temples pulled down

The Spanish impose the encomienda system of landholding

The fall of the Aztec Empire

Aztec leaders killed and Aztecs ruled by Spaniards

Millions of Aztecs die from smallpox

Christian priests and friars convert Aztecs to Christianity

Forced labour kills millions of Aztecs

Year 10 GCSE Religious Education KO - Islam Practices

Keywords	
Tawalla	Showing love for God and for those who follow Him
Tabarra	Disassociation with God's enemies
Khums	The obligation to pay one-fifth of acquired wealth
Lesser jihad	The physical struggle or holy war in defence of Islam
Greater jihad	The **daily** struggle and inner spiritual striving to live as a Muslim
Sunni	Muslims who believe in the successorship of Abu Bakr, Umar, Uthman and Ali as leaders after the Prophet Muhammad
Shi'a	Muslims who believe in the Imamah, leadership of Ali and his descendants
Niyyah	Intention during prayer - having the right intention to worship God
Du'a	A personal prayer that is done in addition to Salah e.g. asking Allah for help

What we are learning in this unit

A. The 5 Pillars and 10 Obligatory Acts
B. Salah
C. Sawm
D. Zakah
E. Hajj
F. Jihad
G. Id-ul-Adha
H. Id-ul-Fitr

A.	*5 Pillars of Islam and 10 obligatory acts*
What are the 5 pillars	• 5 key practices or duties for Muslims • Both Sunni and Shi'a keep these (Shi'a have them as part of the 10 obligations) • They are seen as pillars "holding up the religion" and are all of equal importance
What are the 10 obligatory acts	• There are 10 obligations for a Muslim according to the Shi'a branch of Islam. • These include prayer, fasting, almsgiving, pilgrimage, jihad, khums, directing others towards good, forbidding evil, tawalla and tabarra
Shahadah	• Shahadah is the first of the 5 pillars • It is the Muslim declaration of faith • ***"there is no God but Allah, and Muhammad is His messenger"*** • This is a statement that Muslims reject anything but Allah as their focus of belief • It also recognises that Muhammad has an important role and his life is an example to follow

	Jihad

Lesser Jihad	• Originated when Prophet Muhammad and early Muslims were being attacked and oppressed by the Meccans and had no choice but to engage
	• ***"Fight in the way of God those who fight against you but do not transgress"***
	• Conditions for declaration
	  • self-defense
	  • proportionate
	  • legitimate authority
	  • no harm to civilians

Greater Jihad	• A struggle within oneself to follow the teachings of Islam and be a better person • e.g. perform the Five Pillars, follow Sunnah and avoid temptation • ***"encourage what is right and forbid what is wrong"***

B.	*The 5 Pillars - Salah*
What is it?	• ***"Salah is a prescribed duty that has to be performed at the given time by the Qur'an"*** • ***Muslims pray 5 times per day and this allows them to communicate with Allah.*** • The prayers are done at dawn (fajr), afternoon • (zuhr), late afternoon (asr), dusk (maghrib) and night (isha) • Muslims face the holy city of Makkah when paying.
Wuzu	• The washing process to purify the mind and body for prayer • Muhammad said the key to Salah is cleanliness • Hands, arms, nose, mouth, head, neck and ears are cleaned as well as both feet up to the ankle.
Rak'ahs and recitations	• These are the movements that Muslims make during prayer • Takbir – raise hands to ears and say 'Allahu Akbar' • Qiyam – Standing, Muslims recite Surah • Then bow to the waist saying ***"Glory be to my Great Lord and praise be to Him"*** • Then sink to their knees saying ***"Glory be to my Lord, The Most Supreme...".***
Salah at home	• Salah is a big part of family life • Meals and other activities are usually scheduled to fit around prayer times • Families pray all together and might have a room set aside for prayer
Salah in the mosque	• All mosques have a qiblah wall which is to show where to face Makkah • Men and women pray in separate rooms at the Mosque
Jummah	• Jummah is congregational prayer held on a Friday at the mosque where the imam leads the prayer • Praying together as a community develops the feeling of unity amongst Muslims • Men are obliged to attend unless they are sick or too old • Women do not have to go – they may pray at home instead
Differences between Sunni and Shi'a	• Shi;a Muslims combine some prayers so they may only pray 3x a day • Shi'a use natural elements e.g. clay where their head rests

Year 10 GCSE Religious Education KO - Islam Practices

Keywords	
Tawalla	
Tabarra	
Khums	
Lesser jihad	
Greater jihad	
Sunni	
Shi'a	
Niyyah	
Du'a	

What we are learning in this unit

A. The 5 Pillars and 10 Obligatory Acts
B. Salah
C. Sawm
D. Zakah
E. Hajj
F. Jihad
G. Id-ul-Adha
H. Id-ul-Fitr

A.	*5 Pillars of Islam and 10 obligatory acts*
What are the 5 pillars	
What are the 10 obligatory acts	
Shahadah	

	Jihad
Lesser Jihad	
Greater Jihad	

B.	*The 5 Pillars - Salah*
What is it?	
Wuzu	
Rak'ahs and recitations	
Salah at home	
Salah in the mosque	
Jummah	
Differences between Sunni and Shi'a	

Year 10 GCSE Religious Education KO - Islam Practices

	The 5 Pillars - Zakah
The role of giving alms	• ***Muslims believe it is their duty to ensure Allah's wealth has been distributed equally as everyone is the same*** • The Qur'an commands to give to those in need
The significance of giving alms	• Giving 2.5% of savings/wealth to charity • Wealth can cause greed which is evil, so Zakah purifies wealth – wealth is given by God and must be shared • The Prophet Muhammad practiced Zakah as a practice in Medina • Given to the poor, needy and travellers • ***Sadaqah*** is giving from the heart out of generosity and compassion
Khums	• Shi'a Islam – one of the 10 obligatory acts • 20% of any profit earned by Shi'a Muslims paid as a tax • Split between charities that support Islamic education and anyone who is in need • ***"know that whatever of a thing you acquire, a fifth of it is for Allah, for the Messenger, for the near relative, and the orphans, the needy, and the wayfarer"***

	The 5 Pillars - Hajj
The role of pilgrimage	• A pilgrimage to Makkah which is compulsory for Muslims to take at least once as long as they can afford it and are healthy
The significance of pilgrimage	• God told Ibrahim to take his wife and son on a journey and leave them without food or water • Hajira ran up and down two hills in search of water, could not find any and prayed to God. Then water sprung from the ground. This is the Zamzam well • When Ibrahim returned he was commanded to build the Ka'ba as a shrine dedicated to Allah • Hajj is performed in the month of Dhu'l-Hijja
Actions	• Ihram – dressing in two pieces of white cloth • Circling the Ka'aba 7 times (tawaf) • Drinking water from the Zamzam well like Hajar • walking between Al-Safa and Al-Marwa hills seven times • Throwing stones at 3 pillars (jamarat) to represent casting out the devil and remembering Ibrahim throwing stones at the devil to drive him away • Asking Allah for forgiveness at Mt Arafat • Collecting pebbles at Muzdalifah

	The 5 Pillars - Sawm
The role of fasting	• Fasting during Ramadan (9th month in Muslim calendar) • Muslims give up food, drink, smoking and sexual activity in daylight hours • Pregnant people, children under 12, travellers and elderly people are exempt from fasting.
The significance of fasting	• Ramadan is believed to be the month that Prophet Muhammad began to receive revelations of the Qur'an • Helps Muslims to become spiritually stronger
Reasons for fasting	• Obeying God and exercising self-discipline • Develops empathy for the poor • Appreciation of God's gifts • Giving thanks for the Qur'an • Sharing fellowship and community with other Muslims
Night of power	• The night when the Angel Jibril first appeared to Muhammad and began revealing the Qur'an. • The most important event in history – ***"better than a thousand months" (Surah 97:3)*** • Laylat Al-Qadr is the holiest night of the year. Muslims try to stay awake for the whole night to pray and study for the Qur'an

	Id-ul-Adha, Id-ul-Fitr, Ashura
Id-ul-Adha Not an official holiday in UK	• ***Festival of sacrifice*** • Marks the end of Hajj and is a chance for whole Ummah to celebrate • ***Origins*** – Ibrahim's commitment to God in being willing to sacrifice his son, Ishmael. God was testing Ibrahim • ***Key events –*** new clothes, sacrificing an animal, visiting the Mosque. • People ask a butcher to slaughter a sheep for them and share the meat with the community
Id-ul-Fitr Public holiday in Muslim majority countries, not UK	• ***Festival of fast-breaking*** • Marks the end of Ramadan • ***Key events –*** Decorate homes with colourful light and banners, dress in new clothes, gather in Mosques, give gifts and money, give to the poor • ***Zakah ul-Fitr –*** donation to the poor so that everyone can eat a generous meal at the end of Ramadan.
Ashura	• Sunni celebration – many fast on this day which was established by Prophet Muhammad • Shi'a mourning – Husayn was murdered and beheaded. Muslims remember his death and betrayal • ***Key events –*** public displays of grief, day of sorrow, wear black, re-enactments of martyrdom, not a public holiday in Britain but Muslims may have day off school

Year 10 GCSE Religious Education KO - Islam Practices

	The 5 Pillars - Zakah
The role of giving alms	
The significance of giving alms	
Khums	

	The 5 Pillars - Sawm
The role of fasting	
The significance of fasting	
Reasons for fasting	
Night of power	

	The 5 Pillars - Hajj
The role of pilgrimage	
The significance of pilgrimage	
Actions	

	Id-ul-Adha, Id-ul-Fitr, Ashura
Id-ul-Adha Not an official holiday in UK	
Id-ul-Fitr Public holiday in Muslim majority countries, not UK	
Ashura	

GCSE Unit 10 SPANISH Knowledge organiser.
Topic Life at School and College

What we are learning this term:

A. Talking about your school and daily routine
B. Talking about school rules and uniform
C. Translating into English
D. Revising 'se debe', 'hay que', 'tener que'
E. Using questions to help your answer
F. Using quantifiers and intensifiers

6 Key Words for this term

1. acabar de
2. actuar
3. la ausencia
4. demostrar
5. las instalaciones
6. el maquillaje

