Thomas Estley Community College
Year 9 Spring Term
Knowledge Organiser

What are Knowledge Organisers?

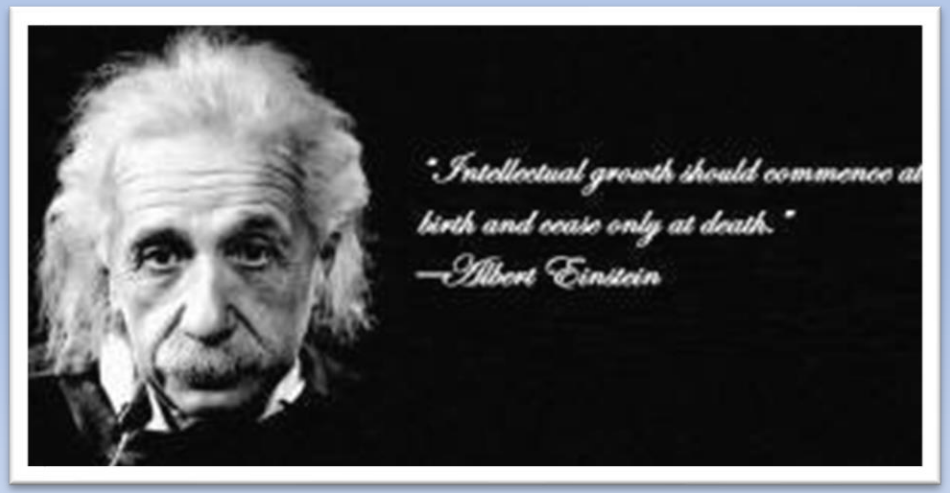
A knowledge organiser is an easy way that each subject can summarise the most important information. Each subject section will include key terms, short explanations, glossary words, diagrams etc making it clear to the student as to what is essential to learn. Each grid has an overall theme and these vary according to the subject being taught.

It will be the students responsibility to keep the knowledge organisers safe and refer to them over the whole academic year.

How will these be used at Thomas Estley?

At Key stage 3, you will be given a knowledge organiser each term. You need to keep these safe in your learning packs that you were provided with at the start of the academic year.

Your subject teachers will use these in a variety of ways, for both class work, remote learning opportunities and homework. They will be used to help with revision for class quizzes and retrieval practice activities. They will also be used for flip learning activities, where subject teachers will ask you to learn some information and then go in to it in more detail in class.



SUCCESS
THOMAS ESTLEY COMMUNITY COLLEGE

Revision Tips and Tricks!

Record It

Record yourself on your phone or tablet reading out the information. These can be listened to as many times as you want!

Teach it!

Teach someone your key facts and the get them to test you, or even test them!

Flash Cards

Write the key word or date on one side and the explanation on the other. Test your memory by asking someone to quiz you on either side.

Back to front

Write down the answers and then write out what the questions the teacher may ask to get those answers.

Hide and Seek

Read through your knowledge organiser, put it down and try and write out as much as you can remember. Then keep adding to it until its full!

Sketch it

Draw pictures to represent each of the facts or dates. It could be a simple drawing or something that reminds you of the answer.

Post its

Using a pack of post-it notes, write out as many of the keywords or dates as you can remember in only 1 minute!

Practice!

Some find they remember by simply writing the facts over and over again.

Read Aloud

Simply speak the facts and dates out loud as you're reading the Knowledge Organiser. Even try to act out some of the facts – it really helps you remember!

En mi instituto hay… **In my school there is** **No hay** There isn't	**un gimnasio** A gym **una biblioteca** A library **un comedor** A canteen **una piscina** **A pool** **Un salón de actos** A drama studio	**me gusta** I like **no me gusta** I don't like **me encanta** I love **odio** I hate	**el gimnasio** A gym **la biblioteca** A library **el comedor** A canteen **la piscina** A pool **el salón de actos** A drama studio	**porque es** Because it is **porque son…** Because they are	**moderno/a -** modern **cómodo/a –** comfortable **nuevo/a -** new **feo/a -** ugly **antiguo/a -** old **sucio/a -** dirty **limpio/a -** clean **bien equipado/a –** well equipped **grande - big** **útil - useful** **modernos/as -** modern **cómodos/as** comfortable **nuevos/as** new **feos/as** ugly **Limpios/as - clean** **antiguos/as - old** **bien equipados/as** – well equipped **grandes -** big **sucios/as -** dirty
Me gustaría tener I would like to have **Me gustaría construir** I would like to build **Me gustaría poner** **I** would like to put	**unas aulas modernas** Modern classrooms **unos laboratorios** Labs **unos campos de deporte** Sports fields	**me gustan** I like **no me gustan** I don't like **me encantan** I love **odio** I hate	**las aulas modernas** Modern classrooms **los laboratorios** Labs **los campos de deporte** Sports fields	**porque sería** Becuase it would be **porque serían** Because they would be	
Mi escuela primaria tenía My primary school had **Había** There was		**me gustaba (n)** I used to like **no me gustaba (n)** I didn't like		**Porque era** (n) Because it was/ they were	

Year 9 Spanish
Sub-Unit 3 sentence builder

Year 9 Spanish
Knowledge organiser

Me encanta -I love
Me gusta – I like
No me gusta – I don't like
Odio – I hate
Detesto – I hate

mi profesor(a) de…
my ….. teacher

el profesor de…
the … teacher

la profesora de….
the …. teacher

español - Spanish
matemáticas - maths
ciencias - science
historia - history
Inglés - english
tecnología - DT
Informática - IT

porque es
because he/she is

divertido /a- funny
simpático /a- kind
severo/a - strict
aburrido /a- boring
antipático/a - unkind
interesante - interesting
justo/a – fair

porque
because

explica bien – he/she explains well
aprendo mucho – I learn alot
me ayuda – he/she helps me
me motiva - he/ she motivates me

Los profesores - teachers

Gramática

The present tense
Here are the irregular verbs you need to know
Hay – there is/ there are
Es – it / he / she is **Son** – they are

The imperfect tense
We use this to say what things **used to be like**
We remove the AR or ER/IR from the infinitive and add an ending
AR verbs → **aba** for I he, she and it and **aban** for they
ER/IR verbs→ ía for I, he she and it and **ían** for they
Tenía It had **Había –** there was **Era –** she/ she / it was
Me gustaba – I used to like **No me gustaba** I didn't like

The conditional tense
We use this to say what **would** happen
We **keep the infinitive** and we add an ending
→ ía for I, he she and it and **ían** for they
An easy way to use it is to use 'Me gustaría followed by the infinitive
Me gustaría tener – I would like to have
Me gustaría poner – I would like to put
me gustaría construir – I would like to build

Vivo en… I live in Leicester Madrid Barcelona Granada	**Está cerca de la costa** It's near to the coast **Está lejos del centro** It's far from the centre **Es muy tranquilo** It's very quiet **Hay mucho que hacer** There is lots to do	**En mi ciudad hay…** In my city there is	**un castillo** a castle **un estadio** a stadium **un mercado** a market **un museo** a museum **un parque** a park **una piscina** a pool **una plaza** a square **una tienda** a shop **una Universidad** a university **una playa** a breach **un polideportivo** a leisure centre **un restaurante** a restuarant **un centro comercial** a shopping centre	**Me gusta mucho vivir en…** I really like living in… **No me gusta nada vivir en…** I really don't like living in… Leicester Madrid Barcelona Granada	Porque es Dado que es	**bonito** Pretty **antiguo** Old **grande** Big **pequeño** Small **aburrido** Boring **interesante** Interesting **ruidoso** Noisy **sucio** dirty

Me gustaría tener… I would like to have **Me gustaría poner**… I would like to put **Me gustaría construir…** I would like to build…	**más** More **menos** Less	**castillos** castles **estadios** stadiums **mercados** markets **museos** museums **parques** parks **piscinas** pools **plazas** Squares **tiendas** shops **restaurantes** restuarants **tráfico** Traffic	**porque sería** because it would be	**bonito** Pretty **antiguo** Old **grande** Big **pequeño** Small **aburrido** Boring **interesante** Interesting **ruidoso** Noisy **sucio** dirty **Genial** great
En el pasado tenía – in the past it had **En el pasado había** – in the past there was			**Yyera** And it was	

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P5 Movement and Work

Knowledge organiser

Activate
Question • Progress • Succeed

Energy

- **Energy** is needed to make things happen
- It is measured in **joules** or **kilojoules**

- The **law of conservation of energy** says that energy cannot be created or destroyed, only transferred
- This means that the total energy before a change if always equal to the total energy after a change

Energy can be in different energy **stores**, including:

- **Chemical** – to do with food, fuels and batteries
- **Thermal** – to do with hot objects
- **Kinetic** – to do with moving objects
- **Gravitational potential** – to do with the position in a gravitational field
- **Elastic potential** – to do with changing shape, squashing and stretching

Speed

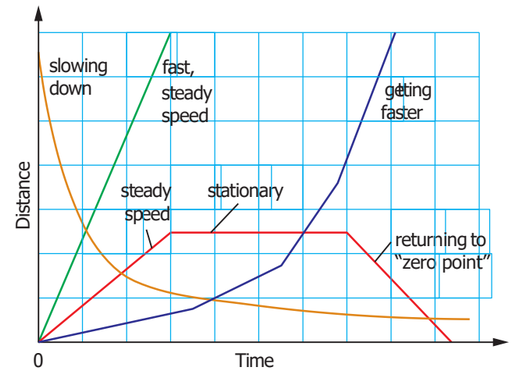
- **Speed** is a measure of how quickly or slowly that something is moving
- We measure speed in meters per second (m/s), this means that distance must be in meters and time must be in seconds
- We calculate speed with the following formula:

$$\text{speed (m/s)} = \frac{\text{distance travelled (m)}}{\text{time taken (s)}}$$

- **Relative motion** compares how quickly one object is moving compared to another
- If both objects are moving at the same speed, they are not changing position in comparison to one another, meaning that their relative speed is zero

Distance-time graphs

- **Distance-time graphs** tell the story of a journey, they show how much distance has been covered in a certain period of time



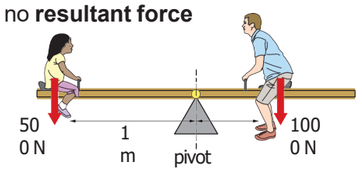
- To find the average speed, the total distance must be divided by the total time

Turning forces

- A **moment** is the turning effect of a force, it is measured in Newton meters
- We can calculate a moment with the equation:

moment (Nm) = force (N) × distance from the pivot (m)

- The size of the moment will increase as the distance from the **pivot** or the size of the force increases
- When an object, such as a seesaw is balanced, the clockwise and the anticlockwise moments will be equal and opposite, which is known as **equilibrium**
- When forces are equal and opposite to each other, there is no **resultant force**



clockwise moment = force × distance on the right
= 1000 N × 0.5m
= 500 Nm
anticlockwise moment = force × distance on the left
= 500 N × 1m
= 500 Nm

Power and energy

- **Power** is a measure of how much energy is transferred per second
- Power is measured in **watts** (W)
- Each appliance has it's own power rating to tell us how quickly it uses energy
- We can calculate power with the equation:

$$\text{power (W)} = \frac{\text{energy (J)}}{\text{time (s)}}$$

Energy Dissipation

- We say that energy is **dissipated** when it is transferred to a nonuseful store, it cannot be used for what it was intended for
- Energy can be wasted through friction, heating up components or heating the surroundings
- **Efficiency** is a measure of how much of the energy has been used in a useful way, we can calculate this with the equation:
- Efficiency (%) =

$$\frac{\text{useful energy output}}{\text{energy input}} \times 100$$

Gas pressure

- **Gas pressure** is caused by the particles of a gas colliding with the wall of the container which they are in
- The more often that the particles collide with the wall of the container, the higher the pressure of the gas will be
- Gas pressure can be increased by:
  - Heating the gas so the particles move more quickly and collide with the container with a higher energy
  - Compressing the gas so there are the same amount of particles within a smaller volume meaning that there are more collisions
  - Increasing the amount of particles within the same volume so there are more collisions

- **Atmospheric pressure** is the pressure which the air exerts on you all of the time, nearer the ground there are more particles weighing down on you so the pressure is greater
- The higher you go, the smaller the atmospheric pressure, this is because there will be less particles weighing down on you

Pressure in solids

- The pressure which is exerted on a solid is known as **stress**
- The greater the area over which the force is exerted over, the lower the pressure, this is why snowshoes have a large area to prevent you sinking into the snow
- **Pressure** can be calculated using the following equation:

$$\text{pressure} = \frac{\text{force}}{\text{area}}$$

Pressure in liquids

- Liquids are **incompressible**
- The particles in a liquid are already touching, meaning that there is little space between them to compress
- Liquids will transfer the pressure applied to them, this is seen in hydraulic machines
- As the ocean gets deeper, the pressure will increase, this is because the pressure depends on the weight of the water above
- The greater the number of water molecules above, the higher the pressure will be

Key terms

Make sure you can write definitions for these key terms.

