

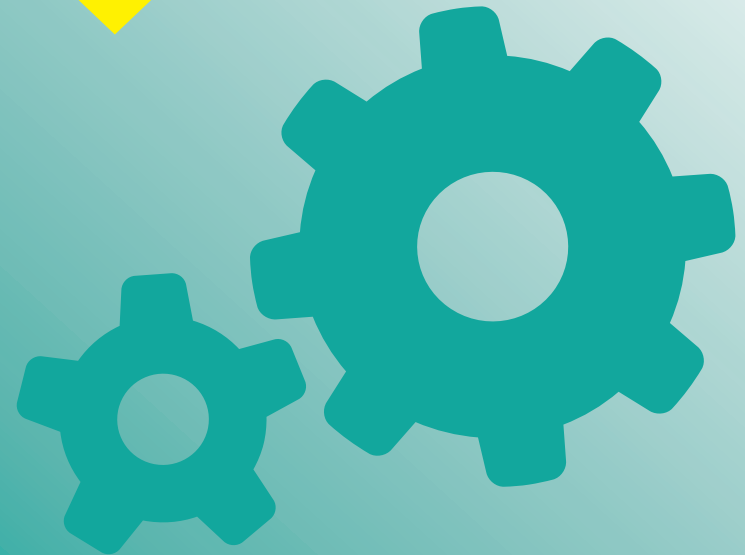


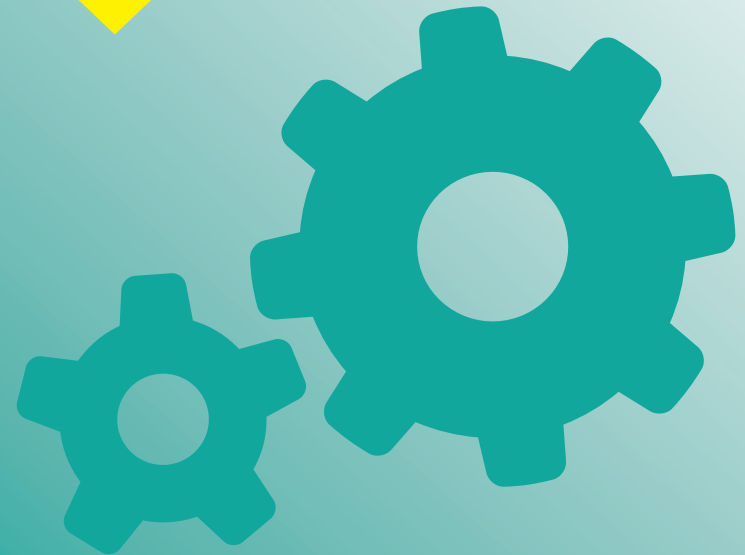
# Year 8 Knowledge Organiser



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# Maths



## Indices:

$$3^a \times 3^b = 3^{a+b}$$

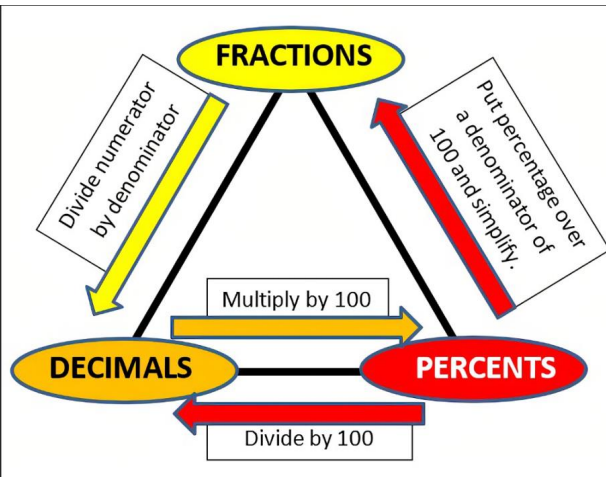
$$3^a \div 3^b = 3^{a-b}$$

$$(3^a)^b = 3^{a \times b}$$

$$3^{-a} = \frac{1}{3^a}$$

$$x^1 = x$$

$$x^0 = 1$$



Important vocabulary	
<b>Factor</b>	Numbers we can multiply together to get another number
<b>Multiple</b>	The result of multiplying a number by an integer (not by a fraction).
<b>Prime</b>	A number which is divisible by 1 and itself. A Prime number has 2 factors, itself and 1.
<b>Highest Common Factor (HCF)</b>	The highest number that divides exactly into two or more numbers.
<b>Lowest Common Multiple (LCM)</b>	The smallest positive number that is a multiple of two or more numbers.

BIDMAS	
B	Brackets
I	Indices
D	Division
M	Multiplication
A	Addition
S	Subtraction

### Addition

$\frac{1}{4} + \frac{3}{8} =$

If the denominators are different, first find a common denominator.

$[\frac{1}{4} \times \frac{2}{2}] + \frac{3}{8} =$

Then add or subtract the numerators.

$\frac{2}{8} + \frac{3}{8} = \frac{5}{8}$

The denominators stay the same.

### Subtraction

$\frac{5}{6} - \frac{3}{4} =$

If the denominators are different, first find a common denominator.

$[\frac{5}{6} \times \frac{2}{2}] - [\frac{3}{4} \times \frac{3}{3}] =$

Then add or subtract the numerators.

$\frac{10}{12} - \frac{9}{12} = \frac{1}{12}$

The denominators stay the same.

### Multiplication

Multiply the numerators.

$\frac{3}{4} \times \frac{4}{5} = \frac{12}{20} = \frac{3}{5}$

Multiply the denominators.

Reduce.

**Remember to Reduce!**

For all operations, reduce or simplify when possible.

### Division

First, invert the divisor.

$\frac{4}{5} \div \frac{5}{6} =$

Multiply the numerators.

$\frac{4}{5} \times \frac{6}{5} = \frac{24}{25}$

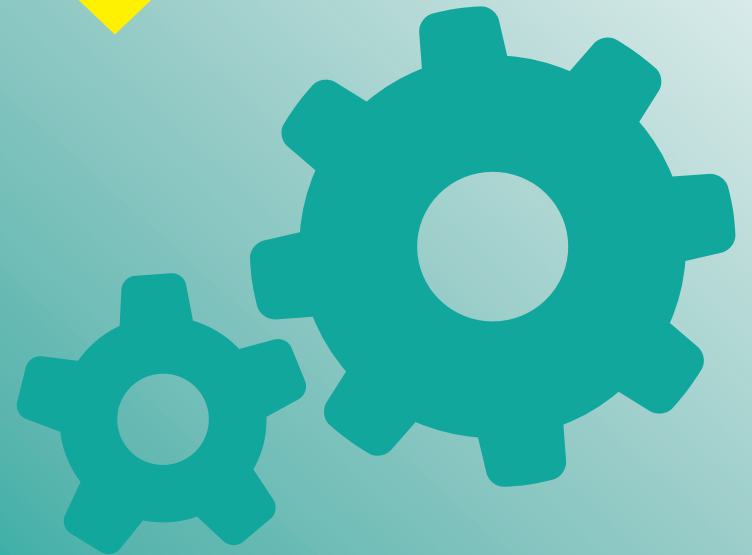
Multiply the denominators.

## Integer- whole number

Square number- multiply an integer by itself.

Cube number- multiply an integer by itself 3 times.

2. HCF and LCM using Venn Diagram	Instruction	Venn Diagram
Find the Highest Common Factor (HCF)	Multiply numbers in the overlap section of the Venn diagram	
Find Lowest Common Multiple (LCM)	Multiply all the numbers in the Venn diagram	