10.1G El día en el instituto

acabar de	to have just done something
actuar	to perform
el aire libre	the open air
aislado/a	isolated
el/la alumno/a	pupil
aprender	to learn
la asignatura	subject
el bachillerato	A-level equivalent
el bocadillo	sandwich
bonito	lovely
campo de deportes	sports field
la clase	class
el/la compañero/a	classmate
corto/a	short
durar	to last
empezar	to start, to begin
el equipo	team, equipment
el estante	shelf
la evaluación	assessment
funcionar	to work, to function
ganar	to win
ir al baño	to go to the bathroom
el juego de mesa	board game
la hora de comer	lunch hour
el laboratorio	laboratory
la obra de teatro	play
la opción	option
la oportunidad	opportunity
pasar la lista	to take the register
el producto químico	chemical

10.1F Las reglas y el uniforme

la agenda	diary, planner
el apellido	surname
el artículo	article
la ausencia	absence
buscar	to look for
el chicle	chewing gum
el daño	harm
dejar	to let, allow
demostrar	to show, demonstrate
el edificio	building
escolar	school (adj.)
firmar	to sign
el individuo	individual
las instalaciones	facilities
el intercambio	exchange
llevar	to take, carry, wear
el maquillaje	make up
los materiales	materials
mientras	while
el nombre	name
la palabra	word
el pasillo	corridor
el pendiente	earring
ponerse en contacto	to get in touch
prohibido	prohibited, banned
la puntualidad	punctuality
la regla	rule
el respeto	respect
sufrir	to suffer
traer	to bring
el trayecto	journey
el uniforme	uniform

Key Verbs

Acabar de To have just finished	Mejorar To improve	Maquillarse To put makeup on oneself	Hacer – to do/make	Ofrecer To offer
Acabo de I have just finished	Mejoro I improve	Me maquillo I put make up on	Hago I do	Ofrezco I offer
Acabas de You have just finished	Mejoras You improve	Te maquillas You put make up on	Haces You do	Ofreces You offer
Acaba de He/she it has just finished	Mejora He/she/ it improves	Se maquila He/she/it puts make up on	Hace s/he does	Ofrece He/she/it offers
Acabamos de We have just finished	Mejoramos We improve	Nos maquillamos We put make up on	Hacemos We do	Ofrecemos We offer
Acaban de They have just finished	Mejoran They improve	Se maquilan They put make up on	Hacen They do	Ofrecen They offer

10.1H Lo bueno y lo malo del instituto

el acoso	bullying
aguantar	to put up with
aislado/a	isolated
alegrar up	to brighten up, to cheer
aprobar	to pass an exam
el aspecto	appearance
la calefacción	heating
el castigo	punishment
el comportamiento	behaviour
la conducta	behaviour
corregir	to mark, to correct
cumplir con	to fulfil
en cuanto a	as regards
encenderse	to be turned on
enfadado/a	angry
enseñar	to teach, show
el equipo	equipment
la espalda	back
el estante	shelf
la explicación	explanation

10.1H Lo Bueno y lo malo del instituto

travieso/a	naughty, badly behaved
el trimestre	term
ya que	since, as
el fracaso	failure
golpear	to hit
hace falta	it is necessary
incómodo/a	uncomfortable
la intimidación	bullying
la pizarra	digital smartboard
mejorar	to improve
molestar	to disturb, to annoy
el ocio	leisure
la pared	wall
recordar	to remember
el repaso	revision
sucio/a	dirty
tardar	to take time, to delay

GCSE Unit 10 SPANISH Knowledge organiser.
Topic Life at School and College

What we are learning this term:

A. Talking about your school and daily routine
B. Talking about school rules and uniform
C. Translating into English
D. Revising 'se debe', 'hay que', 'tener que'
E. Using questions to help your answer
F. Using quantifiers and intensifiers

6 Key Words for this term

1. acabar de
2. actuar
3. la ausencia
4. demostrar
5. las instalaciones
6. el maquillaje

10.1G El día en el instituto

_____	to have just done something
_____	to perform
el _____	the open air
aislado/a	_____
el/la alumno/a	_____
aprender	to _____
la _____	subject
el _____	A-level equivalent
el bocadillo	_____
bonito	_____
campo de deportes	_____
la _____	class
el/la compañero/a	_____
corto/a	_____
_____	to last
_____	to start, to begin
el equipo	_____
el _____	shelf
la evaluación	_____
_____	to work, to function
ganar	_____
_____	to go to the bathroom
el juego de mesa	_____
la hora de comer	_____
_____	laboratory
la obra de teatro	_____
la _____	option
la oportunidad	_____
_____	to take the register
el producto químico	_____

10.1F Las reglas y el uniforme

_____	diary, planner
el apellido	_____
el artículo	_____
la _____	absence
buscar	_____
el _____	chewing gum
El_____	harm
dejar	_____
_____	to show, demonstrate
el _____	building
_____	school (adj.)
firmar	to _____
el _____	individual
las instalaciones	_____
el intercambio	_____
_____	to take, carry, wear
el maquillaje	_____
los materiales	_____
_____	while
el nombre	_____
la _____	word
el pasillo	_____
el pendiente	_____
ponerse en contacto	to _____
_____	prohibited, banned
la puntualidad	_____
la _____	rule
el _____	respect
sufrir	to _____
_____	to bring
el trayecto	_____
el uniforme	_____

Key Verbs

_____ To have just finished	Mejorar To improve	Maquillarse To put makeup on oneself	_____ to do/make	Ofrecer To offer
_____ I have just finished	_____ I improve	Me maquillo I put make up on	_____ I do	Ofrezco _____
Acabas de You have just finished	_____ You improve	Te maquillas _____ _____	Haces _____	_____ You offer
Acaba de He/she it has just finished	Mejora He/she/ it improves	Se maquila He/she/it puts make up on	Hace s/he does	_____ He/she/it offers
Acabamos de _____	_____ We improve	Nos maquillamos _____	Hacemos We do	_____ We offer
Acaban de They have just finished	Mejoran They improve	Se maquilan They put make up on	Hacen They do	Ofrecen They offer

10.1H Lo bueno y lo malo del instituto

el _____	bullying
_____	to put up with
aislado/a	_____
_____	to brighten up, to cheer
up	_____
_____	to pass an exam
el aspecto	_____
la _____	heating
el castigo	_____
el comportamiento	_____
la _____	behaviour
_____	to mark, to correct
cumplir con	to _____
en cuanto a	_____
_____	to be turned on
enfadado/a	_____
_____	to teach, show
el equipo	_____
la _____	back
el estante	_____
la _____	explanation

10.1H Lo Bueno y lo malo del instituto

_____	naughty, badly
behaved	_____
el trimestre	since, as
_____	_____
el fracaso	to hit
_____	_____
hace falta	uncomfortable
_____	_____
la intimidación	digital smartboard
la _____	to improve
_____	to disturb, to annoy
_____	_____
el ocio	wall
la _____	to remember
_____	_____
el repaso	dirty
_____	to take time, to delay
_____	

GCSE Unit 10 SPANISH Knowledge organiser. Topic Life at School and College

Translation Practice. G – blue F – orange H - Green	
Irene _____ porque estudió muy poco	Irene **failed** because she studied very little
No practicamos _____ atletismo.	We don't practise **much** athletics.
Cuando _____ de clase hay mucha gente	When **we change** class there are too many people
No _____ bastantes ordenadores	**We don't have** enough computers
El instituto está _____ lejos	The school is **too** far away
Hay _____ posibilidades de estudiarlo	There are **few** possibilities to study it
Hay ____ llevar uniform	**You have to** wear a uniform
No _____ usar el móvil	**We cannot** use mobile phones
No _____ fumar	You **must** not smoke
Me gustaría _____ para ir al colegio	I would like **to put makeup on** to go to school
Soy educado y _____	I am polite and **considerate**
Odio _____ los deberes en casa	I hate **doing** homework at home
Hay muchas _____ entre los dos	There are many **differences** between the two
Las aulas _____ ser más grandes	The classrooms **ought** to be bigger
Debería _____ más ordenadores	There ought **to be** more computers
Deberían _____ una piscina	They ought **to build** a swimming pool
He _____ mis estudios	I have **finished** my studies
Han _____ a casa	They have **returned** home

Key Questions: Answer the following in your own words. Use these model answers	
¿Qué crees que es lo peor / lo mejor aspecto del instituto?	El mejor aspecto del colegio es … porque … El peor aspecto del colegio es … porque …
¿Qué cambiarías de tu colegio si tuvieras la oportunidad?	Si tuviera la oportunidad, cambiaría/me gustaría cambiar las reglas. Me gustaría cambiar el uniforme porque me parece que es tan feo, me gustaría cambiar las reglas porque son demasiadas estrictas, me gustaría cambiar unos profesores porque son tan antipáticos
En tu opinión, ¿cuáles son las características más importantes de un buen profesor?	En mi opinión, un buen profesor es siempre simpático, nunca malhumorado, es de vez en cuando gracioso, es comprensivo y cariñoso, es siempre alegre y no es nunca antipático
¿Cómo es tu colegio, las reglas, los edificios, las instalaciones?	Mi colegio es un colegio grande que tiene circa ochocientos alumnos. Está en las afueras de Swindon en los barrios de Pinehurst y Penhill. Tenemos una biblioteca nueva, una cantina acogedora, un patio grande … En el colegio no debes comer chicle, no debes acosar, no tienes que gritar, no deberías comportarse mal… En el colegio tienes que comportarse bien, llevar el uniforme, ir al baño solo durante el recreo, llegar al colegio a hora ….