Acceleration, air resistance, atmospheric pressure, balanced, contact force, deceleration, distance-time graph, drag, equilibrium, field force, friction, gas pressure, gravity, gravitational force, interaction pair, kilograms, mass, moment, Newton, non-contact, pivot, pull, push, pressure, relative motion, resultant force, speed, unbalanced, weight

C5 Metals and reactivity
Knowledge organiser

Activate
Question • Progress • Succeed

Salts

Salts are substances which are formed when an acid reacts with a metal or metal compound. The name of the salt produced depends on the metal and the acid involved in the reaction.

Different acids form different types of salts:

- Hydrochloric acids form chloride
- Sulphuric acids form sulphates
- Nitric acids form nitrates

Metal acid reaction:

metal + acid ➡ salt + …….
iron + sulphuric acid ➡ iron sulphate + ……..

Metal carbonate reaction:

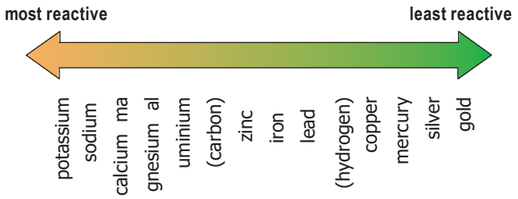
metal carbonate + acid ➡ salt + …….
calcium carbonate + nitric acid ➡ calcium nitrate + …….

Neutralisation reactions (one from year 7):

Metal hydroxide + acid ➡ salt + ……
sodium hydroxide + hydrochloric acid ➡ sodium chloride + ……

The reactivity series

- The **reactivity series** describes how reactive different metals are compared to one another
- The higher the metal is in the reactivity series the more reactive it will be. This means that it will react much more vigorously.



- Carbon and hydrogen are in the reactivity series so that you can see their relative reactivity. Metals higher than carbon in the series must be extracted using **electrolysis**.

Metal reactions

When a metal reacts with an acid it will produce a salt and hydrogen gas, the fizzing that you see is the hydrogen gas being given off.

metal + acid ➡ salt + hydrogen
magnesium + hydrochloric acid ➡ magnesium chloride + hydrogen

When a metal **carbonate** reacts with an acid, a salt, water and carbon dioxide is given off.

Metal carbonate + acid ➡ salt + water + carbon dioxide
Sodium carbonate + sulphuric acid ➡ sodium sulphate + water + carbon dioxide

When a metal reacts with oxygen a metal **oxide** is formed, this process is known as **Oxidation.**

metal + oxygen ➡ metal oxide
aluminum + oxygen ➡ aluminum oxide

When a metal reacts with water it forms a metal **hydroxide** and hydrogen gas. The alkali (group 1) metals react most vigorously, giving off a brightly coloured flame.

metal + water ➡ metal hydroxide + hydrogen
sodium + water ➡ sodium hydroxide + hydrogen

A special oxidation reaction happens between iron and oxygen in the presence of water. This is called rusting.

Iron + water + oxygen ➡ hydrated iron oxide

When a more reactive metal reacts with a compound containing a less reactive metal, it can take it's place, this is known as a **displacement** reaction

- If the metal on it's own is higher in the **reactivity series** than the metal in the compound a reaction will take place
- If the metal on it's own is lower in the reactivity series than the metal in the compound, a reaction will not take place

Metal extraction

Unreactive metals such as gold are found in the Earth's crust as elements. However most metals are found combined with other elements to form compounds.

Most metals are extracted from **ore** found in the Earth's crust. An ore is a rock that contains enough of a metal or a metal compound that makes extracting it worthwhile.

If a metal is less reactive than carbon then heating the metal in a fire with carbon will cause the carbon to **displace** the metal from its compound.

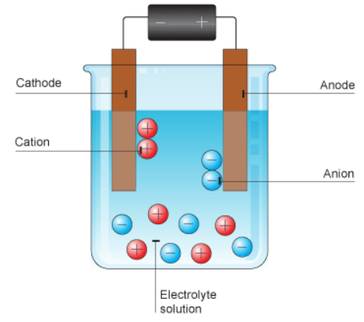
An example of this is the extraction of copper from it's ore Malachite.

- copper oxide + carbon ➡ copper + carbon dioxide

Electrolysis

When a metal is more reactive than carbon then extraction by heating with carbon does not work.

Electrolysis can be used instead to extract these metals from their compounds.



The metal compound is melted and electrical current is passed through. The metal ions are attracted to and form a layer on the cathode (the negative electrode).

Keyterms Make sure you can write definitions for these key terms.

acid acidic neutralisation oxide chemical carbonate reactivity reactivity series salt displacement hydroxide hydrochloric acid sulphuric acid nitric acid ore electrolysis

B6 Inheritance
Knowledge organiser

Activate
Question • Progress • Succeed

Natural selection

- Scientists believe that the organisms which we see on Earth today have gradually developed over millions of years, this is known as **evolution**
- Charles Darwin came up with the concept of **natural selection**, he said that only the best adapted animals will survive to pass on their **genes**, weaker animals will die out

Organisms show variation in characteristics caused by their genes → Organisms with the best adaptations survive and reproduce, weaker organisms die out and do not pass on their genes → Genes from the successful organisms are passed onto the next generation, passing on their successful characteristics → Over a long period of time the best adaptations continue to be passed on which can lead to a new species being formed

- One example of natural selection can be seen in giraffes, only the giraffes with the longest necks would be able to eat from trees, the ones with shorter necks would not be able to eat and die out
- This would mean that only the gene for long necks would be passed on, leading to all giraffes having long necks

Extinction

- A species will become **extinct** when all of a species die out
- The **fossil record** shows us that animals have existed in the past which have now become extinct
- Extinction can be caused by:
  - Changes to the environment
  - Destruction of habitat
  - New diseases
  - Introduction of new predators
  - Increased **competition**
- When a species becomes extinct, the variety of species within an ecosystem is reduced, this is also known as a reduction in **biodiversity**
- The more diverse a **population** is, the more likely they are to survive environmental changes

Punnet squares

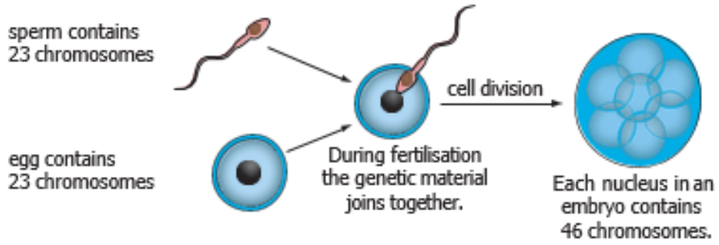
Possible alleles from mother \ Possible alleles from father	**B** (dominant allele for browneyes)	**b** (recessive allele for blue eyes)
b (recessive allele for blue eyes)	**Bb** Offspring will have brown eyes as B is dominant	**bb** Offspring will have blue eyes as both alleles are recessive
b (recessive allele for blue eyes)	**Bb** Offspring will have brown eyes as B is dominant	**bb** Offspring will have blue eyes as both alleles are recessive

Genetic modification

- **Genetic modification** is the process which scientists can use in order to alter the genes of an organism
- Examples of this include altering cotton to produce higher yields, altering bacteria genes to produce medicines and altering crops to produce their own insecticides

Inheritance

- **Characteristics** are passed along from parents to their offspring
- Half of the genetic information comes from each parent, this is passed on through the sex cells in the process of fertilisation

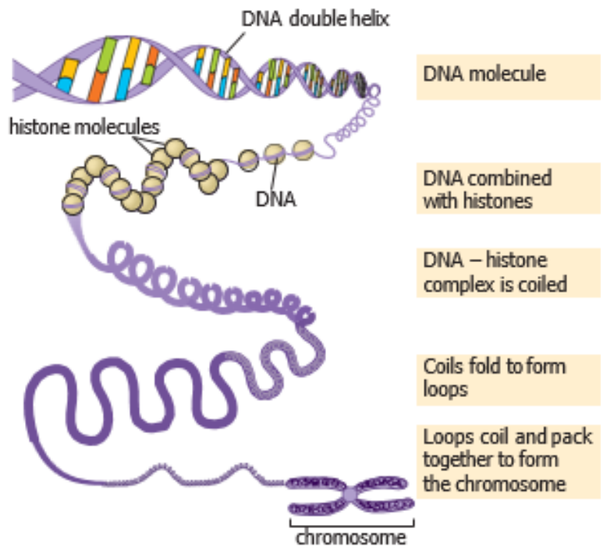


- **DNA** is the material which contains all of this genetic information

DNA – in the shape of a double helix

Genes – a section of DNA which hold the information for a particular characteristic

Chromosomes – long strands of DNA which hold many genes, humans have 46 of these in the nucleus of cells



Genetics

- For every characteristic an organism will have two **alleles**, this is two different genes which can code for the same characteristic, one is inherited from each parent
- **Dominant** alleles will cause the characteristic to be displayed even if they are with another allele, this is represented by a capital letter
- **Recessive** alleles will not be displayed as characteristics unless there are two of the same allele, they are the characteristic least likely to be shown, this is represented by a small letter
- We can predict the inheritance of characteristics using a **Punnet square**

Key terms

Allele Biodiversity Characteristics Chromosome Competition DNA Dominant Evolution Extinct Fossil record Gene Genetic modification Mutation Natural selection Population Punnet square Recessive

B5 Animals Activate
Question • Progress • Succeed
Knowledge organiser

Respiration

- Respiration is the process in which energy is released from the molecules of food which you eat
- Respiration happens in the mitochondria of the cell
- **Aerobic respiration** involves oxygen, it is more efficient as all of the food is broken down to release energy

glucose + oxygen → carbon dioxide + water

- The glucose is transported to the cells in the blood **plasma**
- The oxygen is transported to the cells in **red blood cells**, by binding with **haemoglobin**
- Carbon dioxide is a waste product and is transported from the cells to the lungs to be exhaled

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- **Anaerobic respiration** is a type of respiration which does not use oxygen, it is used when the body cannot supply the cells with enough oxygen for aerobic respiration
- Anaerobic respiration releases less energy than aerobic respiration

glucose → lactic acid + carbon dioxide

- The **lactic acid** produced through anaerobic respiration can cause muscle cramps
- Lactic acid will build up if there is not enough oxygen present in the blood supply to break it down. This is known as an **oxygen debt**