# English

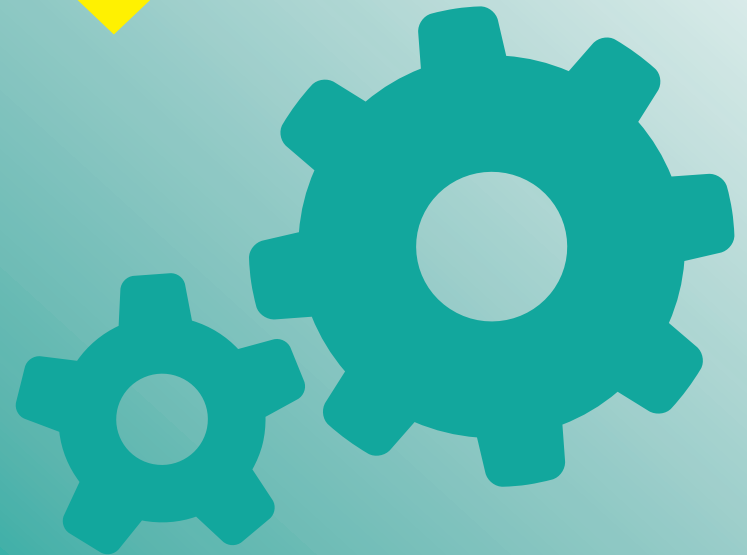


# English - 'I Am Thunder'



<p><b>Context</b></p> <p><b>Islam:</b> the religion of the Muslims, a monotheistic faith regarded as revealed through Muhammad as the Prophet of Allah.</p> <p><b>Fundamentalism:</b> a form of a religion, especially Islam or Protestant Christianity, that upholds belief in the strict, literal interpretation of scripture.</p> <p><b>Charlie Hebdo Attack:</b> On January 7<sup>th</sup>, 2015, brothers Cherif and Said Kouachi, masked and armed with Kalashnikov assault rifles, stormed the Charlie Hebdo magazine offices in Paris. In total 12 people were killed in the attack: eight journalists, two police officers, a caretaker and a visitor. Both men were known to the police for militant Islamic activities.</p> <p><b>ISIS/IS:</b> Islamic State (also known as the Islamic State of Iraq and Syria) is a militant Islamist group and former unrecognized quasi-state that follows the Salafi jihadist branch of Sunni Islam.</p> <p><b>Prevent Duty:</b> The Counter-Terrorism and Security Act 2015 contains a duty on specified authorities to have due regard to the need to prevent people from being drawn into terrorism.</p>	<p><b>Plot</b></p> <p>Muzna Saleem is a young Muslim girl, living with her Pakistani parents in London: her mother doesn't speak English and her father has high aspirations of her becoming a doctor. Muzna has other ideas – she wants to be a writer.</p> <p>When the family are forced to move, and Muzna starts a new school, she falls for a Pakistani boy named Arif. He's impossibly good looking, and Muzna wonders what he could possibly see in her... Inspired by her form tutor, Mr Dunthorpe, and her friend Sarabi, Muzna grows in confidence and gains her voice.</p> <p>After meeting Arif's older brother, Jameel, Muzna starts to rebel against her father's relatively liberal religious beliefs, becoming more devout. But, she has her suspicions about Jameel's motives, and it turns out, she's right...</p>	<p><b>Themes</b></p> <p><b>Identity:</b> 'the search for identity' - the qualities, beliefs, personality traits, appearance, and/or expressions that characterise a person or group. In sociology, emphasis is placed on collective identity, in which an individual's identity is strongly associated with role-behavior or the collection of group memberships that define them.</p> <p><b>Prejudice:</b> A feeling towards a person based on their perceived group membership. Often refers to a preconceived (usually unfavourable) evaluation of another person based on that person's perceived beliefs, religion, race, ethnicity, political affiliation, age, gender, sex, gender identity, values or other personal characteristics.</p> <p><b>Radicalisation:</b> the process by which an individual or a group comes to adopt increasingly radical views in opposition to a political, social, or religious status quo.</p> <p><b>Conffliction:</b> the state of having or showing confused and mutually inconsistent feelings.</p> <p><b>Faith:</b> strong belief in the doctrines of a religion, based on spiritual conviction rather than proof.</p> <p><b>Courageous Advocacy:</b> the act and necessity of speaking out against an issue of injustice, often on behalf of those whose voice is not heard.</p>
<p><b>Central Characters</b></p> <p><b>Muzna Saleem</b> – 15 year-old girl, living and attending school in London. She is conflicted about her identity: being a Muslim means different things to different people in her life – but what does it mean to her?</p> <p><b>Arif</b> – 16 year-old boy, also living and attending school in London. Orphaned at a young age, Arif now lives with his older brother, Jameel, who is a strict Muslim and believes that Arif should be the same.</p> <p><b>Sarabi</b> – Muzna's friend at Falstrum Academy. She is a Sikh, and her faith shares some similarities with Muzna's own. Sarabi is caring and concerned for Muzna when she feels that Arif is leading her astray.</p> <p><b>Jameel</b> – Arif's older brother. He is a devout Muslim and is very vocal about these beliefs.</p> <p><b>Mr Dunthorpe</b> – Muzna's form tutor. He is passionate about educating young people, and advocates for tolerance and equality.</p>	<p><b>Islamic Vocabulary</b></p> <p>Salam – a common greeting/hello</p> <p>Wallahi – I swear to Allah/I promise</p> <p>Insh'Allah – If Allah wills it</p> <p>Assalaamu alaykum – a common greeting meaning 'peace be upon you'</p> <p>Kuffar – non-believers/non-Muslims</p> <p>Qur'an – the Islamic religious text</p> <p>Hijab – a head covering worn in public by women</p> <p>Jihad – a fight against the enemies of Islam</p> <p>Halal – the allowed</p> <p>Haram – the forbidden</p> <p>Beyta – son/daughter/child</p> <p>Uncle-ji – respectful way to address an older male</p>	<p><b>Methods/Techniques</b></p> <p><b>Foreshadowing:</b> noun. an indication of something that will happen in the future, often used as a literary device to hint at or allude to future plot developments.</p> <p><b>Dialogue:</b> direct speech (indicated by speech marks) between characters, which can be used as a plot device, for the writer to imply something about a character.</p> <p><b>Narrative voice:</b> the perspective from which a story is written/told. Muzna is our narrator – what is the effect of this?</p> <p><b>Intensifier:</b> a modifier that serves to enhance and give additional emotional context to the word it modifies.</p> <p><b>Minimiser:</b> a word or phrase that denotes a very small quantity which is used to reinforce negation.</p>

# Science





We need to eat a wide variety of foods to get all the food substances that we need. When we do this, we are said to have a **balanced diet**. Carbohydrates, proteins, fats and oils (lipids), vitamins and minerals are **nutrients**, which means that they provide the raw materials for making other substances that the body needs.

Substance needed	Examples	Why it is needed	Good sources
carbohydrate	starch, sugars	for energy (in respiration)	pasta, bread, rice, potatoes
protein		for growth and repair (building new substances)	meat, fish, beans
vitamins	vitamin C	for health	fruits and vegetables (e.g. oranges contain lots of vitamin C)
minerals	calcium	for health	fruits, vegetables and dairy products (e.g. milk contains calcium)
fibre		for health (helps to stop constipation)	wholemeal bread, wholegrain rice, celery and other fibrous vegetables
water		for health (water dissolves substances and fills up cells)	

We can do tests to find out which substances are in foods. For example, starch makes iodine solution go a blue-black colour.

**Nutrition information** labels on foods tell us what the food contains. The labels also tell us how much energy is stored in the substances that make up the food. The amount of energy is measured in **kilojoules (kJ)**. The amount of energy a person needs in a day depends on:

- levels of activity (more active people need more energy)
- age (teenagers need more energy from food than adults do)
- whether the person is a girl or a boy (boys need more energy than girls).

Food labels may also have health claims on them, which use persuasive language.

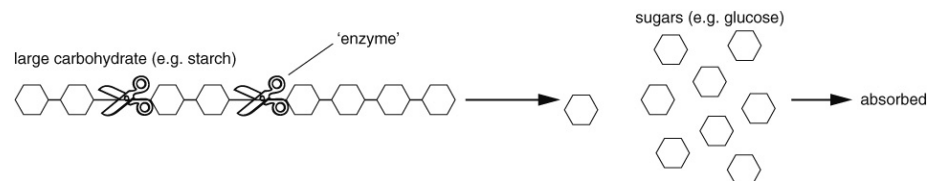
Eating too much or too little can cause problems. Too much fat may cause **heart disease** and can make people overweight. Very overweight people are **obese**.

People starve and become weak if they eat too little. **Starvation** and obesity are both forms of **malnutrition**. Other forms include **deficiency diseases** such as **scurvy**, which is due to a lack of vitamin C.

## Digestion

**Digestion** turns large **insoluble** substances into small **soluble** ones. The organs of the **digestive system** help us digest food. Many of them produce **enzymes** (substances that are **catalysts** and help speed up food digestion).

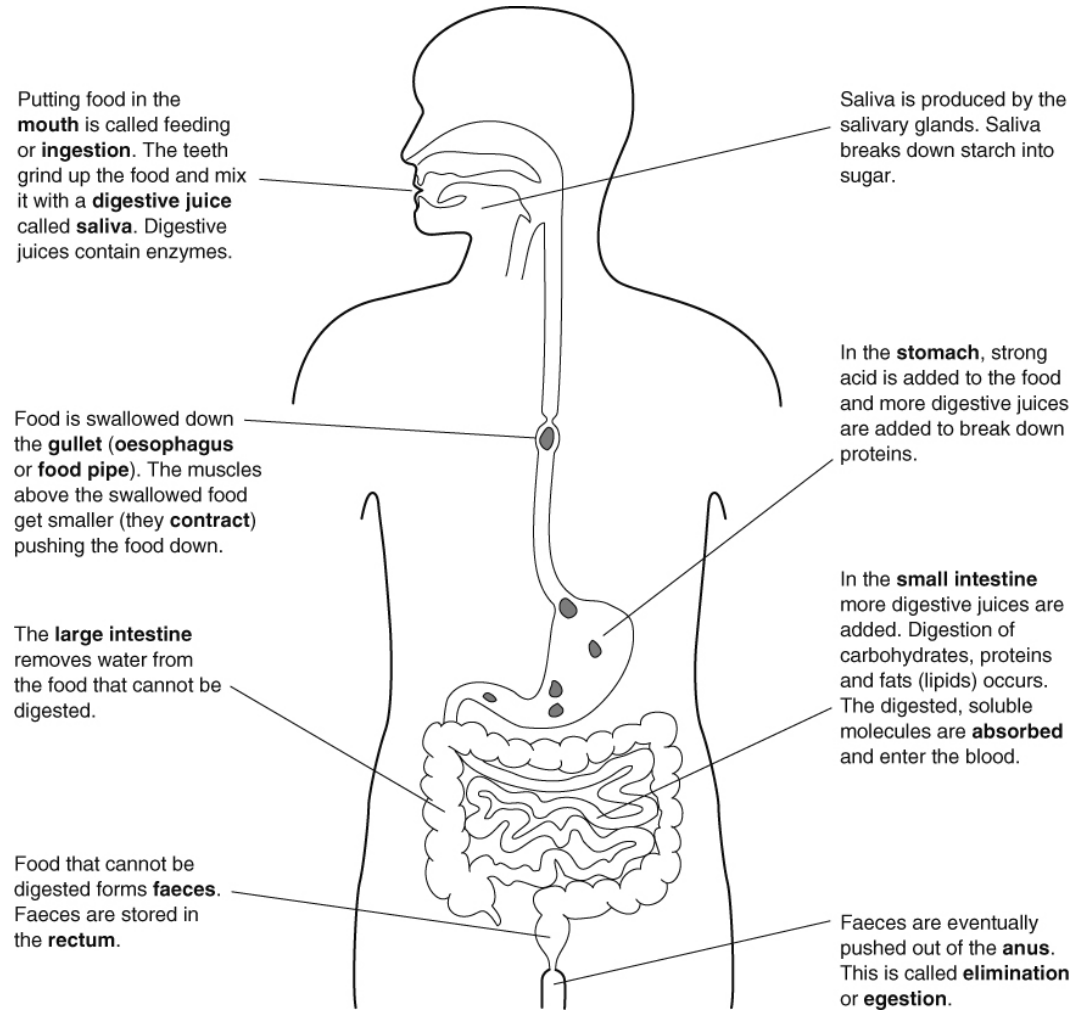
We can use a **model** to make it easier to think about how enzymes work:







Food is digested in the **gut**.



To help absorb the digested food, the wall of the small intestine is folded and covered with **villi**. The cells have microvilli. These features all increase the **surface area**. The wall of the small intestine is also only one-cell thick, meaning that it is easy for small molecules to **diffuse** out of the small intestine and into the blood. The digested food molecules are carried in the blood **plasma**.

The surface area is the total area of the faces of a three-dimensional object.



## Kingdoms

Organisms are classified into five **kingdoms**. **Viruses** are not living and so are not in a kingdom.

Cell part	Kingdom				
	prokaryotes (all unicellular)	protocists (mainly unicellular)	fungi (mainly multicellular)	plants (all multicellular)	animals (all multicellular)
cytoplasm	✓	✓	✓	✓	✓
cell membrane	✓	✓	✓	✓	✓
nucleus	✗	✓	✓	✓	✓
mitochondria	✗	✓	✓	✓	✓
cell wall	✓	✗/✓	✓	✓	✗
chloroplasts	✗	✗/✓	✗	✓	✗

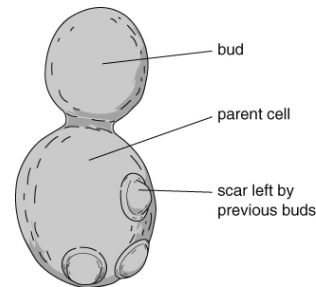
Unicellular organisms can only grow to a certain size. If the organism is too big, it cannot get enough of the substances it needs throughout the cell because diffusion is too slow.

The tissues in multicellular organisms need to have raw materials transported to them because diffusion would be too slow.

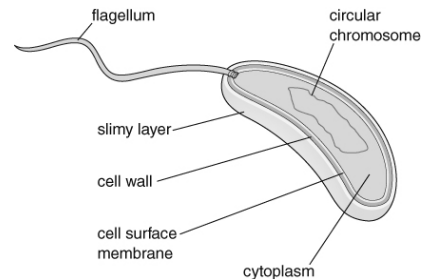
## Microscopic fungi

These include, for example, yeast. They:

- reproduce asexually by budding
- can use aerobic respiration, which is important in baking
- can use anaerobic respiration (fermentation), which is important in alcoholic drink manufacture.

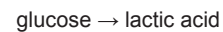


## Bacteria



Parts of a bacterium

Some bacteria are important in making yoghurt and cheese. These bacteria use a type of anaerobic respiration to ferment milk:



## Feeding

Bacteria and fungi feed by releasing **enzymes** into their surroundings to digest large **organic molecules**. The digested molecules are then absorbed.



## Protoctists

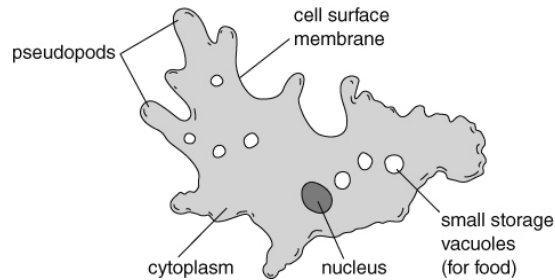
There are many different types of protoctist and some can **photosynthesise**:



Photosynthesising protoctists are therefore **producers** in a **food chain**, for example:

algae → pond snail → minnow → grey heron  
(producer) (consumer, herbivore) (consumers, carnivores, predators)

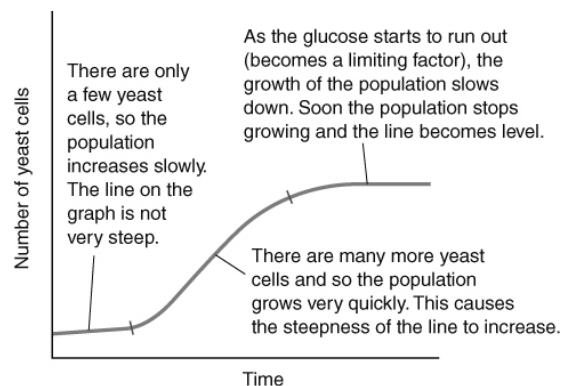
Some protoctists move using **pseudopods**, while others use **cilia** and others use **flagella**.



Parts of an Amoeba

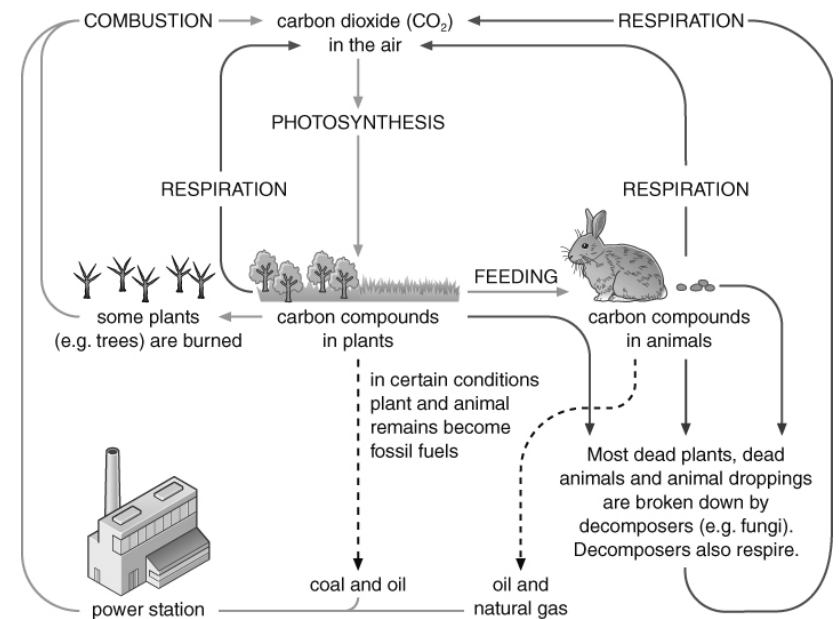
## Growth

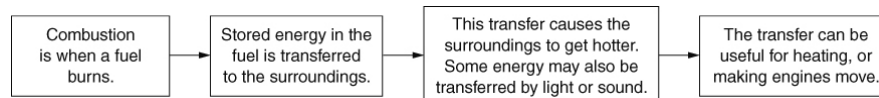
All microorganisms need warmth, food and moisture to grow well. Some need light for photosynthesis. Some need oxygen for aerobic respiration. The increase in a population can be shown on a growth curve. Something that stops a population from increasing further is called a **limiting factor**.



## The carbon cycle

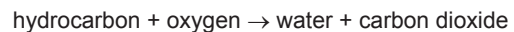
Many unicellular microorganisms are **decomposers** and play an important part in the **carbon cycle**.





A **hydrocarbon** is made only of carbon and hydrogen. Many fuels are mainly hydrocarbons.

Hydrocarbon combustion:



This is a word equation.

Combustion is also an **oxidation reaction** because the substances react with oxygen.

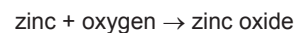
Carbon and hydrogen are **non-metals** but metals can also be oxidised:



## Conservation of mass in reactions

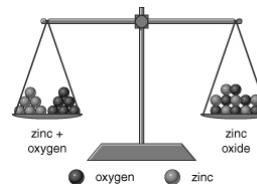
In a reaction, the mass of the **reactants** is always the same as the mass of the **products**.

Metals can appear to gain mass when heated in air:



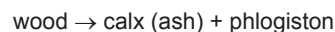
The difference in mass is the mass of oxygen that reacted.

When a hydrocarbon fuel combusts, it appears to lose mass because the products of the reaction (carbon dioxide, water vapour) are lost into the air.



## Phlogiston

Before oxygen was discovered, scientists explained combustion by saying that, as a substance burnt, it gave out a substance called phlogiston to the air. For example:



However, the phlogiston theory could not explain why metals gained mass when they reacted with air.