Key Grammar	
Forming the preterite (past tense). Always remove the –AR, -ER, -IR endings first	Remember the preterite (past) tense endings for –AR, -ER, -IR verbs. They are: -AR: -é, -aste,-ó, -amos, -astéis, -aron -ER: -í, -íste, -ió, -imos, -istéis, - ieron -IR : -í, -iste, -ió, -imos, -istéis, - ieron
Forming the conditional ('would like to' tense). Always remove the –AR, -ER, -IR endings first	Remember the conditional ('would') tense endings for –AR, -ER, -IR verbs. They are: -AR, -ER, -IR: -ía, -ías, -ía, -íamos, -íais, -ían
Using the immediate future tense IR + A + INFINITIVE	Voy a casarme = I'm going to get married Va a discutir con su padre = He / She is going to argue with his/her father
Perfect Tense *('have done…')* Formed with the verb '**haber**':	Formed with the verb '**haber**': he, has, ha, hemos, habéis, han + past participle: -ar: **-ado** -er/ir: **-ido** e.g. *He estudiado = I have studied*

GCSE Business. Paper 2. 8. Making Financial Decisions

1. Gross Profit Margin	
	Explanation
Gross profit	Gross profit is the difference between a product's selling price and what it costs the business to manufacture/purchase.
Gross profit margin	The percentage of gross profit made from the sales revenue for a product.
Gross profit margin calculation.	Gross profit margin = $\frac{\text{Gross Profit}}{\text{Sales revenue}} \times 100$

2. Net Profit Margin	
There are three main types of production:	
Type of Production	Advantages and Disadvantages
Job Production	Advantages: Highly flexible; gives the customer exactly what they want. Disadvantages: High production costs. Skills may be in short supply, making it hard for the business to grow
Batch Production	Advantages: Gain some cost advantages from producing several items at once…yet still able to offer customers the colour/size they want Disadvantages: May be limited scope for automation, making production costs far higher than with flow production. Not as flexible as job production.
Flow Production	Advantages: Can automate production fully, making it highly cost effective (which should be good for customers as well as suppliers). Many customers value consistency, and flow will provide an identical product each time. Disadvantages: Likely to be expensive to set up and inflexible to use; could be a disaster if a product life cycle proves much shorter than expected. Lacks flexibility in terms of meeting individual customer needs.

2. Procurement – Working with Suppliers	
There are five main factors at the heart of a relationship between a company and its suppliers:	
Quality	Suppliers must supply high quality products to businesses, suppliers will struggle to maintain a good relationship with a company if they are not supplying good durable products. First and fore most suppliers must supply high quality materials to businesses.
Delivery	Suppliers must deliver on time to clients, there is little point supplying at the right price and with the right product, if the product doesn't arrive on time. Failing to deliver supplies on time can bring manufacturing to a halt or leave shops with empty shelves.
Availability	Suppliers must be available and able to cope with varying orders in a timely fashion and sometimes within a short timeframe. Suppliers must be flexible and aware of the needs of their customers.
Cost	Cheaper supplies mean lower variable costs and higher profit margins. Therefore, the price charged by a supplier will be a key factor in the relationship between a firm and its suppliers. Price to highly and firms may look to alternative suppliers, price to low and firms may question the quality of merchandise. Pricing is key to the relationship between supplier and firm.
Trust	Trust is key for the relationship between firm and supplier. Most business transactions are on credit and not cash – therefore suppliers have to be able to trust that a firm will make a profit and be able to pay them back in cash.

8. Placing Strategy – Managing Quality within a Business	
Type of Quality Control	Explanation:
Quality Control	Quality control is a system of inspection to try to make sure that customers don't experience a poor-quality product or service. Such controls may include Factory Inspectors at the end of a production line checking the quality of a product
Quality Assurance	Quality Assurance describes the system put into place by a company to assure quality within the production system. Every member of staff will have responsibilities to quality assure products. Over time this should lead to quality products as people become better at their roles.
Quality Culture	Quality culture means the general attitudes and behaviours among staff within a workplace is focussed on high quality production. Quality culture describes motivated, punctual, diligent and invested employees who care about the business and strive to improve it.

9. The Sales Process	
Term	Definition
Customer Engagement	The attempt to make a customer feel part of something rather than an outsider.
Customer Feedback	Comments, praise or criticisms given to the company by its customers
Post-Sales Service	Service received after the purchase is completed because something has gone wrong or as a way of promoting customer engagement
Product Knowledge	How well staff know all the features of the products and service issues surrounding the products.

9. Customer Service	
Great Customer Service is pivotal to any successful business, but there is far more than that to the sales process. To succeed in sales, a business must make sure it provides:	
Component of Customer Service	Term
Product Knowledge	Customers expect that staff will be sufficiently well trained and well-motivated to have good knowledge of the products and services being offered. In order to ensure staff, have good product knowledge, certain things are essential: Good Training – if businesses provide good training to staff, then staff will be knowledgeable about products and therefore will be able to improve the customer experience Loyal Staff – The longer staff stay working in a job the better they become. If staff only stay three to six months, they will never develop a rich understanding of the products and services that the business provides. Well managed businesses pay fairly and treat staff with respect. Committed Staff – Committed and enthusiastic staff are crucial to the smooth running of any business. This is affected by the quality of recruitment, the standard of training and the overall culture that exists within the company's workforce.
Speedy and Efficient Service	Good customer service is designed for the customer not the company. Efficient service: Gets products to customers exactly when you want them Gets products to customers in good condition If there is anything wrong - it will be sorted out as soon as possible and considerately
Customer Engagement	In the world of social media, it becomes possible to try to keep customers engaged with the business on a regular basis. Companies engage customers in a variety of ways: E-Mail Social Media (Facebook and Instagram) Post Text Television/Web advertisements. It is vital that customers feel up to date and informed about any product innovations
Responses to Customer Feedback	How companies respond to customer feedback is vital, providing great customers service where people feel listened too ensures customers continue to come back and buy products from the business. It can cost a lot of money to persuade new customers to come advertising is expensive and it's affects are hard to judge. Building up a reputation for responding to customer feedback can travel by word of mouth and this is much cheaper.

Y11 Computer Science Term 3

Law	Content	Details
Computer Misuse Act of 1990.	<table><tr><th>Offence</th><th>Penalty</th></tr><tr><td>Unauthorised access to computer material</td><td>Up to six months in prison and/or an up to a £5,000 fine</td></tr><tr><td>Unauthorised access to computer materials with intent to commit a further crime</td><td>Up to a five-year prison sentence and/or an unlimited fine</td></tr><tr><td>Unauthorised modification of data</td><td>Up to a five-year prison sentence and/or an unlimited fine</td></tr><tr><td>Making, supplying or obtaining anything which can be used in computer misuse offences</td><td>Up to a ten-year prison sentence and/or an unlimited fine</td></tr></table>	Last updated in 2018. Intent has an impact on the penalty received.
Data Protection Act 1998.	Controls how your personal information is used by organisations, businesses or the government. Under the Data Protection Act 2018, you have the right to find out what information the government and other organisations store about you. These include the right to: be informed about how your data is being used, access personal data, have incorrect data updated, have data erased, stop or restrict the processing of your data, data portability (allowing you to get and reuse your data for different services), object to how your data is processed in certain circumstances.	Last updated in 2018.
GDPR General Data Protection Regulation.		Applies to all EU citizens and companies wishing to sell products to or have data on EU citizens. Has become the international standard
Investigatory Powers Bill 2016	Requires companies and internet service providers to store records on emails and browsing histories. It also gives the authority for police and security services to access computers and phones to search for data.	Requires a warrant for police to search through or utilise the data.
Copyright, Designs and Patents Act	As soon as something is created, it becomes intellectual property and is protected by copyright. In the case of software, the copyright holder can choose to sell and license it (proprietary) or give that right away (open-source).	Does not apply to algorithms (flowcharts/ pseudocode) but real code.

Y11 Computer Science Term 3

Term	Definition
E-Waste	Electronic Waste consisting of digital products.
Planned Obsolescence	Producing goods which are designed to become rapidly obsolete and require replacement. This can be achieved by frequent changes in design, termination of the supply of spare parts and the use of non-durable materials.
Ethical Concerns	Cover two categories, ensuring public safety and the security of data.

Database Terms	Meaning
Big Data	Extremely large sets of data. Often gathered from many different sources for analysis. Used to make predictions based on the patterns identified in the data.
Data Mining	Analysing large amounts of data to predict future events and trends. With so much data available, people and companies who are able to analyse and understand it all are in high demand.
Open Data	Large sets of data which are shared freely. Often comes from organisations like the government, allowing anyone to look at and analyse their data
Data Security	Companies and organisations storing a user's personal data are legally obliged to ensure it is secure. To achieve this, encryption is commonly used in databases.
Flat-File Database	A flat-file database is a database that only has one table. Often saved as a CSV file (Comma Separated Values). It is useful because it is highly compatible between databases and other applications.
Relational Database	A database consisting of multiple tables, each of which holds data about one entity type, which are linked together through relationships.
Attributes / Fields	The characteristics of an entity, used as column headings in a table. Often different data types.
Record	A row in the table which contains the full collection of data for one entity.
Entity	An object, e.g. a person or item. They are the subject whose attributes are stored as records.
Primary Key	Unique identifier for each record. Normally just a unique number or mix of number and letters which means a record cannot be duplicated.
Foreign Key	An attribute/field used in a table which is the primary key from another table.
Normalisation	The process of analysing a database to find how redundancy can be reduced, making the database more efficient by breaking down the data into separate tables and using relationships to link them.

SELECT – Defines which fields we are looking for.
FROM – Defines which table we are looking in.
WHERE – Defines the parameters we're looking for.
ORDER BY – Defines how we're sorting our results.

```
CREATE TABLE tblExample(
    FieldName DATATYPE,
    FieldName2 DATATYPE,
    PRIMARY KEY (FieldName));
```

Example:

```
SELECT GameName, DeveloperID
FROM GameTable
WHERE DeveloperID = "Bethesda"
ORDER BY GameName DESC;
```

Year 11 PRODUCT DESIGN Term 2

What we are learning this term:

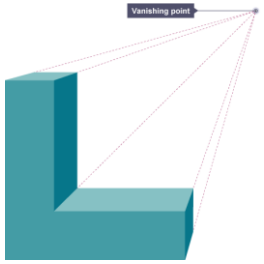
A. One-Point Perspective B. Two-point Perspective C. Isometric Drawing
D. Exploded Drawing E. Oblique Drawing F. CAD G. Orthographic Drawing

Design Strategies Introduction.

Design strategies are used to create technical drawings, to show an object in 3D on a 2D page. Perspective drawings show an object getting smaller in the distance. The rest are done to scale.