Fermentation

- **Fermentation** is a type of anaerobic respiration which occurs in yeast
- Instead of producing lactic acid, yeast produces ethanol, which is a type of alcohol

glucose → ethanol + carbon dioxide

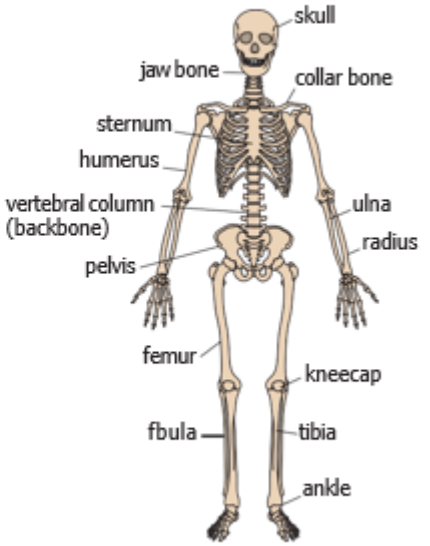
- This process can be used to form alcohol to drink or to allow bread and cakes to rise

Muscles

- **Muscles** are a type of tissue which allows movement
- They pull on tendons which in turn pull on bones to allow movement
- Muscles like the triceps and biceps are known as **antagonistic muscle pairs**, they work together –as one contracts, the other will relax

The skeleton

- The **skeleton** is made up of 206 **bones** which are a type of **tissue**
- Bones have a blood supply and are a living tissue
- The skeleton is part of the **muscular-skeletal system**
- The four main functions of the skeleton are:
  - To support the body – to keep you upright and hold **organs** in place
  - Protect organs – such as the skull protecting the brain
  - Movement – by working with muscles to allow you to move
  - Making blood cells – the **bone marrow** produces red and white blood cells



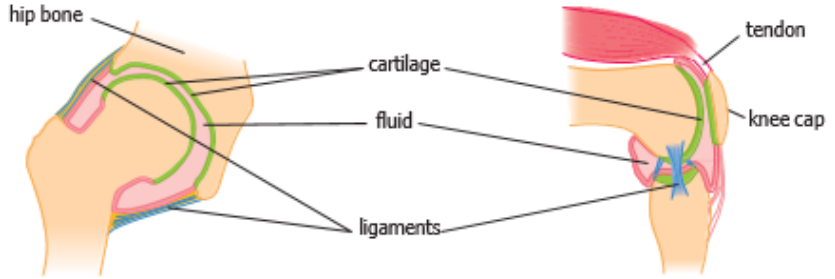
Movement

Joints occur between bones and allow movement, there are three main types of joints

Hinge	Ball and socket	Fixed
For back and forward movement, e.g. knees	*For movement in all directionse.g. hips*	*Do not allow movement, e.g. skull*

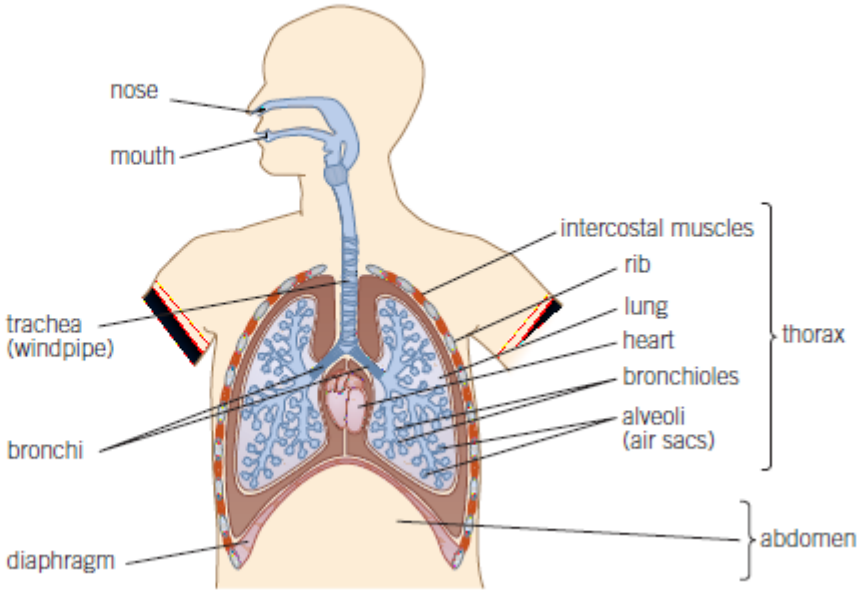
Joints have three main types of tissue:

Ligaments	Cartilage	Tendons
Connect bone to bone	*Coats the end of bones as a protection*	*Connects bone to muscle*



Gas exchange and breathing

- **Gas exchange** is the process of taking in oxygen and giving out carbon dioxide
- This occurs in the **respiratory system**
- The proportions of gases in the air we **inhale** and **exhale** changes due to using oxygen in **respiration** and producing carbon dioxide



B5 Animals
Knowledge organiser
Activate

Drugs

- **Drugs** are chemicals that affect the way that our body works
- **Medicinal drugs** are used in medicine, they benefit health
- If medicinal drugs are not taken in the correct way they can harm health
- Examples include antibiotics and pain killers

- **Recreational drugs** are taken by people for enjoyment
- Recreational drugs normally have no health benefits and can be harmful for health
- Examples include alcohol and tobacco

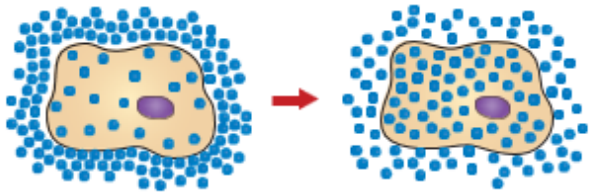
- Drug **addiction** is when your body gets so used to a drug, it feels it cannot cope without it
- If someone who has an addiction stops taking the drug, they will experience **withdrawal symptoms**

What happens when you breathe in and out

when you breathe in (inhale)	• muscles between the rubs contract • ribs are pulled up and out • diaphragm contracts and flattens • volume of the chest increases • pressure inside the chest decreases • air rushes into the lungs
when you breathe out (exhale)	• muscles between ribs relax • ribs are pulledin and down • diaphragm relaxes and moves up • volume in the chest decrease • pressure inside the chest increases • air is forced out of the lungs

Movement into and out of cells

- The process in which substances move into and out of cells is known as **diffusion**
- This occurs across the **cell membrane**
- During diffusion particles move from an area of high **concentration**, to an area of low concentration



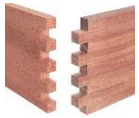
before diffusion after diffusion

- Oxygen and nutrients enter the cell by diffusion, carbon dioxide and waste products leave

Key terms Make sure you can write definitions for these key terms.

Aerobic respiration Anaerobic respiration Antagonistic muscle pairs Bone Bone marrow Cartilage Diffusion Drug Exhale Fermentation Gas exchange Haemoglobin Inhale Joints Lactic acid Ligaments Medicinal drug Muscle Oxygen debt Plasma Recreational drug Red blood cells Respiration Respiratory system Skeleton Tendons Tissue Withdrawal symptoms

Year 9 Resistant Materials Knowledge Organiser



Finger joint

Dowel joint

Lap Joint

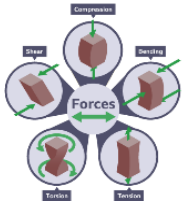
MDF is made from small timber fibres that are mixed with wax and **resin**. They are heated and **compressed** so that a flat, usable sheet is produced.

Forming timber through laminating thin, flexible layers of wood to form a stiff, usable shape.

Forces and stresses

Forces act on materials all the time - even if a material appears stationary it still has a force acting on it. There are five terms used to describe what type of force can act on a material:

- **tension** - a pulling force
- **compression** - a pushing force
- **bending** - forces at an angle to the material
- **torsion** - a twisting force
- **shear** - forces acting across the material



Machinery and Tools in the workshop

Tenon Saw: used for sawing straight lines in wood.

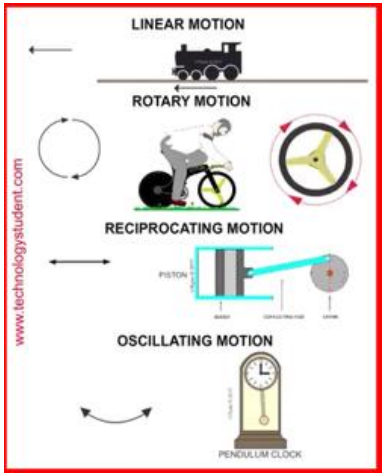
Chisel: used to shape wood. Can cut out sections

File: Abrade a thin surface area of wood.

Hand Drill: used to drill holes into materials

Rasp: Abrade a thick surface area of wood.

Coping Saw: used to saw curved lines into wood.



Product analysis - Looking at products that already exist can help improve further designs by pinpointing issues to improve designs and **prototypes**.

Modelling

Modelling ideas in card, paper, clay or other materials can create a cheap and quick way to do initial trials with a product. Using an easy to modify material provides a good way of seeing how a product looks and works, eg checking handles are in the right place or parts fit together well. Taking photographs or video throughout this can show development.

Paper	Properties	Uses
Layout paper	Lightweight, thin, cheap, smooth surface	Graphic drawings, animations
Bleed proof (marker) paper	Contains more chalk, smooth, hard, doesn't absorb ink, doesn't bleed	Creating special effects for designers or artists
Tracing paper	Good transparency, expensive	For seeing an image underneath
Grid paper	Covered with continuous square grid	Used in many maths contexts
Cartridge paper	Heavier weight, good quality, opaque	Writing and sketching

Boards

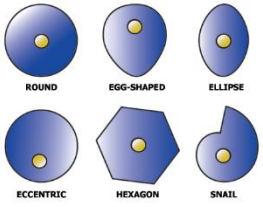
Board is selected by its thickness, measured in microns. One micron is 1/1,000th of 1 mm. Sometimes the thickness of board is given in **sheets**, referring to the number of pieces of paper that have been glued together to make a sheet of board.

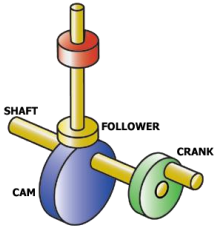
Board	Properties	Uses
Corrugated cardboard	Strong, lightweight	Packaging protection in transportation of products and used to package some hot food such as a pizza due to its insulating properties.
Duplex board	Cheaper than white board, available with different finishes (metallic, holographic etc.)	Food packaging, eg biscuit boxes or containers
Solid white board	Top quality, range of thicknesses, excellent to print on	Hardback books
Foil-lined board	Expensive, good quality, aluminium foil lining, excellent barrier against moisture	Pre-packed food packages, cosmetic cartons
Inkjet board	Expensive, printable, photo quality	Posters, photography, art reproductions
Foam-core board (foam board)	Strong, lightweight, paper face, foam core	Model making, mounting photographs

Cams and followers

A **cam mechanism** has two main parts:

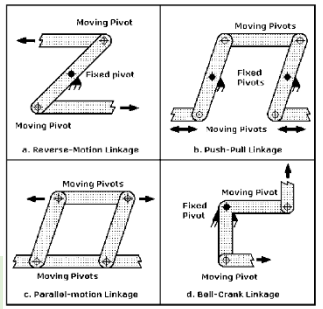
- a **cam** - attached to a **crankshaft**, which rotates
- a **follower** - touches the cam and follows the shape, moving up and down





Linkages

Levers can be joined together to form **linkages**. Simple linkages change the direction of motion and the amount of force.



The Forest Stewardship Council (FSC) is an international organisation that promotes responsible forest management.