## The fire triangle and putting fires out

The fire triangle shows the three factors needed for a fire to burn. If any factor is removed, the fire will go out.

We use **fire extinguishers** to put out fires. Water extinguishers remove heat. Powder and carbon dioxide extinguishers exclude oxygen. Foam extinguishers can both remove heat and exclude oxygen.



Oil fires should not be treated with water because the water sinks through the oil, which heats up and causes the water to evaporate. This causes the oil to 'spit' and can spread the fire.

## Hazard symbols

**Hazard symbols** explain why a substance must be handled carefully.

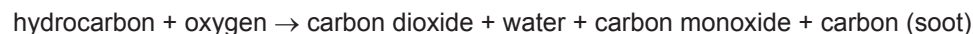




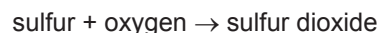
**Complete combustion** – the fuel reacts completely with oxygen, e.g.:



**Incomplete combustion** – the fuel only partly reacts with oxygen, e.g.:



Impurities in fossil fuels, such as substances that contain sulfur, also react with oxygen when heated:



At the very high temperatures in vehicle engines, nitrogen gas from the air reacts with oxygen:



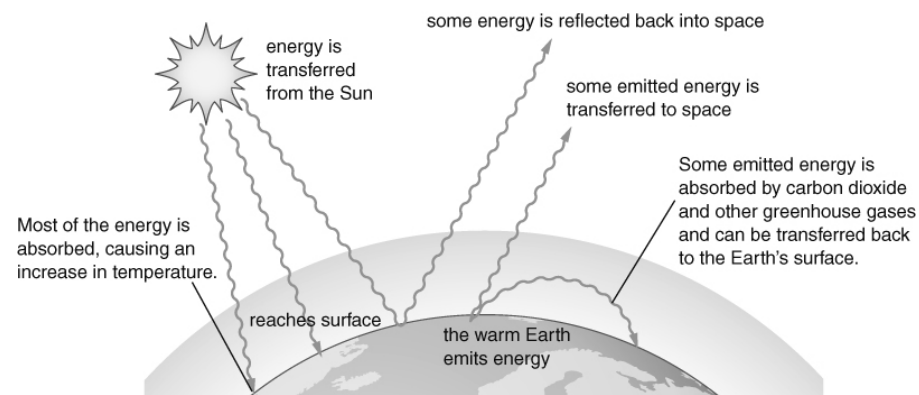
Many products from burning fossil fuels are **pollutants**; they harm the habitats and their organisms.

## Acid rain

Acid rain is rain water that is made more acidic by dissolved sulfur dioxide and nitrogen oxides. Some of these gases are removed from power station chimneys by neutralisation, and by using **catalytic converters** on vehicle exhausts. Catalytic converters also remove carbon monoxide (another pollutant).

## Greenhouse effect and global warming

**Greenhouse gases** in the Earth's atmosphere keep the Earth's surface warm. This is the **greenhouse effect**.



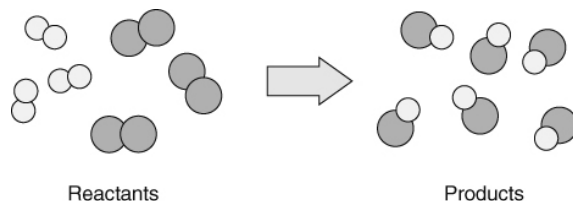
Carbon dioxide is a greenhouse gas. Most scientists think that the extra carbon dioxide released from burning fossil fuels has increased the temperature of the Earth's surface (**global warming**).

Scientists predict that global warming will cause **climate change**. The best way to control global warming is probably to reduce the amount of carbon dioxide we release into the air.

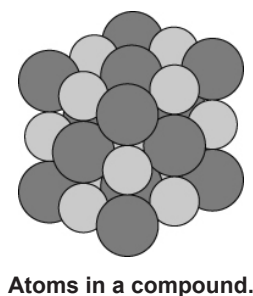
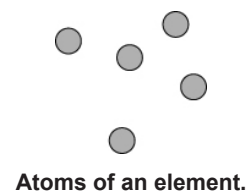


Dalton's theory stated that:

- All matter is made up of tiny particles called atoms.
- Atoms are indestructible, and cannot be created, or destroyed.
- The atoms in an element are all identical.
- In compounds, each atom of an element is always joined to a fixed number of atoms of the other elements.
- During chemical reactions, atoms rearrange, to make new substances.  
For example:

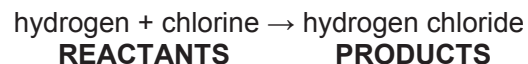


No atoms are lost or gained so the mass of the reactants is equal to the mass of the products.



## Word equations

The word equation for the above change is:



Some signs of a chemical reaction include:

- colour change
- gas produced
- solid formed from solution
- energy change.

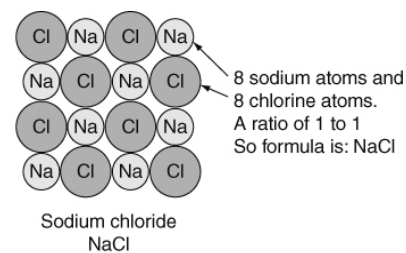
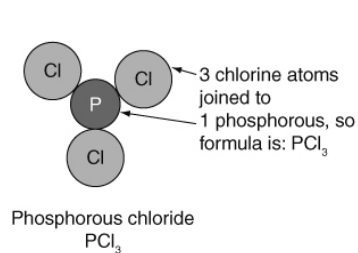
## Elements and their symbols

The **symbols** for the elements used today have been agreed by scientists in all countries. They are either a single or double letter. The first letter is always a capital letter.

**Examples:**

nitrogen = **N**    lithium = **Li**  
 sulfur = **S**      copper = **Cu**  
 chlorine = **Cl**    iron = **Fe**

## Formulae



The **chemical formula** of a substance tells you the number of atoms of each element that are joined in its molecules, or the ratio of atoms of each element in the compound.



The common **properties** of most **metals** are:

- high melting points
- solids at room temperature
- strong and **flexible**
- malleable
- shiny (when polished)
- good **conductors of heat and electricity**.

The common properties of most **non-metals** are:

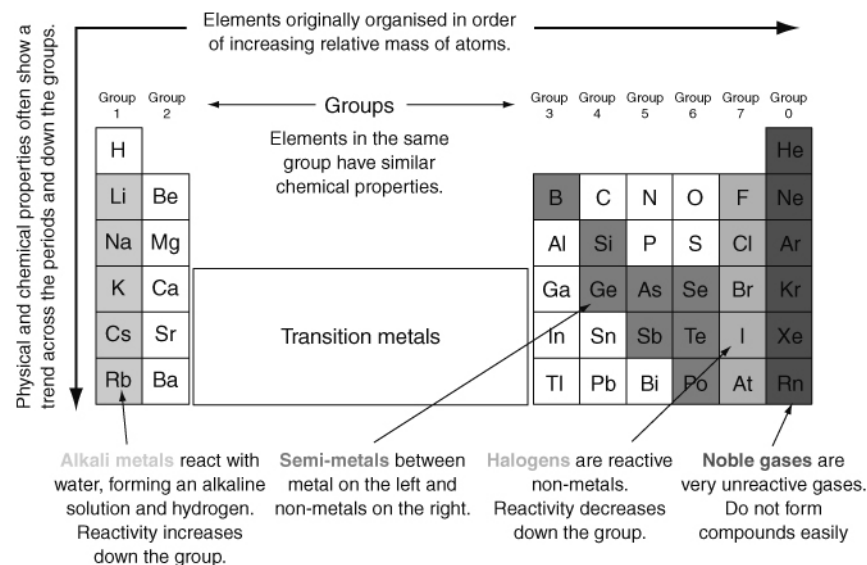
- low melting point
- **brittle**(when solid)
- not shiny
- poor conductors of heat and electricity.

The properties of a substance are what it looks like or what it does. There are two types of properties:

- **chemical properties** (e.g. flammability, pH, reaction with acid)
- **physical properties** (e.g. melting point, boiling point, density).

## The periodic table

The **periodic table** arranges the elements so that elements with similar properties are in the same vertical **group**. The periodic table also allows us to spot trends and patterns.