A. One-point Perspective Drawing

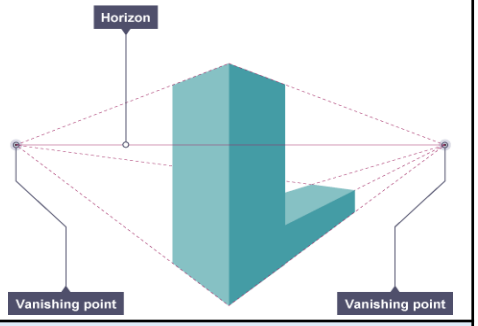
Single-point perspective shows an object from the front in a realistic way. The front view goes back towards a vanishing point on the horizon.



Commonly used by interior designers to a show a view into a room.

B. Two-point Perspective Drawing

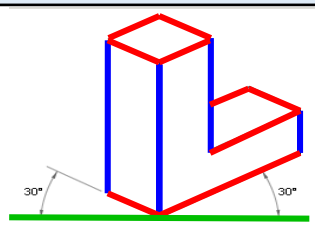
Two-point perspective shows an object from the side with two vanishing points. It gives the most realistic view of a product as it shows the item edge on, as we would see it. It is often used to produce realistic drawings of an object.



Commonly used by architects to show realistic building ideas.

C. Isometric Technical Drawing

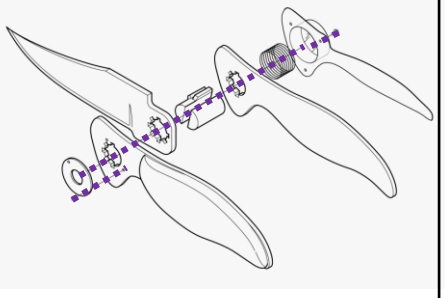
Made up of a series of parallel **vertical lines** and parallel **30-degree lines**. But no **horizontal lines.**



Used by architects and engineers to communicate their ideas to the client and manufacturer.

D. Exploded Technical Drawing

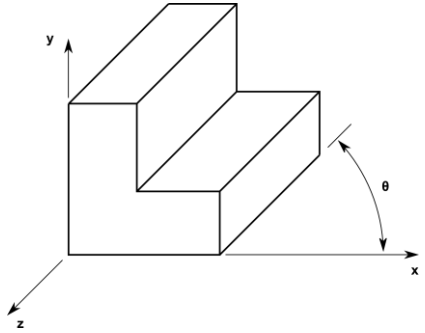
Exploded technical drawing is an Isometric drawing of all the parts and components of an object.



All parts are shown separately so you can see all aspects. **Dashed lines** indicate where everything goes and in what order.

E. Oblique Technical Drawing

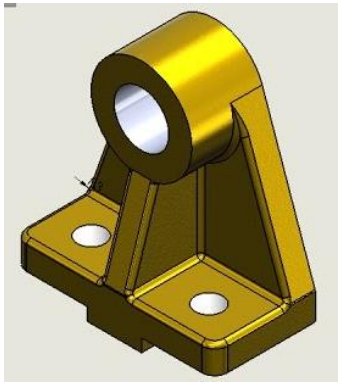
Consists of an object where the front view is drawn flat with height and width of the object draw to the correct lengths. Diagonal lines are drawn at 45-degrees.



Commonly used by engineers for drafting ideas.

F. CAD (Computer Aided Design)

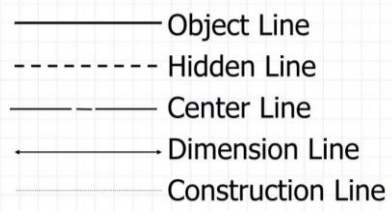
This is designing using a computer using a software such as 2D Design or Solidworks.



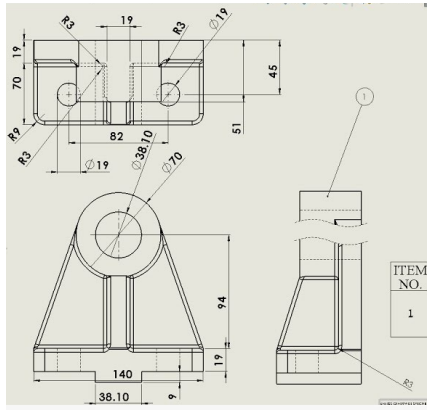
Commonly used to model, test and develop an idea before manufacture.

G. Orthographic Projection – 2D NOT 3D Drawing Strategy!

This shows 2D views of a 3D object from different angles – front, plan and end. Lines are dimensions have specific meaning to avoid confusion.



Commonly used in industry to help the manufacturer understand the design.



Year 11 PRODUCT DESIGN Term 2

What we are learning this term:

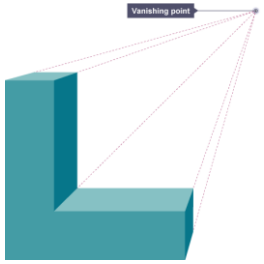
A. One-Point Perspective B. Two-point Perspective C. Isometric Drawing
D. Exploded Drawing E. Oblique Drawing F. CAD G. Orthographic Drawing

Design Strategies Introduction.

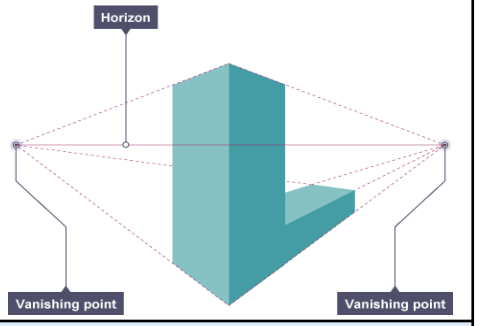
Design strategies are used to create technical drawings, to show an object in 3D on a 2D page. Perspective drawings show an object getting smaller in the distance. The rest are done to scale.

A. One-point Perspective Drawing

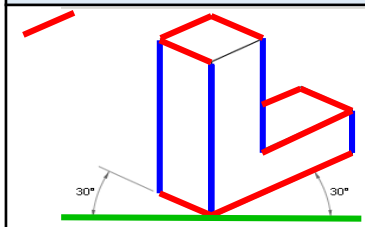
.



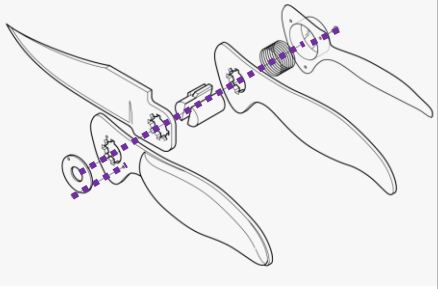
B. Two-point Perspective Drawing



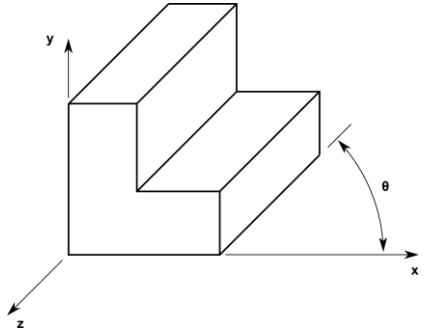
C. Isometric Technical Drawing



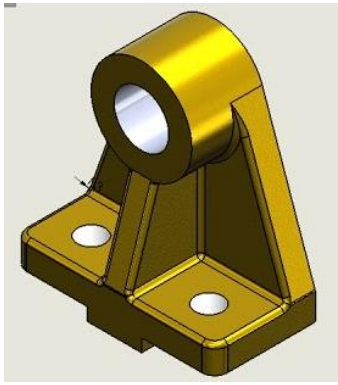
D. Exploded Technical Drawing



E. Oblique Technical Drawing

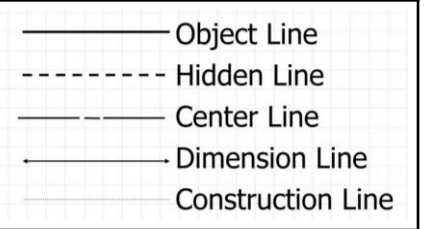


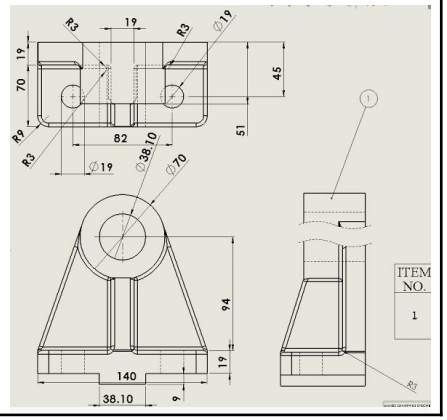
F. CAD (Computer Aided Design)



.

G. Orthographic Projection – 2D NOT 3D Drawing Strategy!





Food spoilage, contamination and food poisoning

Food spoilage
As soon as food is harvested, slaughtered or processed it starts to change. This happens for two main reasons:
•autolysis – self destruction, caused by enzymes present in the food;
•microbial spoilage – caused by the growth of micro-organisms, i.e. bacteria, yeasts and moulds.

Food spoilage: Autolysis – enzymes
Enzymes are chemicals which can cause food to deteriorate in three main ways:
•ripening – this will continue until the food becomes inedible, e.g. banana ripening;
•browning – enzymes can react with air causing certain foods, e.g. apples, to discolour;
•oxidation – loss of nutrients, such as vitamin C from food, e.g. over boiling of green vegetables.

Food spoilage: Microbial spoilage
Spoilage can be caused by the growth of:
•bacteria – single celled micro- organisms which are present naturally in the environment;
•yeasts – single celled fungi;
•moulds – fungi which grow as filaments in food.

Food contamination
Food contamination can lead to food poisoning. There are three ways which food can be contaminated: **bacterial**, **chemical** and **physical**.

Chemical contamination
Chemical contamination can occur in a variety of ways at different stages of food processing and production. For example, chemicals from the farm; cleaning products used in the processing plant and fly spray used in the kitchen.

Physical contamination
This can occur in a variety of ways at different stages of food processing and production. Some examples are:
•soil from the ground when harvesting;
•a loose bolt from a processing plant when packaging;
•a hair from a chef in the kitchen.

Bacterial contamination
Most bacteria are harmless but a small number can cause illness. These are known as pathogenic bacteria. Food which is contaminated with pathogenic bacteria can look, taste and smell normal.
Bacteria can be transferred onto food through cross-contamination, via equipment, people or pests, or can be naturally present in the food.
Some bacteria can produce toxins which can cause food poisoning.