Reinforced materials and methods include

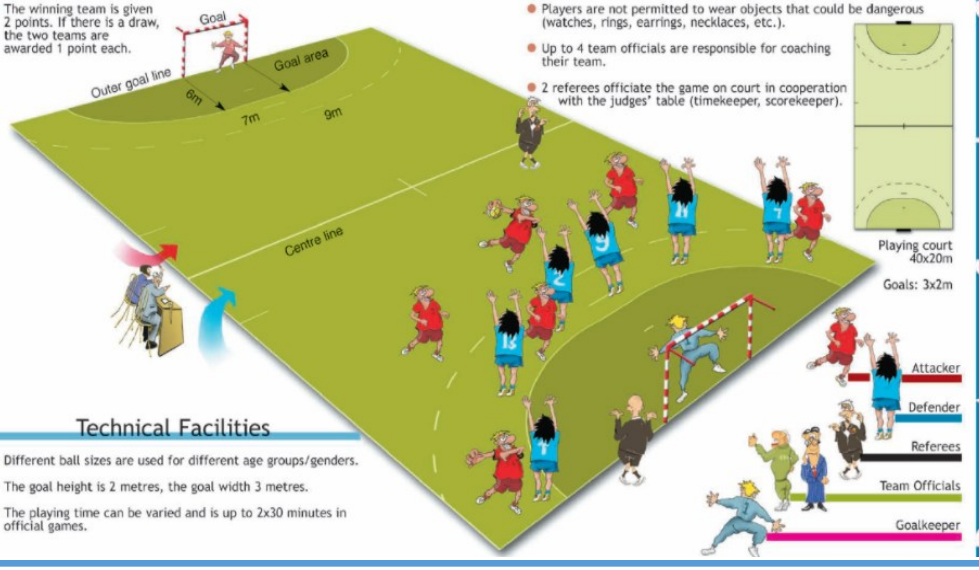
- Corrugated cardboard
- lamination of timber (plywood)
- lamination of paper
- Reinforced concrete

Year 9 Knowledge Organiser
Spring Term

How well do you understand Handball?

The Basic Principles of Handball

- Handball is a team sport based on "fair play" principles.
- On court there are two male or female teams playing against each other, both trying to score goals with a handball.
- The team that has scored the most goals when the playing time is over is the winner.
- The winning team is given 2 points. If there is a draw, the two teams are awarded 1 point each.



Technical Facilities

- Different ball sizes are used for different age groups/genders.
- The goal height is 2 metres, the goal width 3 metres.
- The playing time can be varied and is up to 2x30 minutes in official games.

Teams/Players/Team Officials/Referees

- Each team consists of up to 14 players. On court a team has 6 field players and 1 goalkeeper.
- Within each team the players are interchangeable during the game.
- All field players of a team wear identical, coloured uniforms. Goalkeepers wear uniforms that differ from those of the field players.
- Players are not permitted to wear objects that could be dangerous (watches, rings, earrings, necklaces, etc.).
- Up to 4 team officials are responsible for coaching their team.
- 2 referees officiate the game on court in cooperation with the judges' table (timekeeper, scorekeeper).

BASICS

Fitness Tests

Cooper Run

30M Sprint

Sit & Reach

Vertical Jump

Agility Run

Speed Bounce

Sit Ups | Wall Throw | Stork Stand | Ruler Drop | SLJ

Use finger tips to control the ball (do not slap the ball)

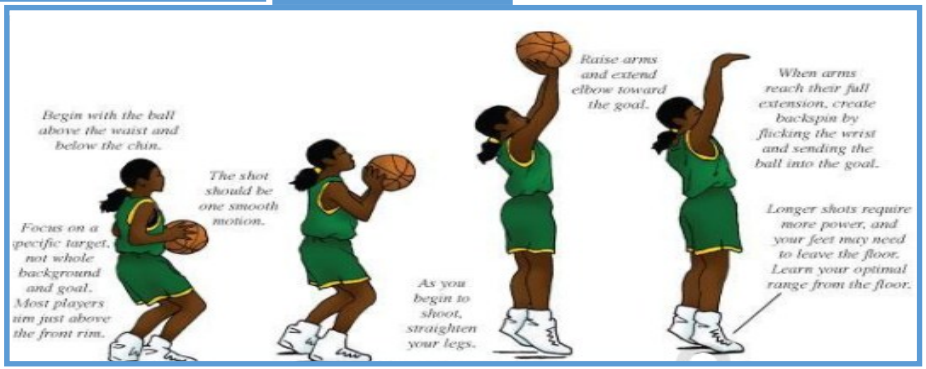
Keep your hand above the ball.

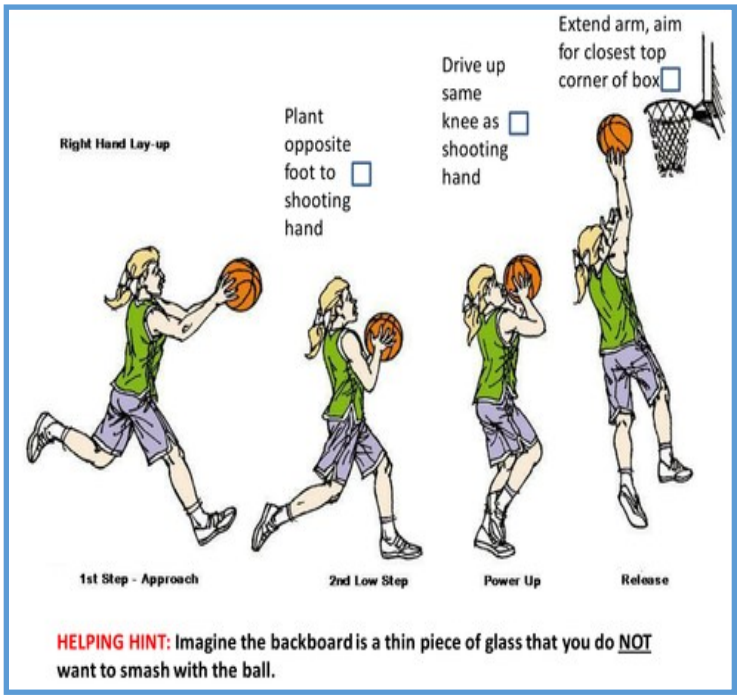
Don't bounce the ball higher than the chest.

Keep the ball to the side of your body.

BASKETBALL

Cones





HELPING HINT: Imagine the backboard is a thin piece of glass that you do NOT want to smash with the ball.

Improve your Basketball skills

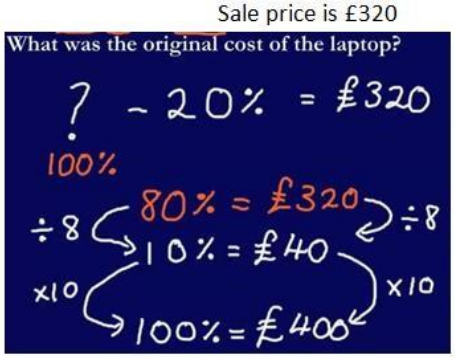
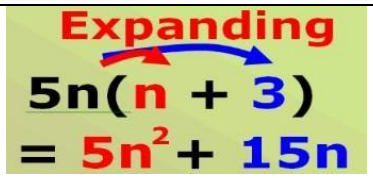
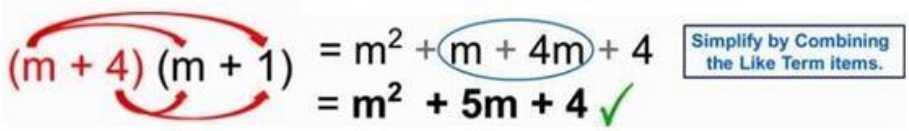
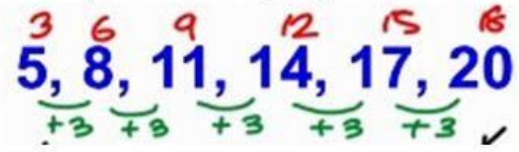
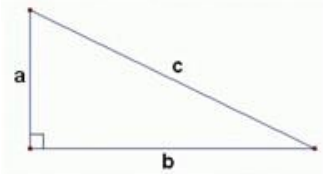
The Basic Dribbling rules

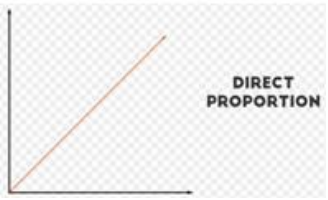
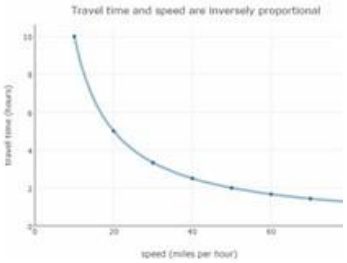
1. The dribble begins when you catch the ball (two hands)
2. You are only allowed to run bouncing the ball (one hand only)
3. Once you stop and touch the ball with both hands again this is the end of the dribble. You now have two options, PASS or

in a Game

The dribble is used in a game to move the ball up court at speed when there is no option to pass.

Year 9 Spring Maths Knowledge Organiser

Topic	Key fact	Hegarty maths clip number
Percentage of Amount	Turn the percentage into a decimal and multiply it by the amount. e.g. 45% of 60 is 0.45 x 60 = 27 The 0.45 is called the decimal multiplier.	83 to 87
Percentage Increase & Decrease	If it is a percentage increase, the decimal multiplier will be 1.something because you are getting more than 100%. If it is a percentage decrease, the decimal multiplier will be 0.something because you are getting less than 100% e.g increase £200 by 40% would be 200 x 1.4 decrease £200 by 40% would be 200 x 0.6	88 to 92
Reverse percentages		96
Expanding a single bracket		160 – 161
Expanding double brackets	Expanding – multiplying out the brackets. 	162 - 165
Linear sequences (nth term) & Special Sequences	Square: 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, … Cube: 1, 8, 27, 64, 125,… Triangular: 1, 3, 6, 10, 15, 21, 28, 36, 45, … nth term: General rule for a sequence. Find the difference between each term, then how do you get from that times table to the sequence: (e.g. 3n + 2) 	196 – 198
Pythagoras' Theorem	 c = hypotenuse $a^2 + b^2 = c^2$ $c^2 - b^2 = a^2$ $c^2 - a^2 = b^2$ Remember to square root your answer to find the missing side.	497 – 504

Indices	$a^m \times a^n = a^{m+n}$ $a^m / a^n = a^{m-n}$ $(a^m)^n = a^{mxn}$ $a^0 = 1$ $a^1 = a$	102 to 106
Calculations with numbers in standard form	Multiplying & dividing: do the 'normal' numbers like usual; then use index laws for the $\times 10^n$ Adding & subtracting: make them ordinary numbers first; do column addition or subtraction; change back to standard form	125 to 128
Negative and Fractional Indices	$m^{a/b} = \sqrt[b]{m^a}$ $a^{-c} = \frac{1}{a^c}$ $\left(\frac{1}{a}\right)^{-c} = a^c$ $\left(\frac{x}{y}\right)^{-c} = \frac{y^c}{x^c}$	104 to 108
Direct Proportion	One quantity **increases** at the same rate as the other quantity **increases**. 	339
Inverse Proportion	One quantity **increases** at the same rate as the other quantity **decreases**. 	342

Key Vocabulary

- Integer – A whole number.
- Power/Indices - The index of a number says how many times to use the number in a multiplication. It is written as a small number to the right and above the base number.
- Square number - the answer you get when you multiple a number by itself.
- Cube number - the answer you get when you multiply a number by itself 3 times. ○ Root – The inverse operation of a power.
- Expand – to multiply the term before bracket by the terms in the bracket using the ○ Factorise – To put into brackets by taking out the highest common factor.
- Hypotenuse – the longest side in a right0angled triangle. ○ Direct proportion - one quantity increases at the same rate as the other quantity increases. ○ Inverse proportion - one quantity increases at the same rate as the other quantity decreases. ○ $n^{th}term$ – the position to term rule for a sequence. Can be used to find any number in a sequence.