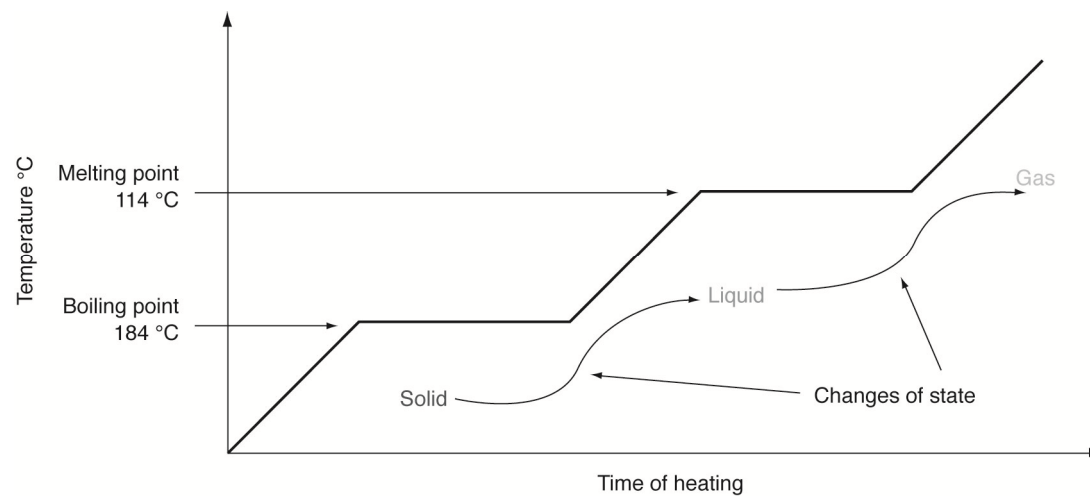
## Metal and non-metal oxides

Many elements burn in air/oxygen to form oxides; e.g.:

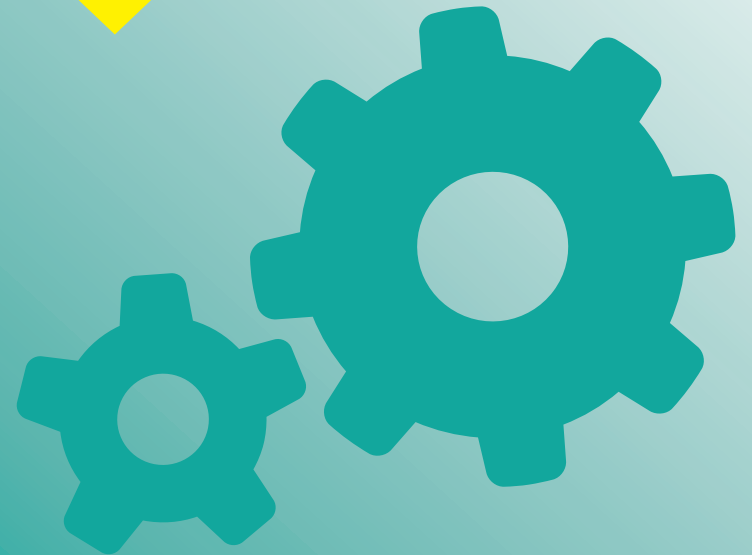
- calcium + oxygen  $\rightarrow$  calcium oxide
- carbon + oxygen  $\rightarrow$  carbon dioxide
- metal oxides tend to form alkaline solutions.
- non-metal oxides tend to form acidic solutions.

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## Changes of state







# History

# History - Why was the Industrial Revolution so important?



Industrial revolution	A time of great change in Britain between 1750 to 1900
Franchise	The vote which enables a say in how the country is run.
Invention	Something new which is created, can be an object or an idea
Economy	The system of how money is used within a particular country
Agriculture	The process of producing food, and fibres by farming of certain plants or raising animals
Poverty	The lack of basic human needs such as clean water, nutrition, healthcare, education and shelter
Sanitation	Sanitation is the system that disposes of human
<b><u>Inventions of the Industrial Revolution</u></b>	

**From 1750 Britain went through a process of change in a \_\_\_\_\_ number of key areas:**

- **Agriculture** - New tools, fertilizers and harvesting techniques were introduced, resulting in increased productivity and agricultural prosperity.
- **Industry** - factories sprung up all over the country creating more efficient ways to produce goods such as wool, cotton and coal. The increase in factories brought thousands of new jobs.
- **Transport and communications** - Thomas Telford built roads and canals in the 1700s and George Stephenson and Isambard Kingdom Brunel oversaw the 'Railway Mania' of the 1800s. There had previously been no very fast way of transporting goods and people around the country.
- **Technology** - There were also many scientific discoveries and technological inventions that changed society and industry. Changes to sanitation and the work of John Snow and Seeborn Rowntree helped to improve people's quality of life.
- **Political power** - gave the vote to property owners and began a long campaign for the franchise to be extended.

**The Water Frame - 1769**

Richard Arkwright invented a machine, powered by water, to spin cotton into yarn, quickly and easily. His machines did not need skilled operators so Arkwright paid unskilled women and others to work on them. This invention allowed factories and mills to be built.

**The Spinning Jenny - 1770**

James Hargreaves, a British carpenter and weaver, invents the spinning jenny. The machine spins more than one ball of yarn or thread at a time, making it easier and faster to make cloth. This allows more workers to make cloth more cheaply and increases the amount of factories built.

**The Steam Engine - 1717**

Thomas Newcomen invents the first steam engine. It would later be improved by James Watt which meant steam engines could replace water and horse power in a wide variety of industries, which in turn allowed factories to be built anywhere.

**The Locomotive - 1814**

Richard Trevithick was a pioneer in early steam engine technology. He developed a new high-pressure steam engine which could be used to reliably move goods and passengers. This invention made transport much easier and quicker.

**Factory working conditions**

**Long working hours:** normal shifts were usually 12-14 hours a day, with extra time required during busy periods.

**Low wages:** a typical wage for male workers was about 15 shillings (75p) a week, but women and children were paid much less, with children three shillings (15p). For this reason, employers preferred to employ women and children.

**Cruel discipline:** there was frequent "strapping" (hitting with a leather strap). Other punishments included nailing children's ears to the table, and dowsing them in water butts to keep them awake.

**Accidents:** forcing children to crawl into dangerous, unguarded machinery led to many accidents and deaths.

**Health:** The air was full of dust, which led to chest and lung diseases and loud noise made by machines damaged workers' hearing.

# History - Why was the Industrial Revolution so important?



## Living conditions

Overcrowding: due to large numbers of people moving to the cities, there were not enough houses for all these people to live in.

Disease: typhus, typhoid, tuberculosis and cholera all existed in the cities of England. Overcrowding, low standard housing and poor quality water supplies all helped spread disease.

Waste disposal: gutters were filled with litter. Human waste was discharged directly into the sewers, which flowed straight into rivers.

Poor quality housing: houses were built very close together so there was little light or fresh air inside them. They did not have running water and people found it difficult to keep clean.

Lack of fresh water: people could get water from a variety of places, such as streams, wells and stand pipes, but this water was often polluted by human waste.

## Important individuals of the Industrial Revolution

### Robert Peel

Peel created and supported the Factories Act of 1844 which restricted the number of hours that children could work in factories as well as setting safety standards for machinery.

### Isambard Kingdom Brunel

One of the most influential engineers of the Industrial Revolution. Brunel built railways and ships and opened up Britain to a new network of industry. He built several bridges and ships.

### John Snow

Snow was an English physician who discovered that the water in his local area was making everyone ill. His work led to the discovery of cholera and improved fresh water for thousands.

### Robert Owen

Was a successful factory owner who built a community in New Lanark, providing education shops and houses for his workers, he went on to set up one of the first trade unions.

### Boulton and Watt

Worked together to invent the rotary steam engine which was later used in many textile mills and breweries. Boulton opened the Soho foundry to mass produce parts which could be used in businesses.



# History - Why was the Industrial Revolution so important?



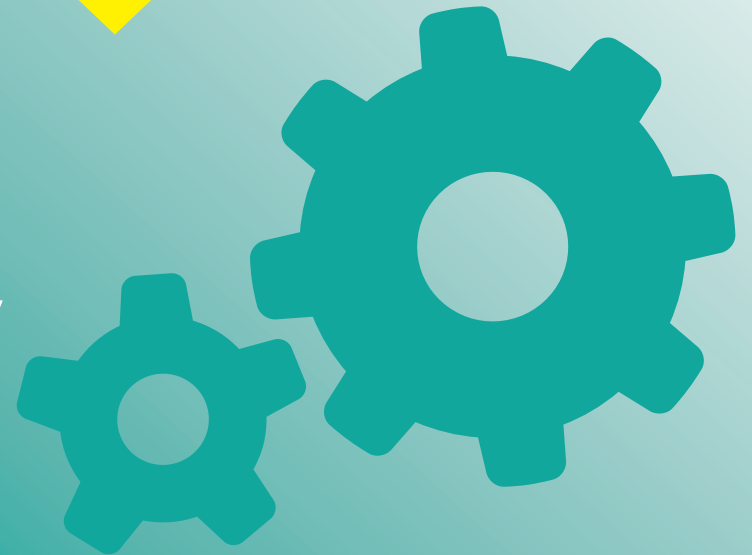
## Research:

Can you explain the importance of Quarry Bank Mill

Why was Liverpool and Manchester important during the Industrial Revolution?

Can you identify another important inventor during the Industrial Revolution, apart from the ones that you have studied in class, and write a factfile about them, explaining their significance.

# Geography





**Structure of the Earth**

The **inner core** is extremely hot (5,500°C) it is a very dense solid made from iron and nickel

The **outer core** is 2,000 km thick and is a liquid

The **mantle** is semi-molten and about 3,000km thick, The closer the mantle is to the core, the more liquid it is.

The **crust** is the rocky outer layer which we live. It is thin compared to other sections and made up of oceanic and continental plates

**LAYERS OF THE EARTH**

**Oceanic plates** carry the oceans. They are thinner but denser than continental plates.

**Continental plates** carry the land. They are thicker but less dense than oceanic plates.

**Key Terms**

Mantle, Core, Pacific Ring of Fire, Earthquake, Volcano, Tsunami Effects, Seismic, Tectonics, Constructive margin, Destructive margin, Conservative margin, Collision margin, deform, pressure, friction

**Plate Margins**

The Earth's crust is broken into different plates, which sit on the Earth's mantle. These plates move because of **convection currents**. The plates move in different directions and meet at **plate margins**. As the plates move, parts of the crust are **destroyed** and in other areas new crust is **created**.