Micro-organisms
Micro-organisms need conditions to survive and reproduce these can include:
•temperature;
•moisture;
•food;
•time;
•oxygen and pH level.

Temperature
Bacteria need warm conditions to grown and multiply.
•The ideal temperature for bacterial growth is 30ºC – 37ºC.
•Some bacteria can still grow at 10ºC and 60ºC.
•Most bacteria are destroyed at temperatures above 63 ºC.
•Bacterial growth danger zone is 5ºC - 63ºC.
At very cold temperatures, bacteria become dormant – they do not die, but they cannot grow or multiply.

Moisture
Where there is no moisture bacteria cannot grow. However, bacteria and moulds can both produce spores which can survive until water is added to the food.

Food
Bacteria need a source of food to grow and multiply, these food are usually high in moisture, fat and protein, and may be ready to eat. Food where bacteria rapidly multiple in is called a **high risk food**. For example:
•meat, meat products and poultry;
•milk and dairy products;
•eggs – uncooked and lightly cooked;
•shellfish and seafood;
•prepared salads and vegetables;
•cooked rice and pasta.

Time
Given the right conditions, one bacterium can divide into two every 10-20 minutes through a process called binary fission.

People at high risk of food poisoning
Elderly people, babies and anyone who is ill or pregnant needs to be extra careful about the food they eat.

Symptoms of food poisoning
Food poisoning can be mild or severe. The most common symptoms are:
•feeling sick;
•being sick;
•diarrhoea;
•abdominal pain.

Campylobacter
Sources
Raw and undercooked poultry, unpasteurized milk, contaminated water.
Signs and symptoms
Onset 2 – 5 days (can be longer). Fever, headache and dizziness for a few hours, followed by abdominal pain.

E Coli 0157
Sources
Raw and undercooked meat and poultry. Unwashed vegetables. Contaminated water.
Signs and symptoms
Onset usually 3-4 days. Diarrhoea, which may contain blood, can lead to kidney failure or death.

Listeria
Sources
Unpasteurised milk and dairy products, cook-chill foods, pate, meat, poultry and salad vegetables.
Signs and symptoms
Onset 1-70 days. Ranges from mild, flu-like illness to meningitis, septicaemia, pneumonia.
During pregnancy may lead to miscarriage or birth of an infected baby.

Salmonella
Sources
Raw meat, poultry and eggs. Flies, people, sewage and contaminated water.
Signs and symptoms
Onset 6-48 hours. Headache, general aching of limbs, abdominal pain and diarrhoea, vomiting and fever. This usually lasts 1 – 7 days, and rarely is fatal.

Staphylococcus aureus
Sources
Humans: nose, mouth and skin. Untreated milk.
Signs and symptoms
Onset 1 – 6 hours. Severe vomiting, abdominal pain, weakness and lower than normal temperature.
This usually lasts 6 – 24 hours.

Key terms
Bacteria: Small living organisms that can reproduce to form colonies. Some bacteria can be harmful (pathogenic) and others are necessary for food production, e.g. to make cheese and yogurt.
Binary fission: The process that bacteria uses to divide and multiply.
Cross-contamination: The transfer of bacteria from one source to another. Usually raw food to ready to eat food but can also be the transfer of bacteria from unclean hands, equipment, cloths or pests. Can also relate to allergens.
Food spoilage: The action of enzymes or microorganisms which make the food unacceptable to consume.
Food poisoning: Illness resulting from eating food which contains food poisoning micro-organisms or toxins produced by micro-organisms.
Toxin: A poison produced by some bacteria which can cause food poisoning.

Allergens
Allergenic ingredients can cause adverse reactions in some people. Care must be taken at each stage of food processing to prevent contamination.

Desirable food changes
Desirable changes that can be caused by micro-organisms include:
•bacteria in yogurt and cheese production;
•mould in some cheeses, e.g. Stilton;
•yeast in bread production.

Food spoilage, contamination and food poisoning

Food spoilage
As soon as food is harvested, slaughtered or processed it starts to change. This happens for two main reasons:
•autolysis –

•microbial spoilage –

Food spoilage: Autolysis – enzymes
Enzymes are chemicals which can cause food to deteriorate in three main ways:
•ripening

•browning

•oxidation

Food spoilage: Microbial spoilage
Spoilage can be caused by the growth of:
•bacteria
•yeasts
•moulds

Food contamination
Food contamination can lead to_____There are three ways which food can be contaminated:

Chemical contamination
Chemical contamination can occur in a variety of ways at different stages of food processing and production. For example:

Physical contamination
This can occur in a variety of ways at different stages of food processing and production. Some examples are:
-

-

Bacterial contamination
Most bacteria are harmless but a small number can cause illness. These are known as pathogenic bacteria. Food which is contaminated with pathogenic bacteria can look, taste and smell normal.
Bacteria can be transferred onto food through cross-contamination, via equipment, people or pests, or can be naturally present in the food.
Some bacteria can produce toxins which can cause food poisoning.

Micro-organisms
Micro-organisms need conditions to survive and reproduce these can include:
-
-
-
-
-

Temperature
Bacteria need warm conditions to grown and multiply.
•The ideal temperature for bacterial growth is _____Some bacteria can still grow at 10ºC and 60ºC.
•Most bacteria are destroyed at temperatures above _____
•Bacterial growth danger zone is_____
•At very cold temperatures, bacteria become_____– they do not die, but they cannot grow or multiply.

Food
Bacteria need a source of food to grow and multiply, these food are usually high in moisture, fat and protein, and may be ready to eat. Food where bacteria rapidly multiple in is called a **high risk food**. For example:
-
-
-
-
-
-

Time
Given the right conditions, one bacterium can divide into two every 10-20 minutes through a process called_____.

People at high risk of food poisoning

Symptoms of food poisoning
Food poisoning can be mild or severe. The most common symptoms are:
-
-
-
-

Campylobacter
Sources

Signs and symptoms

Moisture
Where there is no moisture bacteria cannot grow. However, bacteria and moulds can both produce spores which can survive until water is added to the food.

E Coli 0157
Sources

Signs and symptoms

Listeria
Sources

Signs and symptoms

Salmonella
Sources

Signs and symptoms

Staphylococcus aureus
Sources

Signs and symptoms

Key terms
Bacteria:

Binary fission:

Cross-contamination:

Food spoilage:

Food poisoning:

Toxin:

Allergens
Allergenic ingredients can cause adverse reactions in some people. Care must be taken at each stage of food processing to prevent contamination.

Desirable food changes
Desirable changes that can be caused by micro-organisms include:
-

-

-

Year 11 Engineering Term 3 (Unit 1)

What we are learning this term:

A. Health & Safety
B. Manufacturing processes
C. Orthographic
D. Tools & Equipment
E. Materials and properties

A. Health & Safety

Risk Assessment	A risk assessment is the analysis of the risks involved when using equipment or performing a process.
Signage	Signage is the word used for all the signs that you may see in a workshop environment. sowing how to translate and understand the signs in a workshop is vital when dealing with potentially dangerous equipment and processes.

Mandatory sign- Specific instruction on behaviour

Prohibition sign- Prohibiting or actions

Warning sign- Giving warning of hazard or danger

No danger sign- Information on exits, first aid etc

B. Manufacturing processes

Pillar drill

Pillar drills are free standing machine tools that use high powered motors to rotate drill bits at varying speed

Milling machine

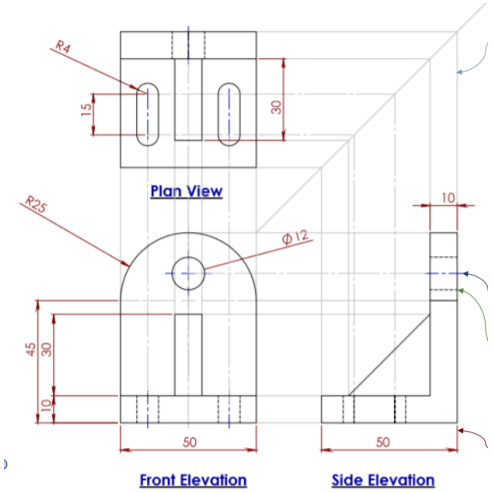
A milling machine is a device that rotates a circular cutting tool that has a number of cutting edges. The workpiece is held in a vice or similar device clamped to a table that can move in directions. X, Y & Z axis

Centre lathe

A centre lathe is used to manufacture cylindrical product /objects and is 'turned' to create different shapes. Different cutting tools can be used such as **facing**, **parting** and **knurling.**

C. Orthographic

The study of human measurements to ensure the products and environments are the correct size for the intended user.



ϕ12	The symbol ø on this dimension represents **Diameter** – so it is telling us how wide the circle is overall.
R25	The letter R on this dimension tells us the **Radius** of the curve or circle – the distance from the centre to the outside

D. Tools & Equipment

	Battery/cordless drill - A drill is a tool used for making round holes or driving fasteners. It is fitted with a bit, either a drill or driver chuck. Battery for ease of use
	Checking for true (i.e. straight and accurate) alignment of edges, planes and angles is by far the most common engineer square use.
	A scriber (scribe) is a hand tool used for marking-out areas ready for machining/cutting/drilling, etc. on workpieces made from metal. The scriber is made from high-carbon steel and is hardened to make sure it can score the surface of the metal.
	The centre punch is made from mild steel, with the point hardened and tempered, so that it withstands impact with the material it is marking. It is normally used to mark the centre of a hole to be drilled
	Divider, instrument for measuring, transferring, or marking off distances, consisting of two straight adjustable legs hinged together and ending in sharp points.