Winston Churchill
1874-1965

Key facts

Didn't do well at school so joined the **army,** during which he was a prisoner of war in South Africa 1899

MP for **Wanstead and Woodford** 1936 - 1965

Prime Minister 1940-1945, 1951-1955

Had a lisp and stammer so needed to make his **speeches very inventive and spectacular**

Some people argue that his **leadership** and speeches are ultimately what stopped Hitler by uniting Britain and giving them something to fight for

Famous speeches called 'finest hour' and 'Battle of Britain

Common misconceptions

Myth: Only Jews were killed during holocaust.
Reality: Whilst 6 million Jews were killed, 5 million gypsies, 'war criminals', communists and homosexuals were also murdered in the death camps. 13 million Soviet civilians, 14 million Chinese were also killed

Myth: It was just the Nazis and Japanese that committed atrocities.
Reality: Whilst the horror of the death camps and hundreds of thousands of tortured prisoners in Japan are abhorrent, the Allied powers also treated others badly occasionally (one grave showed 60% of Japanese bodies were missing heads – leading to the rumor that were being collected by enemy soldiers)

Myth: Americans saved the day
Reality: It was actually the Soviet union most responsible for the defeat of the Nazis. They lost 10 million soldiers. More than 80% of German soldiers died at the hands of the Soviets.

Propaganda – information, usually biased or misleading, that tries to promote a political cause or idea.
Governments used this to persuade public to help more in war effort, from signing up to fight to growing vegetables.

UK propaganda was about encouraging people to help, and that the fight against Germany was a fight of good vs. evil

Nazi propaganda was aimed at justifying the war, esecially fuelling hatred of jews and the UK.

Adolf Hitler – 1895 - 1945

Key facts

Born in Austria. Tried becoming a painter but wasn't good enough, so he joined the German army in 1913 and served until Germany lost the war in 1918.

Failed attempt at revolution in Munich 1923.

1924, he gained popularity by being an incredible orator (very passionate), criticising the Treaty of Versailles, as well as attacking capitalism and communism, and blaming Jewish people for most of the worlds problems (anti-Semitism).

He wanted to eliminate the international Jewish population (which he did by murdering 5.5 million in what is known as the Holocaust),

He also wanted to get back lots of land in Europe he saw as 'German', which meant invading several countries and re-arming. This is one of the main causes for WW2.

Key WW2 points	
What?	Global war, mainly in Europe and Asia.
When?	1939-1945. Britain entered war when Germany invaded Poland in 1939.
Who?	Allied (GB, France, Russia) vs Axis (Germany, Italy, Japan)
How?	Badly affected most of Europe and the world. Millions of people fought and died in those 6 years.
And?	It looked like Germany were winning at the beginning, but after US joined Britain in 1941, the tables turned before Germany surrendered on May 8th 1945 (VE – victory in Europe- day)

Women	Children
Women's place in sisciety was greatly affected by WW2. With all the men fighting, women were needed to fill in all the jobs that needed doing. Over 350,000 women were directly involved in the war effort. This upset traditional idea of men as the main earner for the family, and started a long and difficult journey (still ongoing) for gender equality.	1.5 million children (and disable and old adults) were evacuated to safer areas from cities in operation 'pied piper' Cultures clashed, and not everyone had a good experience. Some stayed home and put up with dangers of being bombed. Lots of fathers had died during the war, changing the idea of a 'family.'
	

Key Vocabulary	
Evacuation	When people are organised to leave an area in an emergency.
Evacuees	The name given to children who were evacuated from towns and cities during WWII to places considered safer, usually in the countryside.
Civilian	Anyone who is not a soldier.
Home front	What civilians do during a war.
Blitz	Continuous bombing of the UK 1940-1941. Named after German word for 'lightning.'
Appeasement	Britain and France decided to appease Germany, allowing it to do things it shouldn't have, to avoid another war. One famous example is the Munich Agreement in 1938, which gave Hitler parts of Czechoslovakia.
nationalism	A way of thinking where people think all countries (especially theirs) should be completely separate and rule themselves.
military	The armed forces. Army, RAF, Navy
RAF	Royal Air Force.
invasion	To go into another country without permission and take it over.
Air Raid	Military airplanes sent to bomb an area
oracy	The skill of speaking well to public, used by both Hitler and Churchill to gain support.
Re-armament	What Hitler did in the run up to WW2, contrary to the Treaty of Versailles. Expanded military and weaponry
reparations	Money payments as part of the Guilt Clause laid on Germany after WW1.
dictator	A ruler with total control over a country. Usually achieved through force
Battle of Britain	British and German planes fight to control the skies above Britain, 1940. First air only battle
Dunkirk	A port on the North coast of France that was the sit of a mass evacuation of stranded allied troops by civilian boats.

Key Dates	
Sept 1939	Germans invade Poland. War declared by Britain and France two days later.
Jan 1940	Rationing introduced.
May 1940	Winston Churchill takes over from Neville Chamberlain, delivers famous speech "I have nothing to offer but…"
May/ June 1940	British expeditionary force evacuated from Dunkirk. Churchill delivers famous "We shall fight them on the beaches…" speech
June 1940	Children are evacuated. Italy enters the war and declares war on Britain and France.
Aug 1940	The Battle of Britain. Churchill delivers famous "Never in the field of human conflict…" speech.
Sept 1940	The Blitz.
Dec 1941	Japan bombs US Naval Base at Pearl Harbour. USA declares war on Japan and enters WW2.
June 1944	D-Day: British, US & Canadian troops land in Normandy for Operation Overlord.
May 1945	Germany surrenders VE Day

WW1	**1914-1918**

Growing political and national tensions in Europe saw countries equipping themselves for war and creating alliances – making everyone nervous. The spark that started WW1 was when Archduke Franz Ferdinand of Austria-Hungary was assassinated by a Serbian called Princip.

Kaiser Wilhem, leader of Germany, send Serbia a harsh ultimatum. When they refused, war started.

During the conflict, Germany, Austria-Hungary, Bulgaria and the Ottoman Empire (the Central Powers) **fought** against Great Britain, France, Russia, Italy, Romania, Japan and the United States (the Allied Powers).

All sides suffered greatly – but it was the central powers who 'lost'.

Some causes of World War 2

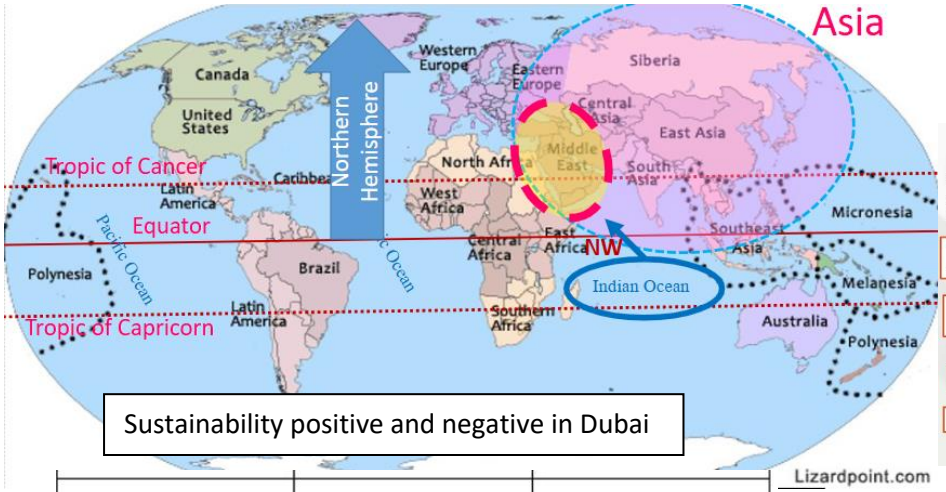
WW1 – One of the main causes of WW2 was WW1. The losing sides felt they had been treated unfairly, and there was a lot of anger and resentment in Europe due to the massive damage caused by WW1.

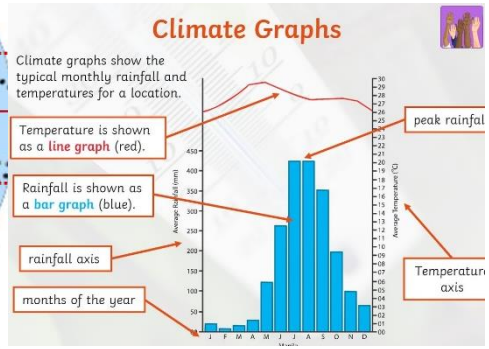
Treaty of Versailles – brought WW1 top an end. Officially blamed Germany, who was made to pay back a huge amount of money to countries it had damaged (mainly France) , and promise to give back land it had invaded and de-arm its military .

Nazi Germany is the common English name for Germany between 1933 and 1945, when Adolf Hitler and his Nazi Party controlled the country through a dictatorship. Under Hitler's rule, Germany was transformed into a totalitarian state (all aspects of life being controlled by the government), as well seeking to invade most of Europe to purify their race

German invasion of Poland, 1939– the trigger point which began the war, Germany invades Poland using Blitzkrieg. Britain and France could no longer ignore Germany's actions and declared war.

Year 9 Knowledge Organiser – The Middle East





What should I already know?
How to read a climate graph

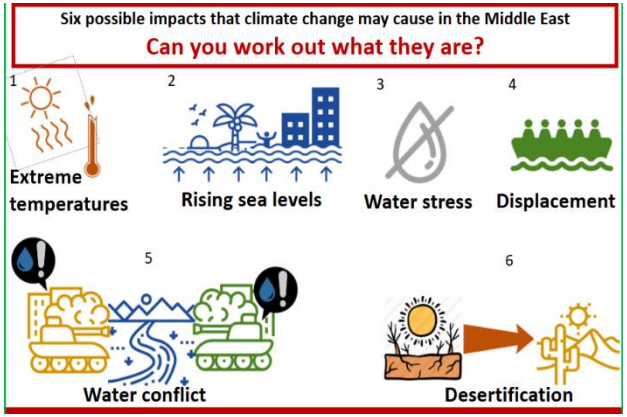
Key Definitions

Biome	Definition/ characteristics
Polar	Found near the north and south poles. Only specialised plants and animals survive here.
Temperate deciduous forest	Found across Europe and in the USA. These trees lose their leaves every year and thrive in mild and wet conditions known as a temperate maritime climate.
Desert	Found near the Tropics of Cancer and Capricorn. Conditions here are very hot and dry.
Mixed forest	This is a forest that has both deciduous trees (trees that lose their leaves in fall, like oaks) and coniferous trees (evergreen trees that keep their leaves, like pines).
Temperate grassland	Found in Hungary, South Africa, Argentina and the USA. Consists of grass and trees that thrive in a temperate continental climate of moderate rainfall and mild conditions.
Savanna grassland	Found mainly in central Africa, southern India, northern Australia and central South America. Long grasses and a few scattered trees are found in these hot and dry conditions.
Tropical rainforest	Found near the Equator. The climate is hot and humid and many different species can be found here.
Coral reefs	Found in a zone extending from 30° north to 30° south of the equator. They form some of the most diverse ecosystems on Earth.

Sustainability positive and negative in Dubai

Lizardpoint.com

10. Dubai has an automated metro system. Stops include the international airport and the city centre. ✓	11. Water in Dubai comes mainly from energy-intensive desalination of sea water. ✗	12. Dubai gets most of its energy from burning natural gas which is a fossil fuel. ✗
13. Dubai and the UAE has in import the vast majority of its food due to the lack of farmable land. ✗	14. Due to extreme temperatures and intense sunshine, heat stroke and sunburn are common issues with the health of residents. ✗	15. Dubai is one of the safest cities in the world and has one of the lowest crime rates. ✓
16. A huge amount of energy is used for air conditioning, cooling buildings down in the desert heat. ✗	17. A range of housing is available at different prices, so even lower-paid residents can find a place to live ✓	18. The standard of healthcare in Dubai is very high. ✓

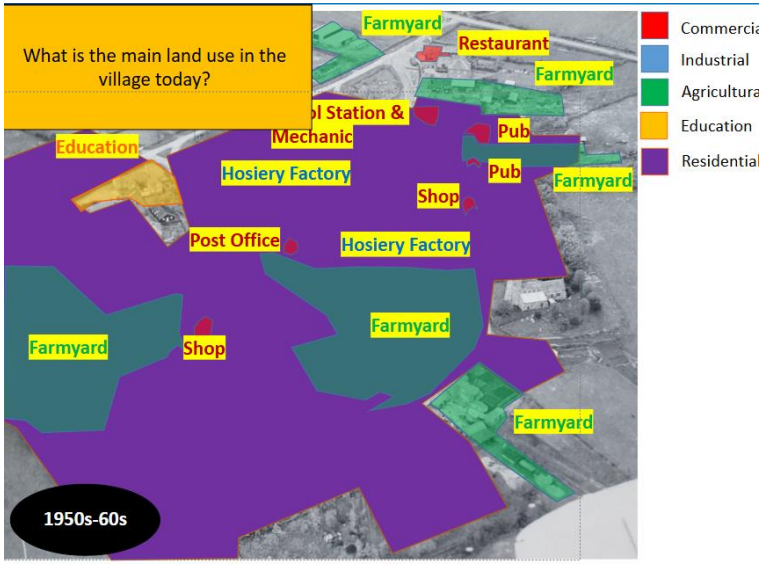


How Sustainable is Dubai?