**Destructive**      **Constructive**      **Conservative**

**Destructive**

**Movement:** The plates collide and the oceanic plate is subducted (sinks) under the continental plate.

**Example:** West coast of South America. The Nazca plate is being forced under the South America plate.

**Landforms and Hazards:** Volcanoes, fold mountains and oceanic trenches are formed.

Earthquakes

**Collision (Destructive)**

**Movement:** The two continental plates collide

**Example:** The Indo-Australian plate and Eurasian plate creating the Himalayas

**Landforms and Hazards:** Earthquakes

**Constructive**

**Movement:** The plates move apart

**Example:** Iceland -The North American and Eurasian plate are pulling apart creating the Mid Atlantic Ridge

**Landforms and Hazards:** Volcanoes and Earthquakes

**Constructive**

**Movement:** The plates move alongside each other

**Example:** West of North America. The North American and Pacific plate

**Landforms and Hazards:** Earthquakes

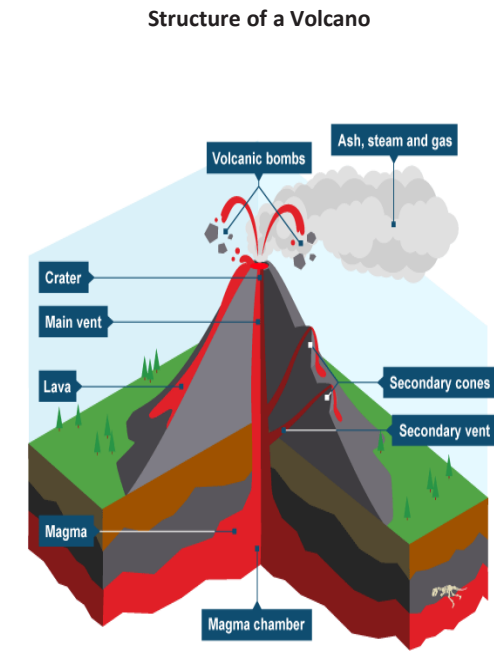


Effects of Volcanic Eruptions	
Positive Effects	Negative Effects
The dramatic scenery created by volcanic eruptions attracts <b>tourists</b> . This brings income to an area.	<b>Lives can be lost</b> – 21 people were killed by the White Island (New Zealand) eruption in December 2019.
The lava and ash deposited during an eruption breaks down to provide valuable nutrients for the soil. This creates very <b>fertile soil</b> which is good for agriculture	If the ash and mud from a volcanic eruption mix with rain water or melting snow, fast moving <b>mudflows</b> are created. These flows are called <b>lahars</b> .
The high level of heat and activity close to a volcano can provide opportunities for generating <b>geothermal energy</b>	Lava flows and lahars can <b>destroy</b> settlements and areas of woodland or agriculture

**Measuring Earthquakes**  
 In the past, the **Richter scale** was used to measure the power of earthquakes. Earthquakes are now measured using the **Moment Magnitude Scale** (or simply **Magnitude scale**). This measures the size of the **seismic waves** during the earthquake. Each step in the scale is ten times greater than the previous number. This is a **logarithmic** scale from 0-10. The amount of damage caused by an earthquake is measured by the **Mercalli Scale**. This is a measure of **intensity**, and changes according to which area you are measuring - damage nearer the **epicentre** would usually be greater than further away.

**Large earthquakes** are usually connected with **plate margins**. Earthquakes happen often but most are too small for us to notice. **Seismometers** record earth movements.  
 An earthquake is a sudden **shockwave** caused by rocks being under stress from the movements of plates at plate margins. Eventually the stress in the rock builds up enough to deform and reach breaking point. At that point, the stored up energy is released in the form of shockwaves.

Effects of an Earthquake			
	Social Impacts	Economic Impacts	Environmental impacts
<b>Short Term:</b>	People may be killed or injured. Homes may be destroyed. Infrastructure may be disrupted. Water supplies may be contaminated.	Shops and business may be destroyed. Looting may take place.	The landscape may be destroyed because of fires or landslides Tsunamis may cause flooding in coastal areas
<b>Long Term:</b>	Disease may spread. People may have to be re-housed, sometimes in refugee camps	Rebuilding can be expensive. Income could be lost	Important natural and human landmarks may be lost.



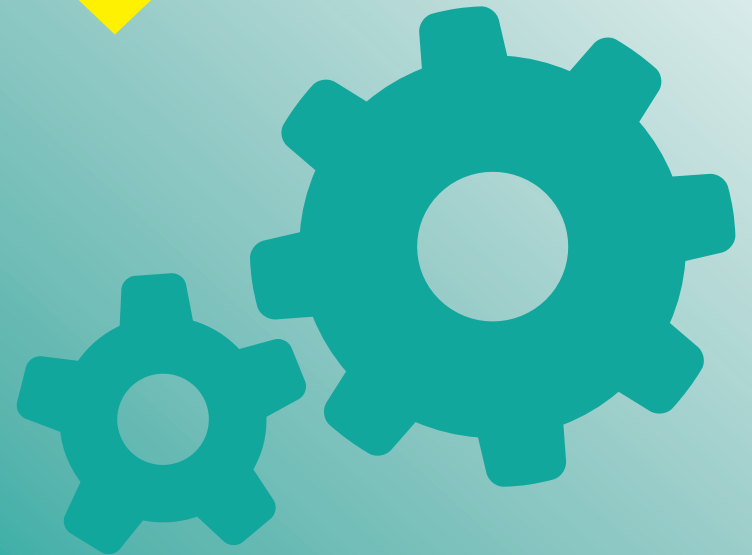
**How to reduce risk from earthquakes:**

**Prediction**  
 Prediction involves using seismometers to monitor earth tremors. Experts know where earthquakes are likely to happen. However, it is very difficult to predict when they will happen. Even looking at the timescale between earthquakes doesn't seem to work.

**Protection**  
 Protection involves constructing buildings so that they are safe to live in and will not collapse.

**Preparation**  
 In earthquake-prone countries, hospitals, emergency services and residents practise for an earthquake. They have drills in all public buildings so that people know what to do in the event of an earthquake. This helps to reduce the impact and increases their chance of survival.

# Religious Studies







## LUKE'S GOSPEL Knowledge Organiser



### Key Vocabulary

<b>Gospels</b>	Four books in the New Testament that <b>tell us about Jesus' life</b> , from his birth up to his death and resurrection.
<b>Gentile</b>	Anyone who is <b>not</b> Jewish.
<b>Bible</b>	The <b>holy book</b> followed by Christians.
<b>Christians</b>	People who follow the religion of Christianity.
<b>Jewish</b>	People who follow the religion of Judaism.
<b>Revelation</b>	The Christian belief that <b>God reveals himself</b> to people through words or actions.
<b>Compassion</b>	<b>Sorrow or pity</b> caused by the <b>suffering</b> or misfortune of another.
<b>Parable</b>	A story told by Jesus, to teach a <b>particular lesson</b> .
<b>Salvation</b>	To be <b>saved</b> from <b>sin</b> and its consequences, believed by Christians to be brought about by <b>faith</b> in Christ.
<b>Covenant</b>	A covenant means a <b>binding agreement</b> , a legal contract between two or more parties.
<b>Crucifixion</b>	The <b>crucifying</b> of Jesus (the type of death penalty given to Jesus).
<b>Resurrection</b>	In Christian belief, the rising of Christ from the dead.
<b>Prodigal</b>	Spending money or using resources freely and recklessly.
<b>Hell</b>	In Christianity, the <b>place</b> where some <b>people</b> are <b>believed</b> to go after <b>death</b> to be <b>punished forever</b> for the <b>bad</b> things they have done during <b>their lives</b> .

### Overview

The Gospel of Luke is a book of the Bible.

Like the other 3 gospels, **Luke's Gospel tells the stories of the life and teachings of Jesus**. It is the **third** and **longest** book of the **New Testament** and comes after the Gospel of Matthew and the Gospel of Mark. Luke's Gospel is believed to be written by Luke who was a friend of St. Paul (he changed his name from Saul when he became a Christian).

Luke was a doctor. He **wrote his gospel** for a man he calls 'most excellent **Theophilus**' but he clearly **intended** the gospel for a **wider audience**, mainly **non-Jewish people** (who were called Gentiles by the Jews). Unlike the other gospel writers (Matthew, Mark and John), **Luke** was probably **Greek** and **not Jewish**.

Luke wrote his gospel **to prove that Jesus is the Son of God**. He tells more about the Virgin birth of Jesus than the other gospel writers.