E. Materials and properties

Strength	Ability of a material to withstand compression, tension and shear
Hardness	Ability to withstand impact without damage
Toughness	Materials that are hard to break or snap are tough & can absorb shock
Malleability	Being able to bend or shape easily would make a material easily malleable
Ductility	Materials that can be stretched are ductile
Elasticity	Ability to be stretched and then return to its original shape

Year 11 Engineering Term 3 (Unit 1)

What we are learning this term:

A. Health & Safety
B. Manufacturing processes
C. Orthographic
D. Tools & Equipment
E. Materials and properties

A. Health & Safety

Risk Assessment	
Signage	

_____ sign-
Specific instruction on behaviour

_____sign-
Prohibiting or actions

_____ sign-
Giving warning of hazard or danger

_____sign-
Information on exits, first aid etc

B. Manufacturing processes

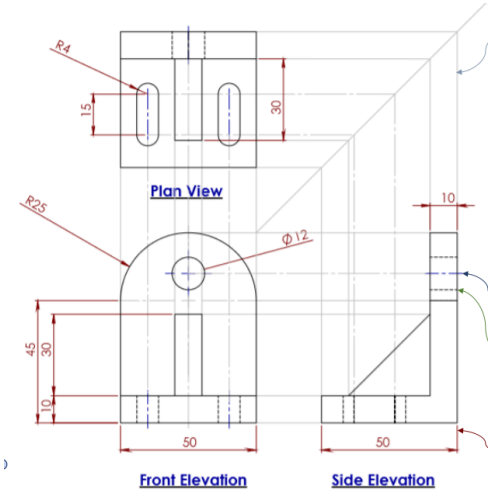
Pillar drill

Milling machine

Centre lathe

C. Orthographic

The study of human measurements to ensure the products and environments are the correct size for the intended user.



Ø12	
R25	

D. Tools & Equipment

E. Materials and properties

Strength	
Hardness	
Toughness	
Malleability	
Ductility	
Elasticity	

What we are learning in LAA:

A. Key words
B. Definitions of health and wellbeing
C. Genetic inheritance

A.	Key words for this Unit
Genetic inheritance	The genes a person inherits from their parents
Predisposition	Someone is more likely to suffer from a particular condition
Chronic	Gradual illness that is long term (longer than 3 months) and generally can be treated but not cured
Acute	A short-term illness that can be cured
Monitor	To check progress over a period of time.
Person-Centred	Planning care around the wants and needs of a service user
Bereavement	The process of coming to terms with the death of someone close.
Circumstances	Events that change your life, over which you have no control
Physiological	Relates to how a person and their bodily parts function normally.
Interpret	understand an action, mood, or way of behaving as having a particular meaning
Collaboratively	Working well together with other poeple or services
Obstacles	Difficulties a person might face when they implement a plan.
Goal	What you want to achieve in the long term
Norm	Something that is usual, typical or standard
Targets	Challenges to help you reach your goal

B Definitions of heath and well-being

Positive Definition

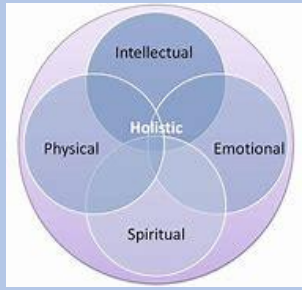
Looks at how physically fit and mentally stable a person is. You have a positive attitude towards health and wellbeing if you realise that there is something you can do to improve your health and wellbeing and do it.

Negative definition

Looks at the absence of physical illness, disease, and mental distress. You have a negative attitude towards your health and wellbeing if you:

- Base your attitude on not having anything wrong with you.
- Continues as you are- Inc. keeping bad habits like smoking.
- Assume that because you currently feel fine you will stay healthy in the future.

Holistic definition



It is a combination of physical health and social and emotional wellbeing. It is not just the absence of disease or illness; it looks at all aspects of a person's health and wellbeing. You have a holistc attitude towards health and wellbeing if you look after your:

- **Physical Health:**
Be meeting the needs we have to keep our bodies working as well as they can, e.g. Food, water, shelter, warmth, clothing, rest, exercise and good personal hygiene.

- **Intellectual health:**
By meeting the needs we have to develop and keep our brains working as well as possible; these include mental stimulation to keep us motivated and interested.

- **Emotional aspects of wellbeing:**
By meeting the needs we have that make us feel happy and relaxed, e.g. being loved, respected and secure. Knowing how to deal with negative emotions, having positive self-concept and being respected by others.

- **Social aspects of wellbeing**:
By meeting the needs we have to help us develop and enjoy good relationships with others, including mixing with others in appropriate environments and having access to leisure facilities/ activities.

C. Genetic inheritance

Inherited physical Characteristics

- Children inherit their physical; characteristics from their parents e.g. height, skin and eye colour and hair type and colour.
- These characteristics can affect social and emotional welling because they influence a person's self-concept (self-image and esteem).

Genes and environment

- Chromosomes carry genes that determine aspects of persons physical makeup.
- Gene is a section of DNA that carries a code. Different versions of a gene are called **alleles** (they can be faulty).
- Environmental factors such as diet, also influence physical appearance. For example, a person may not grow to their full, genetically determined height if they do not have enough food.

Allele type

Dominant:
If a gene is dominant a child inheriting it from only one birth parent will have the condition, e.g Huntington's disease.

Recessive:
If the gene is recessive a child would only develop the condition if it was inherited from both birth parents, e.g. Cystic fibrosis.

Effects of inherited disorders

- Physical health: Body systems, growth and mobility
- Intellectual welling: learning, thinking, problem solving and decision making.
- Emotional wellbeing: how people feel about themselves.
- Social wellbeing: the ability to build relationships and maintaining them.

What we are learning in LAA:

D. Balanced diet
E. Chronic and acute illness
F. What are the effect of exercise?
G. What are the effect of excessive substance use?

D. Balanced diet

What is a balanced diet?	• Diet that contains the correct nutrients in the right proportions to keep out bodies and minds healthy. • It is also a lifestyle choice • Choosing to eat too much or too little might make us less able to take all the opportunities that life offers.
Overweight or underweight may:	A person over weight or under weight may: • Be prone to illness and conditions • Have their life expectancy reduced • Be less able to exercise effectively • Miss out on learning experiences • Miss out on some sporting activities • Be less successful in job interviews • Feel embarrassed and self-conscious about their appearance in social situations.
Essential parts of a healthy diet:	• Fats (saturated and unsaturated) • Carbohydrates (sugars and starches) • Minerals • Vitamins • Proteins
Est well guide says you should eat:	• Eat at least 5 portions of a variety of fruit and vegetables every day. • Base meals on potatoes, bread, rice, pasta or other starchy carbohydrates; choosing wholegrain versions where possible. • Have some dairy or dairy alternatives (such as soya drinks); choosing lower fat and lower sugar options. • Eat some beans, pulses, fish, eggs, meat and other proteins (including 2 portions of fish every week, one of which should be oily). • Choose unsaturated oils and spreads and eat in small amounts. • Drink 6-8 cups/glasses of fluid a day.
If you eat <u>more</u> than you need:	• The body will store food as fat and this can lead to: • Obesity, heart disease, high blood pressure, Strokes, Tooth decay or cancer
If you eat <u>less</u> than you need	• The body does not get enough nutrients to grow and develop properly and this can lead to: • Eating disorders, stunned growth, anaemia, heart failure, depression, tiredness, cancer or rickets.

E Chromic or Acute Illness

Chronic illness- Illness comes on gradually, is long term (more than 3 months) and generally can be treated but not cured. E.g Asthma, Diabetes, epilepsy, bipolar disease, Alzheimer's disease

Acute illness- Illness comes on quickly, is short term and can be cured. E.g. Cold, flue, broken bones, heartburn, appendicitis or Diarrhoea.

Some chronic conditions are acute but may develop because of chronic conditions. For example: osteoporosis (a chronic condition that weakness bones) masking their bones fragile and more likely to break. Broken bones are then an acute condition.

Possible negative effects of chronic illness

Physical: • poor rate of growth • Unusual physiological change during puberty • Restricted movement	Emotional: • Negative self-concept • Stress • Decision making
Intellectual: • Disturbed learning because of missing school • Difficulties in thinking and problem solving • Memory problems.	Social • Isolation • Loss of independence • Difficulties developing relationships

F. What are the effect of exercise?

Positive effects of exercise	**<u>Physical:</u>** maintain a healthy weight, reduce BMI, boosting energy levels. Improved flexibility, stamina, endurance and stronger bones and muscles. Reduce risk of heart disease and diabetes. **<u>Intellectual</u>**: improved brain function like mentor and thinking skills. **<u>Emotional:</u>** improves confidence and mood and reduces stress. Aid relaxation and sleep and lead to better self concept. **<u>Social</u>**: encourages social interaction, reducing isolation and improving social skills.
Negative effects of exercise	**<u>Physical:</u>** Obesity and associated health problems. **<u>Intellectual</u>**: Reduced pain performance, hard to concentrate and retain information. **<u>Emotional:</u>** poor self-concept and reduced ability to cope with stress. **<u>Social:</u>** Fewer opportunities for social interactions.

G. What are the effect of excessive substance use?

Negative effects of excessive alcohol consumption	**<u>Physical:</u>** Alcohol dependence, damage to major organs: liver, heart, kidneys, pancreas. Cancers: mouth, throat, oesophagus, liver, breast. Infertility and impotence, weight gain. **<u>Intellectual</u>**: difficulty in making decisions, depression and anxiety, chance of stroke and brain damage, impaired brain development of unborn baby. **<u>Emotional</u>**: poor self-concept, poor judgement leading to a risk of accidents and unsafe sex, can have an impact on relationships, depression. **<u>Social</u>**: breakdown of relationships, domestic violence, social isolation

What we are learning in LAA:

H. The effects of social interactions on wellbeing
I. What are the effects of stress on health and wellbeing
J. What are the hazards of smoking
K. What are the effects of personal hygiene