High car use and congestion. 2 underground lines and 2 more in construction	Most desalinisation plants currently use fossil fuels. New solar powers desalination plants will open by 2024	
8% of electricity comes from renewable sources (target of 25% by 2030)	No doorstep recycling. There are a small number of recycling stations or you can pay for a private collection	
Dubai has two sewage treatment plants for its 3.3 million people	Citizens tend to be conservative and religious. Many visitors use it as a party and beach city	70% homes connected to sewers Many private swimming pools. An average pool loses 16.7cm per month through evaporation in Dubai

Year 9 – Urbanisation - How have settlements changed over time?

How has Arnesby changed over time?



Urbanisation
When people move from rural areas to urban areas

Suburbanisation
When people move from city centres to quieter parts on the edge of *the city—these are called 'suburbs'*

Gentrification
When old and run-down areas of a city are improved and redeveloped. Wealthier people then move into these areas

Teleworking
When access to high-speed broadband means people can work from home and no longer need to commute into a city

Commuting
When people regularly travel from rural or suburban areas to their workplace in a city

Re-urbanisation
When city centres are redeveloped and people move back to the city from suburban areas

Counter-urbanisation
When people move from urban areas to live in rural areas, A new life in the countryside!

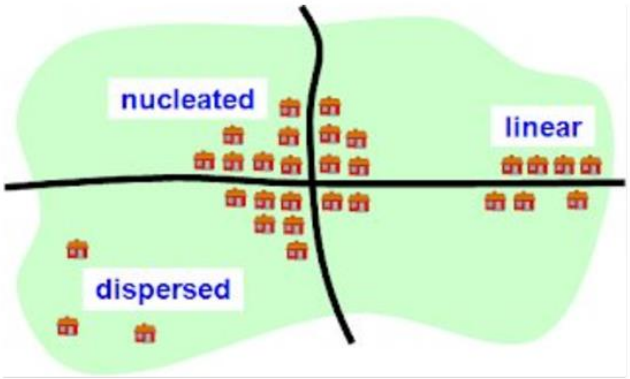
Urban sprawl
When urban areas expand and grow over large distances, creating a huge urban area for miles around

What should I already know?

The definition of population

Why people live in different places

Rural settlement patterns



Service	Nearest one
Primary School	In the village
Corner shop/Newsagent	Fleckney, 2.7 miles
Small supermarket (Coop)	Fleckney, 2.7 miles
Large supermarket (Tesco)	South Wigston, 5.3 miles
Café (Shearsby Valley Lakes)	Shearsby, 1.4 miles
Church or Chapel	In the village

What is a Settlement Function?

The functions of a settlement are the activities that take place there. In the past, many smaller settlements had only one or two functions (farming and housing, for example). Today, most larger settlements are multifunctional.

Qu'est-ce que tu étudies au collège? What do you study at school?

Au collège, j'étudie **(At school, I study)**	l'anglais **(English)**	Je pense que **(I think that)**
	le français **(French)**	A mon avis **(In my opinion)**
J'adore **(I love)**	l'allemand **(German)**	Je crois que **(I believe that)**
	l'espagnol **(Spanish)**	Selon moi **(According to me)**
J'aime **(I like)**	les maths **(Maths)**	Je trouve que **(I find that)**
	les sciences **(Science)**	Je dirais que **(I would say that)**
Je n'aime pas **(I don't like)**	l'histoire **(History)**	
	la géographie **(Geography)**	
Je déteste **(I hate)**	la technologie **(DT)**	c'est amusant **(it is fun)**
	l'informatique **(IT)**	c'est passionnant **(it is exciting)**
	la musique **(Music)**	c'est cool **(it is cool)**
Ma matière préférée est **(My favourite subject is)**	l'EPS **(PE)**	c'est génial **(it is great)**
	le commerce **(Business)**	c'est nul **(it is rubbish)**
	le dessin **(Art)**	c'est ennuyeux **(it is boring)**
	la réligion **(RE)**	

Décris les règles au collège

Au collège – **At school**	Il faut – **you have to/ it is necessary to**	arriver à l'heure **(arrive on time)**
		faire la queue à la cantine **(queue up in the canteen)**
	On doit – **we must**	lever la main avant de parler **(raise your hand before speaking)**
	On peut – **we can**	écouter le prof **(listen to the teacher)**
	Je dois – **I have to**	respecter les autres **(respect others)**
		porter l'uniforme scolaire **(wear a school uniform)**
		aller aux toilettes pendant les cours **(go to the toilet during lesson)**
	Il ne faut pas – **you must not**	fumer **(smoke)**
	On ne doit pas – **we must not**	mâcher du chewing gum **(chew gum)**
	On ne peut pas – **we cannot**	manger dans les salles de classe **(eat in the classroom)**
	Je ne dois pas – **I must not**	utiliser le portable **(use a phone)**

Décris ta routine scolaire – Describe your school routine

Je me lève **(I get up)** J'arrive au collège **(I arrive at school)** Les cours commencent – **lessons start** Les cours finissent – **lessons finish** La récréation est – **break time is** La pause déjeuner est – **lunch time is** Je fais mes devoirs dans la bibliothèque – **I do my homework in the library** Je mange dans la cantine – **I eat in the canteen** Je joue au foot – **I play football** Je fais des activités périscolaires – **I do after school activities** Je vais au club d'échecs – **I go to chess club** J'ai mon premier cours – **I have my first class** J'ai mon deuxième cours – **I have my second class** J'ai mon dernier cours – **I have my last class** J'ai cours de maths – **I have maths class**	à **(at)**	deux trois quatre cinq six sept huit neuf dix onze	heures **(o' clock)**	du matin **(morning)** de après-midi **(afternoon)** du soir **(evening)**

Qu'est-ce que tu vas faire le week-end prochain? What are you going to do next weekend?

Le week-end prochain **(next weekend)**	Je vais **(I'm going)**	aller au cinéma **(go to the cinema)**
		aller à une fête **(go to a party)**
lundi prochain **(next Monday)**	Tu vas **(you are going)**	aller au centre commercial **(go to the shopping centre)**
mardi prochain **(next Tuesday)**	Il /elle va **(he/she is going)**	faire du sport **(do sport)**
		faire les magasins **(go shopping)**
mercredi prochain **(next Wednesday)**	On va **(we are going)**	faire du cheval **(go horse-riding)**
		faire mes devoirs **(do my homework)**
jeudi prochain **(next Thursday)**	Nous allons **(we are going)**	
		regarder un film **(watch a film)**
vendredi prochain **(next Friday)**	Vous allez **(you are going)**	
		jouer au foot **(play football)**
samedi prochain **(next Saturday)**	Ils /elles vont **(they are going)**	jouer sur mon ordinateur **(play on my computer)**
dimanche prochain **(next Sunday)**		voir un concert **(see a concert)**
		voir un match de foot **(see a football match)**
La semaine prochaine **(next week)**		
		manger une pizza **(eat a pizza)**
		boire du coca **(drink coke)**

Ce sera comment? How will it be?

Je pense que **(I think that)**	Ce sera amusant **(it will be fun)**
A mon avis **(In my opinion)**	Ce sera passionnant **(it will be exciting)**
Je crois que **(I believe that)**	Ce sera cool **(it will be cool)**
Selon moi **(According to me)**	Ce sera génial **(it will be great)**
Je trouve que **(I find that)**	Ce sera nul **(it will be rubbish)**
Je dirais que **(I would say that)**	Ce sera ennuyeux **(it will be boring)**

Qu'est-ce que tu as fait le week-end dernier? What did you do last weekend?

Le week-end dernier **(last weekend)** lundi dernier **(last Monday)** mardi dernier **(last Tuesday)** mercredi dernier **(last Wednesday)** jeudi dernier **(last Thursday)** vendredi dernier **(last Friday)** samedi dernier **(last Saturday)** dimanche dernier **(last Sunday)** La semaine dernière **(last week)**	Je suis **(I)**	allé au cinéma **(went to the cinema)** allé à une fête **(went to a party)** allé au centre commercial **(went to the shopping centre)**
	J'ai **(I have)** Tu as **(You have)** Il / elle a **(he/she has)** on a **(we have)** Nous avons **(we have)** Vous avez **(you have)** Ils / elles ont **(they have)**	fait du sport **(did sport)** fait les magasins **(went shopping)** fait du cheval **(went horse-riding)** fait mes devoirs **(did my homework)** regardé un film **(watched a film)** joué au foot **(played football)** joué sur mon ordinateur **(played on my computer)** vu un concert **(saw a concert)** vu un match de foot **(saw a football match)** mangé une pizza **(ate a pizza)** bu du coca **(drank coke)**

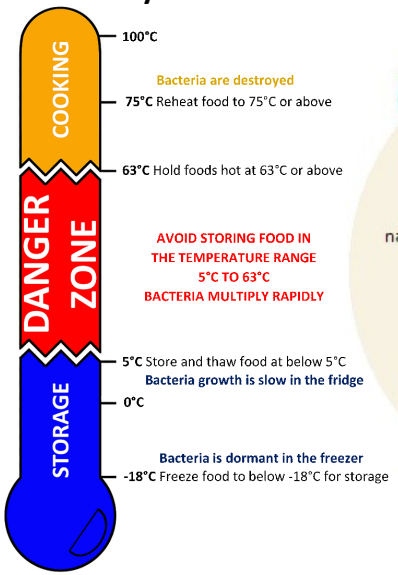
C'était comment? How was it?

Je pense que **(I think that)** A mon avis **(In my opinion)** Je crois que **(I believe that)** Selon moi **(According to me)** Je trouve que **(I find that)** Je dirais que **(I would say that)**	C'était amusant **(it was fun)** C'était passionnant **(it was exciting)** C'était cool **(it was cool)** C'était génial **(it was great)** C'était nul **(it was rubbish)** C'était ennuyeux **(it was boring)**

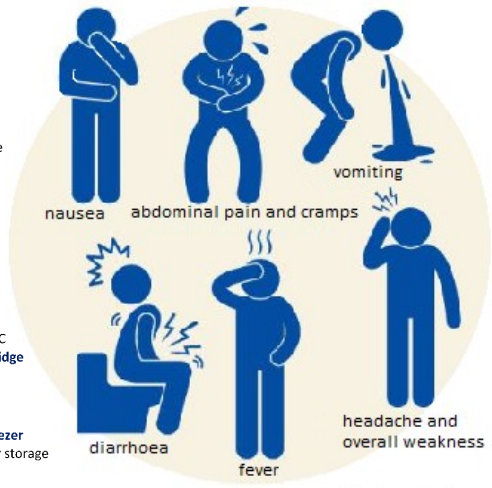
Year 9 - Lifestyle & Choice

COOKING AND NUTRITION

Food safety



Food poisoning symptoms



https://www.youtube.com/watch?v=flxmB8NKMzE
https://www.nhs.uk/live-well/eat-well/10-ways-to-prevent-food-poisoning/
https://www.food.gov.uk/safety-hygiene/avoiding-cross-contamination

Food labelling: lots of information is required by law. Storage instructions are particularly important for food safety.