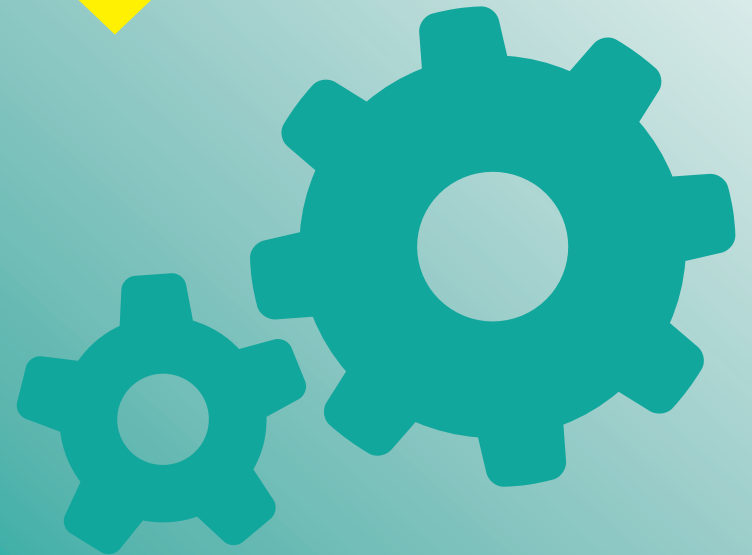
### How is it structured?

Chapter:	Event:
1.1-4	Prologue (introduction)
1.5-2.40	The announcements and births of John the Baptist and Jesus
2.41-4.13	Events leading up to Jesus' ministry
4.14-9.50	Jesus' ministry (teaching) in Galilee
9.51-19.27	Jesus' journey towards Jerusalem
19.28-21.38	Jesus in Jerusalem
22.1-23.56	The Last Supper, Jesus' arrest, trial and crucifixion
24.1-53	Jesus' resurrection and ascension

### When was it written?

The most likely date for when Luke's Gospel was written is around **AD 80-110**.

# Spanish





## ¿Dónde Vives?

La Geografía de España	
España	Spain
Se encuentra en	Is situated in
Está situado/a	Is situated
Europa	Europe
La capital es	The capital is
Las ciudades principales son	The main cities are
Se habla español	Spanish is spoken
¿Dónde está?	Where is it?
Está en el norte / el sur	It is in the north / south
Está en el oeste / este	It is in the west / east
La casa de mis sueños	
¿Dónde vives?	Where do you live?
Vivo en	I live in
Vivimos en	We live in
Una casa / un piso	A house / a flat
Mi casa tiene	My house has
En mi piso hay	In my flat there is / are
Mi casa es	My house is
Espacioso/a	Spacious
Antiguo /a	Old
Lujoso/a	Luxurious
<b>LA CASA DE MIS SUEÑOS</b>	<b>THE HOUSE OF MY DREAMS</b>

Los Adjetivos	
1. grande	1. big
2. pequeño	2. small
3. animado	3. lively
4. poblado	4. populated
5. famoso	5. famous
6. contaminado	6. polluted
7. industrial	7. industrial
8. histórico	8. historical
9. turístico	9. touristic
10. rural	10. rural
11. urbano	11. urban
12. tranquilo	12. Calm/peaceful
13. peligroso	13. dangerous
14. impresionante	14. impressive
Habitaciones	
1. Un salón	1. A living room
2. Una cocina	2. A kitchen
3. Un dormitorio	3. A bedroom
4. Un jardín	4. A garden
5. Una piscina	5. A pool
6. Una terraza	6. A terrace
7. Un balcón	7. A balcony
8. Un cuarto de baño	8. A bathroom
9. Un comedor	9. A dining room
10. Con vistas al mar	10. With sea views
Locaciones	
Primera planta	First floor
Segunda planta	Second floor
Las afueras	The outskirts
Opiniones	
Me gusta	I like
Me encanta	I love
Prefiero	I prefer
Lo bueno es que es	The good thing is that it is
Lo malo es que es	The bad thing is that it is

Mi Pueblo / Mi Ciudad	
En mi pueblo hay	In my town there is/are
Mi ciudad tiene	My city has
Sitios	
1. un castillo	1. A castle
2. una piscina	2. A pool
3. un estadio	3. A stadium
4. un polideportivo	4. A sports centre
5. un mercado	5. A market
6. un centro comercial	6. A shopping centre
7. unos museos	7. Some museums
8. una universidad	8. A university
9. una plaza	9. A town square
10. muchos restaurantes	10. Many restaurants
11. muchas tiendas	11. Many shops
12. muchos parques	12. Many parks
Salidas	
1. Salgo al / a la	1. I go out to the
2. Voy al / a la	2. I go to the
Sitios de Interés	
En mi pueblo/barrio	In my town / neighbourhood
En mi ciudad	In my city
Se puede ir / visitar	You can go / visit
No se puede ir / visitar	You cannot go / visit
El Futuro	
En el futuro	In the future
Cuando sea mayor	When I am older
Me gustaría vivir en	I would like to live in
Voy a vivir en	I am going to live in
Italia, Portugal, Alemania, Gales	Italy, Portugal, Germany, Wales
Inglaterra, Los Estados Unidos	England, USA



## YEAR 8 GRAMMAR MAT

Present Tense (actions completed in the present)		
Infinitive (verb)	Take off the ending (AR/ER/IR)	Add the endings (I, YOU, HE/SHE, WE)
ESTUDIAR	ESTUDI	ESTUDIO / COMO / VIVO (I STUDY / EAT / LIVE)
COMER	COM	ESTUDIAS / COMES / VIVES (YOU STUDY / EAT / LIVE)
		ESTUDIA / COME / VIVE (HE OR SHE STUDIES / EATS / LIVES)
VIVIR	VIV	ESTUDIAMOS / COMEMOS / VIVIMOS (WE STUDY / EAT / LIVE)

Preterite tense (actions completed in the past)			
Infinitive (verb)	Take off the ending (AR/ER/IR)	Add the following endings 'I' form (É/Í) 'We' form (AMOS/IMOS)	
VISITAR	VISIT	VISITÉ (I VISITED)	VISITAMOS (WE VISITED)
COMER	COM	COMÍ (I ATE)	COMIMOS (WE ATE)
BEBER	BEB	BEBÍ (I DRANK)	BEBIMOS (WE DRANK)

Future Tense (actions that are going to happen)		
English	Spanish	Example
I AM GOING TO	VOY A + INF.	VOY A ESTUDIAR / COMER / VIVIR
YOU ARE GOING TO	VAS A + INF.	VAS A ESTUDIAR / COMER / VIVIR
HE OR SHE IS GOING TO	VA A + INF.	VA A ESTUDIAR / COMER / VIVIR
I WOULD LIKE TO	ME GUSTARÍA + INF.	ME GUSTARÍA ESTUDIAR / COMER / VIVIR

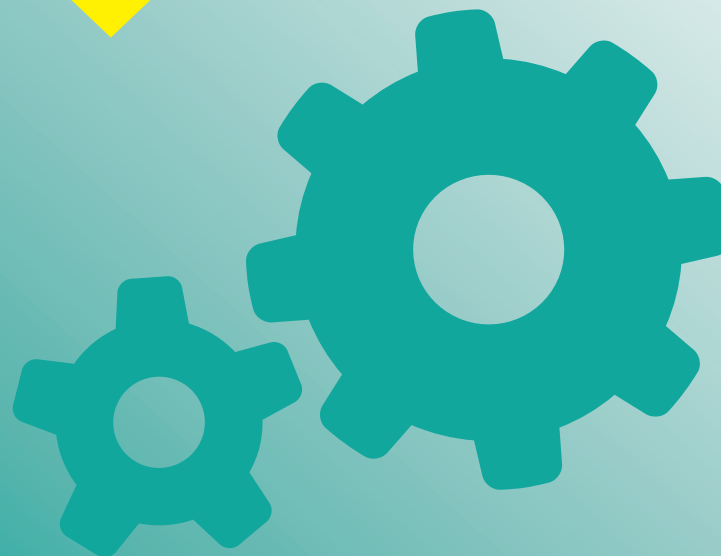
Definite Articles (used to indicate that a noun is a noun (the))	
EL	THE
LA	THE
LOS	THE
LAS	THE

Indefinite Articles (used to indicate that a noun is a noun (a, some))	
UN	A
UNA	A
UNOS	SOME
UNAS	SOME

Opinions (used to state preferences)			
ME GUSTA	I LIKE (singular)	ME GUSTAN	I LIKE (plural)
ME ENCANTA	I LOVE (singular)	ME ENCANTAN	I LOVE (plural)
ODIO	I HATE	CREO QUE	I BELIEVE THAT
DETESTO	I HATE	PIENSO QUE	I THINK THAT
PREFIERO	I PREFER	DIRÍA QUE	I WOULD SAY THAT

Adjectival Agreement (Adjectival agreement means that the adjective 'agrees' with the noun it's describing in gender and number)	
El gatO viejO	The old cat
La chicA simpática	The nice girl
Los ojos NegrOS	The black eyes
Las aulaS modernAS	The modern classrooms

IT





## Functions

<b>What is a Function?</b>	A <b>function</b> is a standard routine used to perform common tasks. It represents a complex formula that uses reserved words e.g. VLOOKUP, IF. A <b>function</b> performs a specific set of operations on its input values to produce a single output value.
<b>What is a Formula?</b>	Using <b>formulas</b> in <b>spreadsheets</b> can allow you to quickly make <b>calculations</b> and get totals of multiple cells, rows, or columns in a <b>spreadsheet</b> .
<b>Conditional Formatting</b>	is a tool that allows you to apply <b>formats</b> to a cell or range of cells, and have that <b>formatting</b> change depending on the value of the cell or the value of a formula. For example, you can have a cell appear bold only when the value of the cell is greater than 100.