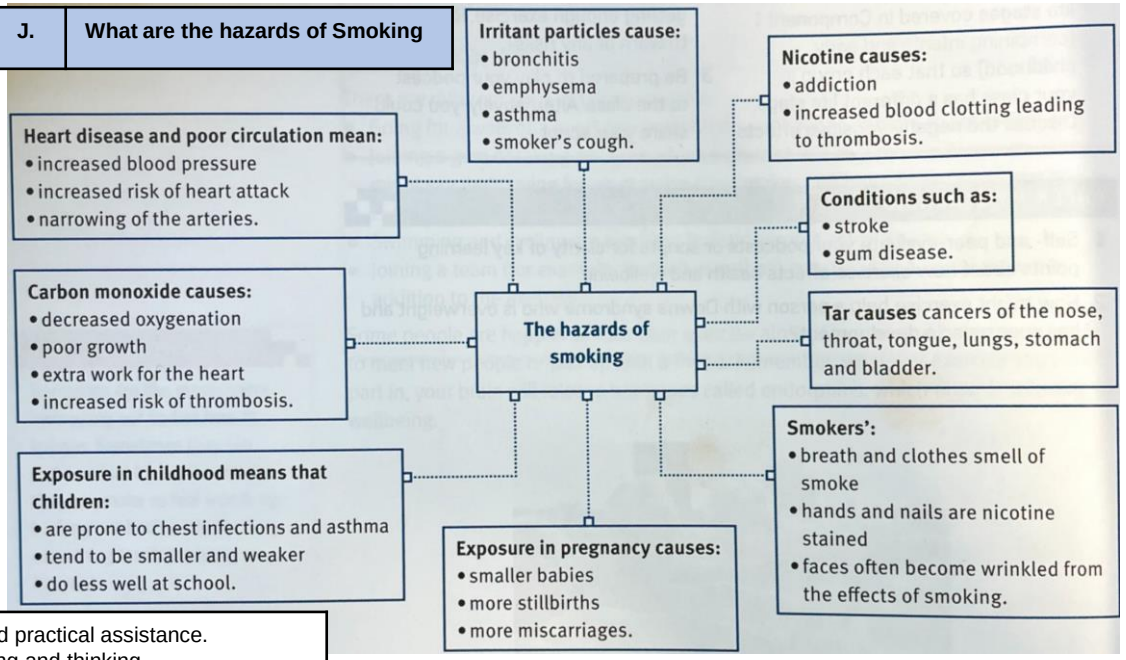
H. The effects of social interactions on wellbeing

Social integration	When people feel they belong to a group and can interact with others. Social interactions can happen between family members and friends, work colleagues, school learners, members of a community or interest groups.
Social isolation	Occurs when people do not have regular contact with others. This may be because they don't go out much because of physical illness, reduced mobility or unemployment. They might have a difficulty in communicating if they have a mental illness, depression or learning difficulties. Lastly, a person might be discriminated against because of culture, religion or disability.
Positive effects of relationships	**Physical:** physical support and day to day care and practical assistance. **Intellectual:** shared experiences, supported learning and thinking **Emotional:** unconditional love, security and encouragement, positive self-concept, feeling content, ability to build relationships with people outside the family, independence and confidence. **Social:.** Companionship, social circle increases.
Negative effects of social isolation	**Physical:** poor lifestyle choices like smoking and drinking, poor diet that can cause eating disorders. **Intellectual**: reduced ability to use thinking skills, missing school/work **Emotional**: feelings insecure, depression, anxiety, negative self-concept, feeling of hurt, loneliness and distrust, lack of independence, difficulty in controlling emotions. **Social**: difficulties in building relationships as lack skills.

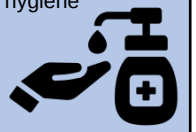
I. What are the effects of stress on health and wellbeing

Physical effects	Intellectual effects	Emotional effects	Social effects
Increased heartbeat Increased breathing rate Tense muscles Sweaty palms Dry mouth High blood pressure Loss of appetite Sleeplessness Digestive problems	Forgetfulness Poor concentration Difficulty in making decisions	Difficulty in controlling emotions Feeling insecure Negative self-concept Feeling anxious and frightened Loss of confidence	Difficulty in making friends and building relationships Breakdown of close relationships Social isolation

J. What are the hazards of Smoking



K. What are the effects of Personal Hygiene?

Positive effects of good personal hygiene 	• Helps prevent the spread of infection • Improves self-concept • Reduces number of bacteria that lives on us. **You must:** • Brush you teeth • Shower daily or bath • Wash your hair regularly • Keep fingernails and toenails clean and trimmed
Negative effects of poor personal hygiene	**Physical:** catching and spreading disease like food poisoning, sore throat, meningitis and athlete's foot. Bad body odour, bad breath and tooth decay. **Emotional:** loss of friendships and social isolation. Might be bullied and poor self-concept. **Social:** low social interactions as people don't want to be friends with someone that neglects their hygiene. Social isolation.
When caring for others:	• Bad hygiene can stop effect communication. • Negative effect on the person being cared for and their health and wellbeing- pass on infection • Discomfort for the person being cared for because of the odour or visible dirt under fingernails.

What we are learning in LAA:

L. What are the barriers to seeking help.
M. What are the effects of unexpected life events on health and wellbeing
N. What are the effects of economic factors (e.g, income) on health and wellbeing
O. What are the effects of expected life events on health and wellbeing

L.	What are the barriers to seeking help.
Culture	Accessing HSC services can be influenced by values, traditions, way of life and beliefs of the society or group. • Some may have received discrimination when accessing other services. • Some may not speak English well enough. • Values and traditions not understood e.g. eye contact means respect in some cultures but not others. • Some cultures a woman must be treated only by a female professional. • Alternative therapies are used in some cultures
Gender	Research shows that men are lesson likely to talk about their health and wellbeing than woman. This is because men are: • Often less open about their feelings • Sometimes reluctant to appear vulnerable by asking for help • Not aware of poor health signs as health campaigns target women's health more • Unhappy to be examined by a female health worker.
Education	Research shows that people who are better educated are more likely to seek help. This is because: • They like to research symptoms and know when help is needed • Understand the importance of early diagnosis and treatment • Know how and where to access services.
Stigma	In some cultural groups there is a stigma attached to certain condition like depression. Stigma is a word used to describe something that people feel embarrassed about. Therefore, they wouldn't seek help.

M.	What are the effects of unexpected life events on health and wellbeing	
Life event	**Positive Effects:**	**Negative Effects:**
Imprisonment	• Depression • Loss of contact with family and friends • Social isolation • Restrictions on physical activity	• Opportunity to study • Improvement in health through balanced diet, lack of alcohol, reduced use of nicotine
Redundancy	• Poor self-concept • Anxiety about finances • Fewer opportunities	• Opportunities to study or train for a new job • More time to spend with family and friends
Exclusion or dropping out of education	• Loss of contact with friends • Social isolation • Poor self-concept • Lack of learning opportunities	• Catalyst for change of behaviour • Opportunities for more suitable study or work situation

N.	What are the effects of economic factors (e.g, income) on health and wellbeing	
	Positive Effects:	**Negative Effects:**
Physical	• Better financial resources can result in good housing conditions and healthy diet • Manual jobs may improve muscle tone and stamina.	• Low wages can affect diet ad housing, leading to poor health. • Manual jobs can cause muscular and skeletal problems • Desk jobs lead to less activity and weight gain.
Intellectual	• Better financial resources can result in more leisure time for intellectual activities • Work, education or training helps to develop problem solving and thinking skills	• Some people work very long hours to improve their financial position, leading to less leisure time and reduced learning opportunities. • Being unemployed can result in poor mental health.
Emotional	• A well-paid job gives a feeling of security. • Being financially secure promotes positive self-concept	• Financial worried can result in stress and breakdown of relationships. • Unemployment or low-status work can lead to low self-concept
Social	• Better financial resources provide opportunities for socialising. • Work gives opportunities for socialising with colleagues.	• Lack of financial resources reduces opportunities for socialising. • Unemployment reduces opportunities for relationships, leading to social isolation.

O.	What are the effects of expected life events on health and wellbeing	
Life event	**Positive Effects:**	**Negative Effects:**
Starting school, college or uni	• Build new relationships • Extend knowledge and learning • Develop new skills • Improve confidence	• Anxiety about new routines and meeting new people • Insecurity about leaving parents and other families
Start a new job or career	• Develop independence • Improve thought processes • Improve self-concept	• Stress about learning new skills and routines • Anxiety about meeting new people
Moving to a new house or area	• Excitement • Develop new friendships and relationships	• Unhappiness at loss of old life • Stress of moving • Social isolation
Retirement	• Reduced stress • Time to socialise with family and friends • Opportunities for leisure of physical activities	• Loss of relationships with colleagues • Possible loss of fitness and mobility • Loss of intellectual stimulation and status

What we are learning in LAB:

A. Physiological health indicators
B. What are health indicators?
C. Interpreting lifestyle data

A.	Physiological health indicators
Pulse	**Resting pule rate** is measured when a person has been still for about 5 minutes. Health reading for an adult is 60-100 bpm. **Pulse rate during exercise:** 220bpm minus the person's age.
Blood pressure	• This is the pressure exerted by blood against the artery walls. • It is measured in millimetres of mercury (mm Hg) and is shown in two numbers: • Systolic pressure: (the top number) is the maximum pressure in the blood vessels as the heart pushes out blood. • Diastolic pressure: (the bottom number) as the minimum pressure in the vessels when the heart relaxes between the beats.
Peak flow	• Measured how quickly you can blow air out of your lungs. • it is measured in litters per min (L/min).
BMI	• Measures the amount of fat on your body in relation to your height to tell you if your weight is healthy.

B.	• What are health indicators?
Importance of understanding indicators	• Detect health problems at an early stage • Track improvements or deterioration in health • Make recommendations about health and treatments • Give advice about future health risks • Support individuals to make different lifestyle choices.
What are lifestyle indicators?	• These indicators can be used to assess risks to an individual's health and wellbeing now and in the future. • Professionals collect information about lifestyle choices by asking about a person's: • Weekly alcohol consumption • Smoking habits • Levels of physical activity and exercise.
What are physiological indicators?	• They show how well the body's systems are functioning. • Health professionals check a person's heath by taking measurements. • They compare the results with published guidance.