Keep refrigerated — Store in a cool, dry place

https://www.youtube.com/watch?v=OZOIEYQ0axo&list=PLcvEcrsF_9zIxoGGU59CjuZHciPl9uvGm&index=9&t=2s

Key vocabulary

safety / hygiene / cross-contamination
pathogenic / food poisoning / symptoms
nutrition / hydration / shelf life
perishable / ambient / dormant
ethical / moral / cultural / preferences
allergies / intolerances / life stages

Nutritional needs and health: some people have special dietary needs based on their age, lifestyle or allergies.

https://www.youtube.com/watch?v=k5YSJq4iQtI

Senses: influence our enjoyment of food.

https://www.youtube.com/watch?v=zNchJla7G0E

The Eatwell Guide shows the types and proportions of foods people need for a healthy and well-balanced diet.

https://www.youtube.com/watch?v=7MlE4G8ntss
https://www.nhs.uk/live-well/eat-well/the-eatwell-guide/
https://www.youtube.com/watch?v=8aWqZd9RScQ

Food choices: a variety of factors influence what we choose to eat.

https://www.youtube.com/watch?v=D6eor1wkNFY
https://www.youtube.com/watch?v=bowUbkANVVY

Dehydration: the main symptoms.

https://www.youtube.com/watch?v=b7s2Aqj72Q8

Year 9 - Cooking skills

Equipment

 Fish slice	 Food thermometer	 Food processor	 Potato masher
 Wok	 Tongs	 Electric whisk	 Pastry brush

Skills and Processes

Blind baking

Used in: tomato and basil tarts

Dividing and shaping


Used in: burgers, fish cakes, croquettes, Swedish meatballs

Whisking


Used in: tomato and basil tarts, Swiss roll

Folding and wrapping


Used in: samosas, spring rolls

Key word	Meaning
Denaturation	When protein foods are heated causing them to change size, colour and texture eg. burgers, meatballs, chicken.
Stir-frying	A cooking technique in which ingredients are fried in a small amount of very hot oil while being stirred in a wok
Aeration	The process of incorporating air into a mixture to help provide structure and volume eg. whisking eggs for Swiss roll.
Reduction	Simmering a liquid over heat until it thickens due to evaporation.

Independent skills I need to learn in Year 9

Select the correct colour coded chopping boards to prevent cross contamination.

Use a wide range of preparation and cooking techniques eg. finely dicing, blind baking, whisking, sautéing, shaping, mashing, enrobing, stir-frying etc.

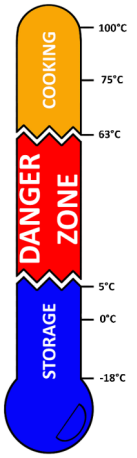
Organise my workspace, remove food waste promptly, clean as I go.

Manage temperature control know when to turn heat up and down accordingly.

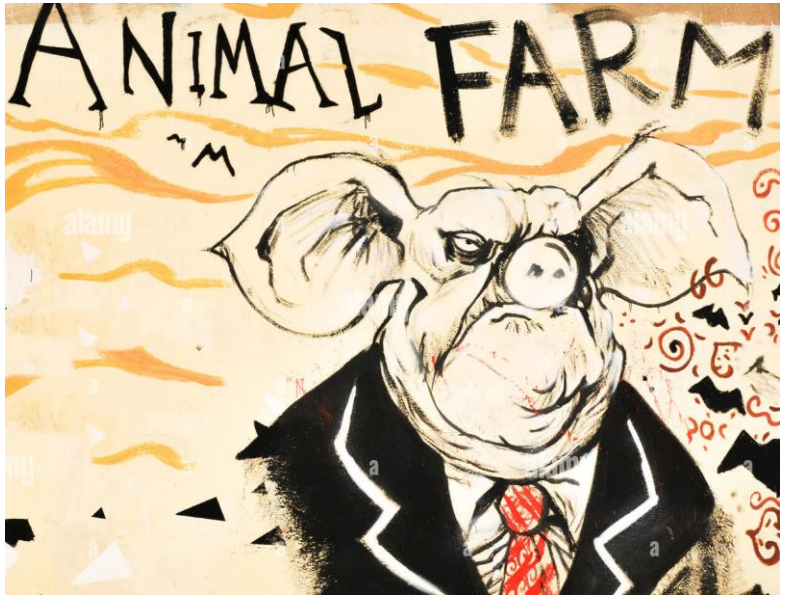
Check for readiness using a food thermometer to check the internal temperature.

Food safety

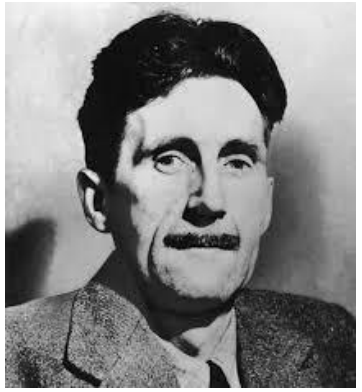
Know the **critical temperature** for cooking foods, the effect on **bacteria** and how to **check the core temperature** of meat.



Animal Farm by George Orwell



On a farm run by a very inept (drunken) farmer, the anthropomorphic animals rise up and form a rebellion. They don't want to be dictated to by someone and decide to form their own farm, run by the animals themselves, without a leader. However, two of the pigs start to try and become the leaders themselves, making rules and demands regarding how the farm is run and, eventually, it ends up being run worse than it was in the first place by the drunken farmer. Published in 1945, the book is allegorical for the Russian Revolution, Stalin and explores the ideas of communism and totalitarianism.



Keywords and terminology:
Inept - having or showing no skill; clumsy.

Dictatorship – a country run by a dictator. A dictator has complete power over the country they run but they have not been elected into that position.

Totalitarianism - a system of government that is run by one dictatorial leader and requires complete subservience to the state.

Anthropomorphism – when animals are made to seem human.

Communism - a theory or system of social organisation in which all property is owned by the community and each person contributes and receives according to their ability and needs.

Allegorical - a story, poem, or picture that can be interpreted to reveal a hidden meaning, typically a moral or political one.

Animal Farm is an allegorical novel by George Orwell where animals are in charge rather the humans.

Context

Orwell wrote the novel as an allegorical tale that links with the history of the Soviet Union. The book was viewed as incredibly controversial and rejected by several publishers before being published.

Old Major represents Karl Marx, Snowball represents Communism, and Napoleon represents Stalin.

Orwell is most famous for this novel and 1984, a dystopian book that wrote about an extreme version of the future. Several new words came from Orwell's work, including cold war, Big Brother, Thought Police, Room 101, memory hole, newspeak, doublethink, and thoughtcrime

Characters

Old Major: Wise, old pig. Starts the rebellion with his powerful speech about men.

Mollie: Shallow and childish mare; deserts the farm to continue to lead the life of a horse.

Snowball: Hero of the Battle of the Cowshed, expelled by Napoleon and used as a scapegoat.

Clover: Caring and loyal, has very little control but realises what is happening as the pigs take control.

Boxer: Innocent but hard working, very strong and selfless.

Mr Whymper: Sly solicitor who helps Napoleon.

Mr Jones: drunken owner of Animal Farm. Symbolises the control and greed of men.

Napoleon: Controlling dictator. Leads by fear and propaganda.

Pilkington and Frederick: Owners of the neighbouring farms and equally manipulative.

Squealer: Napoleon's mouthpiece, he uses propaganda to control the animals.

Plot

1. Mr Jones, the owner of Manor Farm falls asleep in a drunken stupor. All the animals of Manor Farm meet in the big barn where *Old Major* delivers a speech arguing for a rebellion against the men. The Animals sing 'Beasts of England', a song from Old Major's dream.

2. *Old Major dies and the pigs adapt his speech, forming the principles of Animalism. The pigs plan the rebellion even though some animals (like Mollie) are concerned. Napoleon steals milk.*

3. The animals complete the harvest faster than ever. Napoleon teaches the sheep 'four legs good two legs bad' and takes the dogs for 'education'. Cow's milk and windfall apples are given to pigs, Squealer convinces the animals that this is a good idea.

4. News of the rebellion spreads, In October, a group of men try to seize the farm. Led by Snowball's brilliance, the animals fight off the humans which is named 'The Battle of the Cowshed'.

5. Mollie deserts the farm. The pigs grow in influence, suggesting ideas on which the animals must vote. When the Windmill is put to vote, Snowball is expelled from animal farm. Later, Napoleon announces that the Windmill will be built.

6. Napoleon begins trading with humans and hires Mr Whymper. Jones gives up trying to reclaim the farm. The animals begin sleeping with beds, and Muriel and Clover notice a change in the commandments 'with sheets'. Squealer persuades the animals that this is acceptable. In November, a storm topples the half complete windmill. Napoleon blames this on Snowball.

7. The animals struggle against starvation. After learning that they must sacrifice their eggs, the hens stage a demonstration. Napoleon denies their rations and 9 hens starve as a result. In spring, Napoleon calls a meeting and several 'traitors' are executed. *Beasts of England* is outlawed.

8. The next year brings more work and less food, despite Squealer's figures and statistics to the contrary. More executions occur. Napoleon sells a pile of timber to Frederick, who tricks Napoleon with forged banknotes.. Frederick, with 14 other men, attack the farm and blow up the windmill, which rallies the animals to fight back. Several animals die, Boxer is injured but Squealer convinces the animals of their victory.

9. 31 pigs are born, and Napoleon orders for a schoolhouse to be built for their education. Rations are yet again reduced. Boxer is injured working and Napoleon sends for a vet. A van arrives, Boxer is taken away but Benjamin reads the its side and learns that Boxer is being slaughtered.. Boxer is never seen again.

10. Years pass. No animal has ever retired. The farm has grown in size and population. Two windmills are complete. Clover notices the pigs walk on two legs. The commandments are replaced with "All animals are equal but some are more equal than others.". The pigs and humans play cards. A quarrel breaks out. Onlooking animals can not tell the difference between pigs and humans.

Themes

- **Leadership, Control, Lies and Propoganda, Violence, Pride and Belonging, Dreams and Hopes**

Key vocabulary

Deceit	**Influence**	Scapegoat	**Dictatorship**	**Manipulated**	**Corruption**	**Equality**	**Commandment**	**Tyranny**	**Allegory**	**Satire**	**Comrade**

Key Questions

What was life like 130 years ago?

How did Victorians change the way we care for the poor?

If life was so hard for families in the towns, why did so many leave the countryside and move to the towns in Victorian times?

What the Dickens was life like in the Victorian cities?

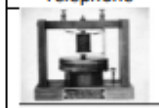
Children working in Victorian factories: was it as bad as they tell us?

What was life like for climbing boys and how do we know?

Victorian railways: Who were the winners and loser?

The Victorian Era: Dark Age or Golden Age?

Key Inventions

Railway Network	Photography	London Underground
		
Telephone	Electric Bulb	Petrol Car
		

The Victorian Era

The period of time between 1837 to 1901 when Queen Victoria reigned over Britain. During her 63 year reign, there was a huge contrast between how the rich and poor Victorians lived. Queen Victoria led the expansion of the British empire and saw major changes to all aspects of Britain due to exciting discoveries and inventions.

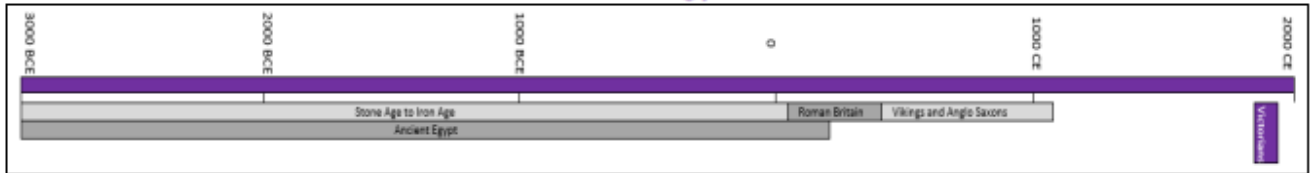
Industrial Revolution

- A period of huge change in Britain between 1750 and 1900.
- Before the Industrial Revolution, Britain was a rural country, most people lived off the land with livestock.
- People began to realise that coal and steam could be used to power factories, large machines, flour and cotton mills. This reduced the time it took to make something and increased the amount that could be made and so the Industrial Revolution began.
- Huge factories were built and towns expanded.
- People would migrate to the towns attracted by reliable work and pay from the factories.
- Houses for workers were built closer to the factories.
- Better transport links helped boost trade by transporting people and goods quickly and cheaply all across the country.