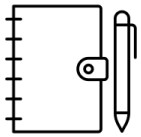
C.	Interpreting lifestyle data
Interpreting data on smoking	• Smoking causes around 96,000 deaths in the UK annually. • Smoker under the age of 40 are 5 times more likely to have a heart attack than non-smoker. • Smoking causes 80% of deaths from lung cancer, 80% of bronchitis and 14% of deaths from heart disease. • More than 25% of all cancer deaths are caused by smoking. • On average a smoker will die 10 years earlier than a non-smoker. • Smokers are more likely to develop facial wrinkles. • Smoking is a cause of impotence and can lead to sperm abnormalities.
Interpreting data on alcohol	• Strongly linked to at least 7 types of cancer • Alcohol-related liver disease accounts for 37% of liver disease and deaths. • 2/3s of cases of chronic pancreatitis are caused by heavy drinking • You are between 2 and 5 times more likely to have an accident or injury • Each drink per day increases the risk of breast cancer in woman between 7-13% • Men and woman should not drink more than 14 units a week and not all in one go.
Interpreting data on inactivity	• Increased risk of breast cancer by 17.8% and colon cancer by 18.7% • Increased risk of type 2 diabetes by 13%. • Increased risk of coronary heart disease by 10.5% • Leads to obesity and joint pain • 16.9% of all premature deaths are caused by inactive lifestyle. • Active people have a lower risk of premature death. • People who are inactive visit their GP more often and they spend 38% more time in hospital.

What we are learning in LAC:

A. What is a person-centred approach
B. Health improvement plan
C. Recommended action to meet health and wellbeing improvement goals
D. SMART targets for health improvement plan
E. Sources of support

A.	What is a person-centred approach.
Person-centred approach	A holistic approach that puts the individual at the heart of health care planning, so that the whole range of physical, intellectual, emotional and social health needs are met.
When planning for health improvements include:	• The needs: physical, intellectual, emotional and social. • The wishes: likes, dislikes, choices and desired health goals. • Circumstances: illness or disability, access to facilities, previous experiences, family and relationships, responsibilities.
Benefits of person-centred approach:	• Will feel involved • Is more likely to trust a health professional who listen to them • Will feel more secure • Is more likely to follow the plan and achieve the targets • Will take responsibility for their own health.

B.	Health improvement plan
What is it?	Health and welling improvement plans are often based on an individual's physiological and lifestyle indicators. Plans should be person-centred and include goals, actions and targets and possible sources of support.
The plan will identify:	• The health issues and goal • The recommended actions to take • A set of targets for health improvement • The supports that are needed • Possible obstacles to progress and way to overcome them.
Positive effects of a health improvement plan	• Be fitter • Loose weight • Have improved self-concept • Lower blood pressure, healthier heart • Reduced risk of cancer • Taking control of their health outcomes and reaching health goals



C.	Recommended action to meet health and wellbeing improvement goals
To lower blood pressure: • Eat five or more portions of fruit and veg a day • Cut out salt • Use relaxation techniques to reduce stress • Join a gym • Drink water alongside alcohol to reduce consumption	**To reduce BMI:** • Reduce fat and sugar intake • Do not exceed the recommended daily calories intake • Get off the buss a stop early and walk the rest of the way • Drink water instead of sugary drinks.
To increase peak flow reading: • Half the number of cigarettes smoked each day • Use nicotine replacement therapies • Join an exercise or dance class.	**To reduce pulse rate and improve recovery time after exercise:** • Walk for half and hour at lunchtime • Drink decaffeinated drinks • Take up a physically active hobby • Join a yoga group.

D.	SMART targets for health improvement plan
Specific	The target must be clearly stated. It should say exactly what you mean, such as to 'lose 2 kg in weight in a week'. The target should be clear and not open to any misunderstanding.
Measurable	A target of to 'lose weight' is too vague. A specific amount must be stated so you can prove you have met your target.
Achievable/ attainable	If you are following a health and wellbeing improvement plan you must feel it is possible to achieve it. If you do not, you will probably give up before you have even started. An achievable target is to 'lose 1kg this week'. An unachievable target would be to 'lose 20kg this week'.
Realistic	The target set must be realistic in that you must be able to physically do it. It is not realistic to expect a person who is older and not very fit to run for 30 minutes a day to help weight loss, but it is realistic to ask the same of a fitter, younger person.
Time-related	The target must have a deadline, so that you know when you need to achieve the target by, and progress can be assessed.

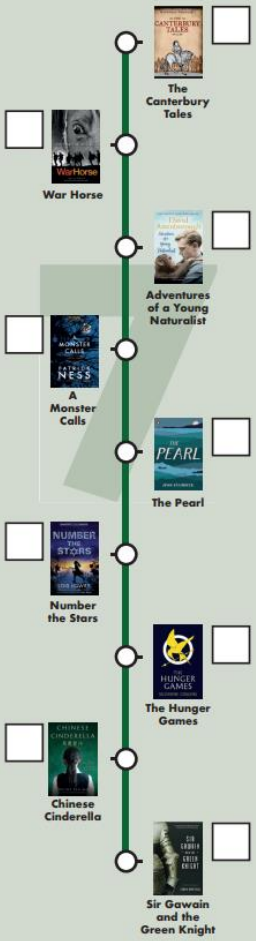
E.	Sources of support
Informal support	Informal support is the support an individual receives from partners, family and friends. It is usually the first form of support an individual experiences after and expected or unexpected life event. Informal support can provide reassurance, encouragement, advice, a sense of security, someone to talk through options with and practical help.
Professions (formal) support	Formal support may be provided by statutory care services (the state), private care services and charitable organizations. Professional support may include counsellors, teachers, careers advisers, occupational therapists, social workers and health specialists. Professional support may be needed to help people with a health condition, regain mobility, deal with life changes and emotions, get advice and information or change their lifestyle.
Voluntary support	Organizations offering voluntary support are charities, community groups and religious groups. At voluntary support services, many staff are volunteers (they work for free), but they also employ qualified people who are paid by donations. Community groups work at a local level to meet the needs of people living in a specific neighbourhood i.e. foodbanks. Religious groups are formed by people who share the same religious or spiritual beliefs but they help all people in need regardless of their beliefs and background i.e. a church run soup kitchen for the homeless.

F.	What are the potential obstacle to implementing plans?
Emotional/ psychological- Lack of motivation	• A conflict between choices such as worrying that giving up smoking could result in weight gain • Other priorities in a person's life- such as getting married or bereavement. • Having negative attitude- believing change will be too difficult • Lack of progress for example losing eight quickly in the first weeks but then slowing down. • Having a blip- thinking there is no point in continuing the plan after briefly returning to an old lifestyle.
Emotional/ psychological- Low Self-concept	• People with low self-concept don't value themselves, • Feel powerless to change their lifestyle or that there's no point in starting because the task seems too big. • Some thin that because they were unsuccessful in other aspects of their life, they won't achieve their health goals. • They may not feel they have support and approval from family and friends even if they really do.
Emotional/ psychological- Acceptance of the current state	• People my accept their present health problems or lifestyle choices, as it Is easier to stay the same than to make changes. • Have no incentive to make a change because they do not understand the health risks. • Have no desire to change, for example, if they are happy with their weight or don't want to give up smoking.
Time constraints	People find that they do not have the time to achieve their health improvements targets because of: • Care of young children, family members that are not well. • Regular and additional work and study commitments • Domestic chores • Medical appointments
Availability of resources	Financial obstacles: • Gym memberships, entry fee for a swimming pool • Cost of attending exercise classes • Cost of travel to the gym. pool or to attend health appointments • Higher costs of some healthy foods. • Lack of and the cost of exercise equipment
Unachievable targets	• Expectations too high • Targets are not clear • There are too many targets • Timing is wrong/poor • Targets are not suitable for the individual • Fear of not being able to meet targets • Not being in the right frame of mind to commit to the plan, e.g. due to depression.
Lack of support	• Diet- find it difficult if a person on a healthy eating plan is surrounded by others that eat junk food or tempted by the chocolate and biscuits in the cupboard, Family and friends go out for meals instead of doing other activities. • Smoking- friends and family smoking and offering them cigarettes. Lacking will power to quit. • Alcohol consumption- someone that is used to drinking with family and friends will find it difficult to stop without their support. It would be hard to quit if the family and friends drink wine with their meals, friends centre a night out around heavy drinking at pubs and clubs.
Ability, disability and addiction	• Understand what they need to do • Learn how to make the required changes in their lives. • Any places the person uses are wheelchair accessible • Any exercise advised is wheelchair friendly. • If stop smoking, then can put on weight- put people off. • Like the way alcohol makes them feel but cant admit that they have a problem

G.	What are the possible obstacles to accessing services?	
Type of obstacle	**Possible obstacles**	**Suggestions to overcome obstacles**
Geographical	• Service is difficult to get to because of poor bus or train services.	• Arrange hospital transport • Suggest telephone helplines or internet support groups.
Financial	• Charges to use the services • Time off from work would mean loss of pay	• Check for entitlements, such as medicines and treatments • Direct the person to advice on benefits and employee rights.
Psychological	• Fear of being judged because there is stigma around a health problem (mental health, obesity)	• Talk about concerns and reassure • Direct the person to a charity that supports people with a particular health problem.
Physical	• Difficulty getting into the buildings where the service is provided (no wheelchair access). • No where to park near the service	• Be aware of services that are adapted for easy access • Ask a friend or family member to drop the person off at the service
Personal needs	• Communication difficulties because of pool language skills, sensory or learning disability . • Concern that cultural needs are not understood	• Provide support services that meet the person's needs, such as a BSL signer, interpreter, advocate • Use anti-discriminatory practice and encourage others to do so
Resources	• Limits on services, such as support aids and equipment • Staff shortages, leading to long waits for appointments and support.	• Suggest sources of second-hand equipment • Look for alternative strategies, for example an exercise DVD if there are no places at an exercise class.

SWINDON ACADEMY READING CANON

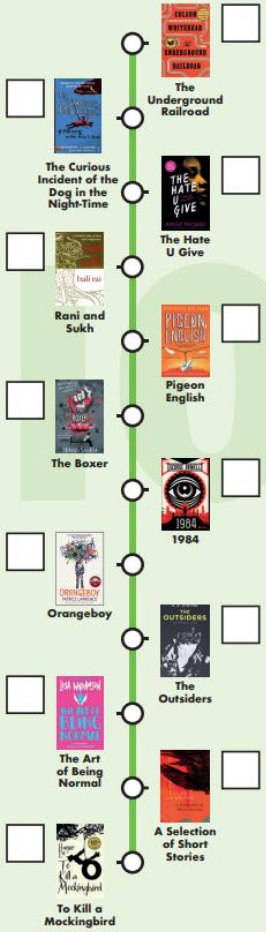
Year 7



Year 8

Year 9

Year 10



#ReadingisPower