Factory and Chimney Sweeps Acts

- Factory Acts of 1830s – Improve conditions of Factories
- Chimney Sweeps Act 1834 – Age limit for chimney sweets
- 1840 – It became illegal for young boys to climb chimneys
- 1875 – Police given more power enforce law.

Chronology



Key Vocabulary

Era	an important period of history		
Empire	a group of territories or peoples under one ruler		
Monarch	a person who reigns over a kingdom or empire		
Reign	the time during which a monarch rules		
Census	the process by which a government counts its people		
Pauper	a very poor person		
Rural	areas which are not towns or cities.		
Urban	places where buildings and places where people work and live are all close together.		
Industry	a group of companies that all produce the same thing.		
Industrial Revolution	a time of major change in the way products were made.		
Revolution	a big change in something.		
Migrate	move to a different area to find work or better living conditions.		
Class System	The different status people belonged to depending on their wealth. (Upper, middle and working class)		
19th Century	1801 - 1900	20th Century	1901 - 2000

Workhouses

- Known as "The Poor House" Introduced in 1834 as a new system for helping the poor.
- Food was very basic including bread, porridge (gruel), watered down milk and occasionally meat and potatoes.
- 'Trough' sleeping arrangements were dark and cramped
- Degrading 'prion-like' work.
- In 1930, workhouses were closed for good.

Historical Sources

Reliable/bias sources – depending on who the account is from.

Census	Pictures	Political documents
Photographs	Testimony	Artefacts

Flowol

Topic summary

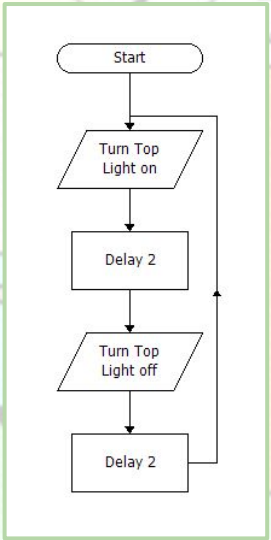
Flowol is a piece of software that allows you to use flow charts to control outputs in mimics, such as, lights and a fog horn in a lighthouse. You can also use inputs to create greater control and options.

Vocab

Input
Output
Algorithm
Decomposition
Iteration
Variable

Learning objectives:

Understand what the term algorithm means
Understand what the term decomposition means
Understand what the term iteration means
Understand what an output and an input are
Understand what variables are



Weblinks: Flowol guide http://www.flowol.com/Flowol4.aspx

Key tools on Flowol

ERASE

The **Erase Tool** will highlight and become active when part of the flowchart has been selected for editing.

Start/Stop/Sub

Use the **Start** symbol at the beginning of the flowchart program.
Use the **Stop** symbol at the end of a sub-routine, and at the end of a program that is not recursive (repeating).
Use the **Sub** symbol to head a sub-routine. (Note: sub-routines should be defined before the main program).
Use the prompts to make your selection.

Output

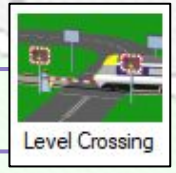
Use the **Output** symbol to turn on or turn off an output or a motor.
Use the prompts to make the selection. (Note: up to four outputs can be turned on or off at a time within one symbol or two motors).

Process

Use the **Process** symbol to put in a delay. (How long does the output need to be switched on for?).
This is also used to call a sub-routine, or to set up a variable. Use the prompts to make your selection.

Decision

Use the **Decision** symbol to decide if 'Yes do this' or 'No do that'.
It is used to check for feedback from an input signal such as: is the switch on, or is the temperature value more than, less than or equal to x etc.
This symbol can also be used to check the values of a variable. Use the prompts to make your selection.



Algorithm:
A set of step-by-step instructions which, when followed, solve a problem.

Output:
Information that comes out of a computer.

Input:
Information that is put into a computer.

Decomposition:
The process of breaking down into smaller parts.

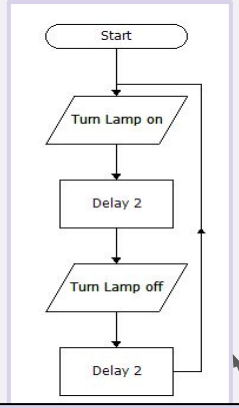
Variable:
A value that can be changed.

Iteration:
To repeat an instruction or set of instructions. (A loop in flowol)

Sequence:
An order that instructions should be given in

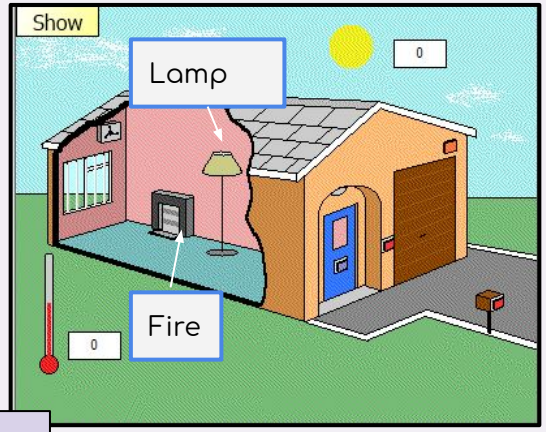
Selection:
An action taken dependent on the answer to a question

A simple algorithm with iteration

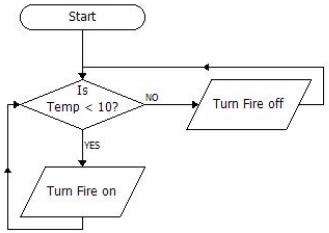


Example of sequence

Autohome mimic

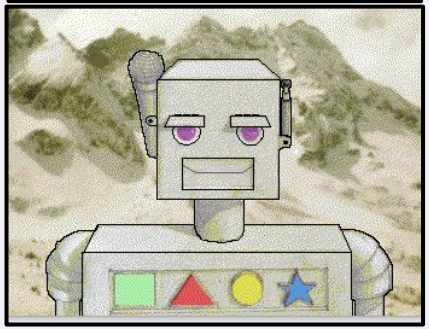


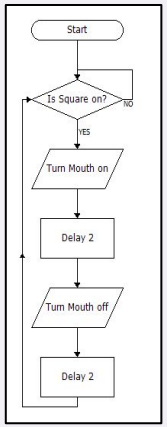
An algorithm using a variable input and iteration



Example of selection

Robot mimic





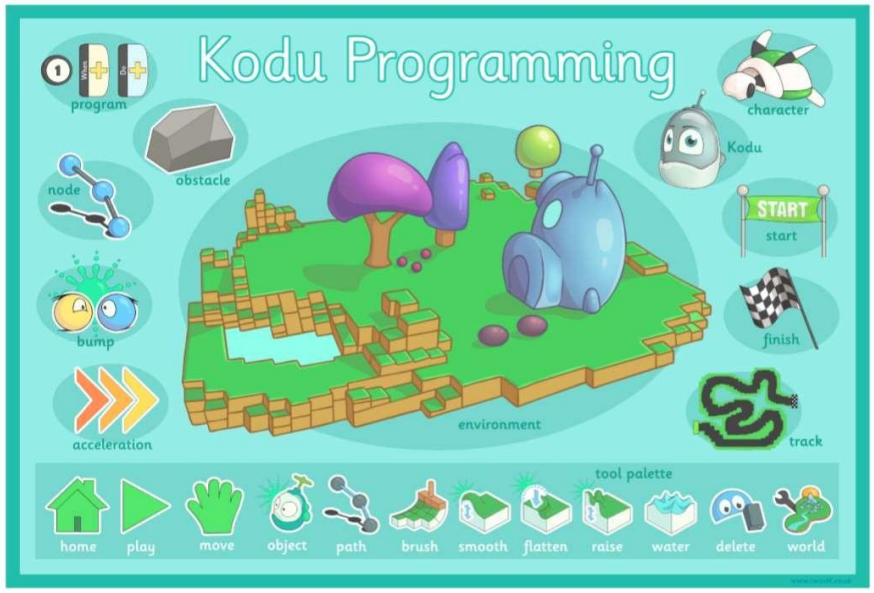
An algorithm using an output to control the mouth of the robot:

- The algorithm asks if the red button is on
- If it is not on nothing will happen
- If it is on the robot's mouth will open for 2 seconds and then close for 2 seconds
- Because a loop (iteration) has been used the robot's mouth will keep opening and closing until the red button has been turned off.

Year 9 Introduction to Computers Knowledge Organiser

	Definition
Acceleration	Increase in speed or rate.
Environment	The surroundings or conditions in which a person, animal, or plant lives or operates.
Object	A material thing that can be seen touched.
Obstacle	A thing that blocks one's way or prevents or hinders progress.
Settings	A set of controls that can be adjusted.

In this unit, we will be…
Investigating and evaluating the features of programming software.
Programming Kodu using When and Do instructions.
Using tools and adding features to create an original landscape in Kodu.
Analysing and deconstructing code to work out its purpose.
Programming a character to be controlled around a custom track to reach a goal.
Programming a character to follow an automatic path.



URBAN

Year 9 Art & Design

Brooklyn
Harlem
New York

SHEPARD FAIREY

Activist, Political, propaganda, posters, blue and red, graphic design, mixed media

BANKSY

Stencil, controversial, anonymous, Flower Thrower, Girl with Balloon, spray paint, street art

DASHONE

Mixed media, monochromatic, bright colours, neon, celebrities, hip hop

Artist research
Artist analysis
Artist copy
Artist response

Primary
Secondary
Harmonious
Contrasting
Monochromatic

Cutting mat

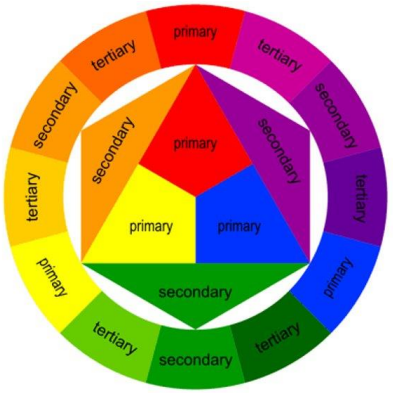
Make sure it is always under your laminate when cutting

Metal safety rule

Keep hands away from the side when cutting.

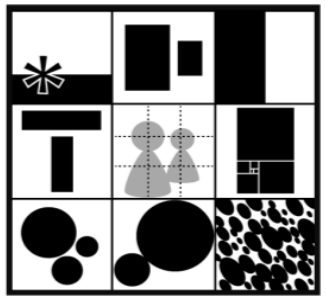
Craft knife

Keep hands away from blade. Do not have open on furthest setting. Close when not in use.



TAG:
A **tag** is the most **basic writing** of an artist's name or nickname.

Composition: The arrangement of the visual elements in a piece of art.



Artist Research:
Title
Images
Information
Artist
copy/response

Stencilling Process:

1. Print and laminate your image
2. Place your laminated image on a cutting mat
3. Carefully cut away the black sections of your stencil
4. Masking tape your stencil onto paper making sure it is flat
5. Use a sponge and poster paint and dab it carefully over your stencil to create your print

Key Words:

Mixed Media
Stencil
TAG
Materials
Sources
Craft knife
Taki 183
Banksy
Shepard Fairey
Dashone
Keith Haring
Grid method
Graphite transfer
Research
Analysis
Composition
Proportion
Printing
Style
Technique
Digital
Manipulation