## Key terms

Term	Definition
<b>Cell reference</b>	How you refer to a single "box" on a spreadsheet.
<b>Row</b>	All cells in a horizontal line.
<b>Column</b>	All cells in a vertical line.
<b>= SUM</b>	Adds a range of cells together
<b>= AVERAGE</b>	Finds an average for a range of cells.
<b>= MIN</b>	Returns the smallest value in a range.
<b>= MAX</b>	Returns the highest value in a range.
<b>= COUNT</b>	Counts cells if they meet a condition.

## Common Functions

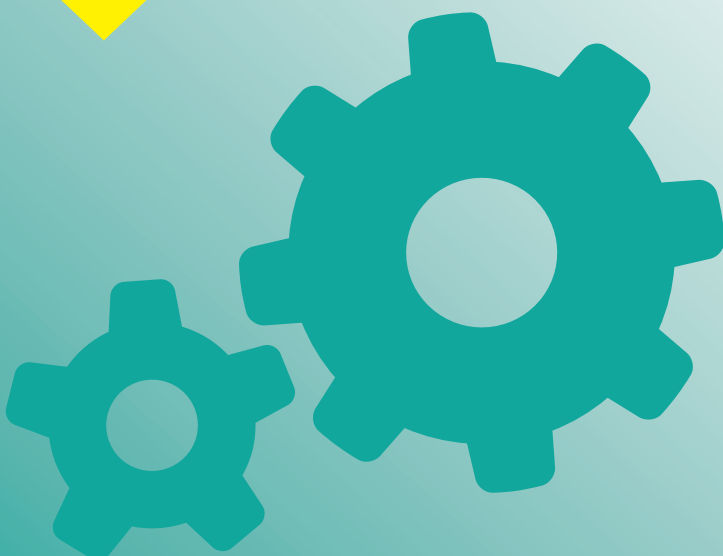
<b>IF</b>	one of the logical <b>functions</b> , to return one value <b>if</b> a condition is true and another value <b>if</b> it's false. For example: <b>=IF(A2&gt;B2,"Over Budget","OK") =IF(A2=B2,B4-A4,"")</b>
<b>Count IF</b>	<b>=COUNTIF</b> (Where do you want to look?, What do you want to look for?)
<b>Auto SUM</b>	<b>Excel automatically</b> enters a formula (that uses the <b>SUM</b> function) to <b>sum</b> the numbers
<b>= COUNT</b>	Counts cells if they meet a condition

## Spreadsheet Layout

The screenshot shows a spreadsheet with the following components labeled:

- Column:** Points to the column headers (January, February, March, April, May, June).
- Text Label:** Points to the text labels in the rows (Chocolate, Stock control, Profitloss).
- Row:** Points to the row headers (1, 2, 3, 4, 5, 6).
- Worksheet:** Points to the entire grid area.
- Formula:** Points to the formula bar at the top.
- Cell Reference:** Points to a specific cell in the grid.
- Numeric Data:** Points to numerical values in the cells.
- Active Cell:** Points to the currently selected cell.

Art



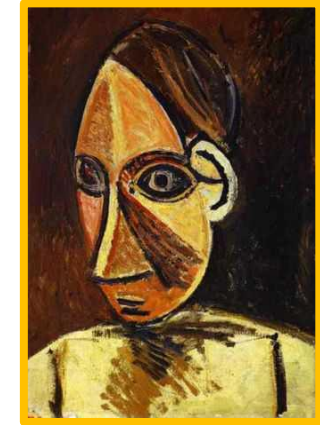
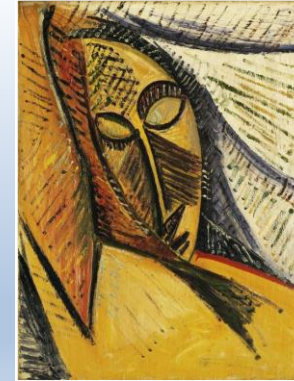


**Cubism** was invented in around 1907–08 by Pablo Picasso and Georges Braque. They brought different views of subjects together in the same picture, resulting in paintings that appear **fragmented** and **abstracted**

### Deliberate Practice –

- Produce an Artist research page about Picasso use the Artist research page in your Knowledge organiser to help you.
- Look at examples of African Masks and the portrait paintings of Picasso and compare. How are the faces similar? Look at the shape of the face, individual features, expression and marks. Use 3 of the key Vocabulary word in your written work.

**Picasso** was a Spanish artist born in 1881. He had an enormous influence on 20<sup>th</sup> century art



**African masks** are a part of **ceremonial** costume. They are used in religious and social events to **represent** the spirits of ancestors or to control the good and evil forces in the community. Some combine human and animal features to unite man with his natural environment.



“Les  
Demoselles  
D’Avignon” –  
How much  
did the  
painting sell  
for?

**Picasso's African Period**, which lasted from 1906 to 1909, was the period when Pablo Picasso painted in a style which was strongly influenced by African sculpture and particularly traditional African masks.

### Deliberate Practice

- Drawing practice – Draw an African mask of your choice. Add tone and mark-making.
- Learn the definitions of the key vocabulary.

### Key Vocabulary

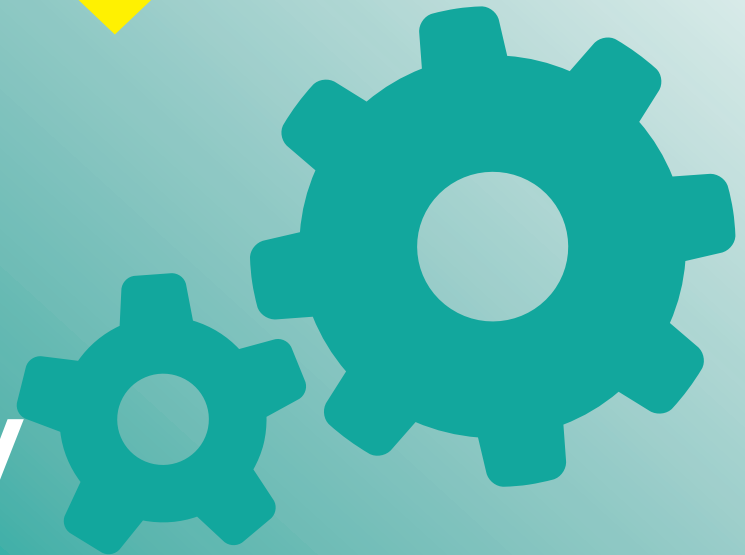
Proportion ,Form, Symmetry, Cubism, Shape , Pattern, Ceremony, Splintered, Style, Influenced, Traditional, Impact, Layering, Fragmented, Abstract

### Careers Link: Sculptor

Can you think of any famous sculptures in the UK and where they are situated?




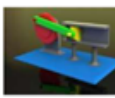



# Design Technology













### 3: Mechanical Devices – Linkages

<b>Reverse motion linkage</b>	The reverse motion linkage changes the direction of the input motion so that the output travels in the opposite direction. If the input is pulled the output pushes and vice versa. It uses a central bar held in position with a fixed pivot (fulcrum) that forces the change in direction and two moving pivots which are connected to the input and output bars.	
<b>Parallel motion or push/pull linkage</b>	The push/pull linkage maintains the direction of the input motion so that the output travels in the same direction. If the input is pulled the output is pulled and so on. It uses three linking bars, four moving pivots and two fixed pivots.	
<b>Bell crank linkage</b>	The bell crank linkage changes the direction of the input motion through 90 degrees. It can be used to change horizontal motion into vertical motion or vice versa. It uses a fixed pivot and two moving pivots.	
<b>Crank and slider</b>	The crank and slider linkage changes rotary motion into reciprocating motion or vice versa. It uses a crank which is held with a fixed pivot. A connecting rod uses two moving pivots to push and pull a slider along a set path.	
<b>Treadle linkage</b>	The treadle linkage changes rotary motion into oscillating motion or vice versa. It uses a crank which is held with a fixed pivot. A connecting rod uses two moving pivots and a further fixed pivot to create a windscreen wiper motion.	







### 1: Mechanical Devices - Motion

There are four types of motion:

<b>Linear Motion</b> is movement in one direction along a straight line.		
<b>Oscillating Motion</b> This motion is similar to reciprocating motion, but the constant movement is from side to side along a curved path.		
<b>Rotary Motion</b> Examples of circular motion include a ball tied to a rope and being swung round in a circle		
<b>Reciprocating Motion</b> , this is repetitive up-and-down or back-and-forth linear motion		

### 2: Mechanical Devices – Levers

There are three classes of levers.

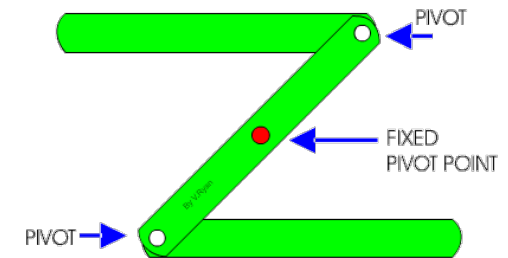
<b>Class One</b> A class one lever has its input on one side of the fulcrum and its output on the other.		
<b>Class Two</b> A class two lever has its input at one end of the lever, its output in the middle and fulcrum at the other end.		
<b>Class Three</b> A class three lever has its output at one end of the lever, its fulcrum at the other with its input in the middle.		

#### Fixed pivot:

A **pivot** that attaches a link to the base; also called a fulcrum. It is represented in drawings by a solid circle.

#### Floating pivot:

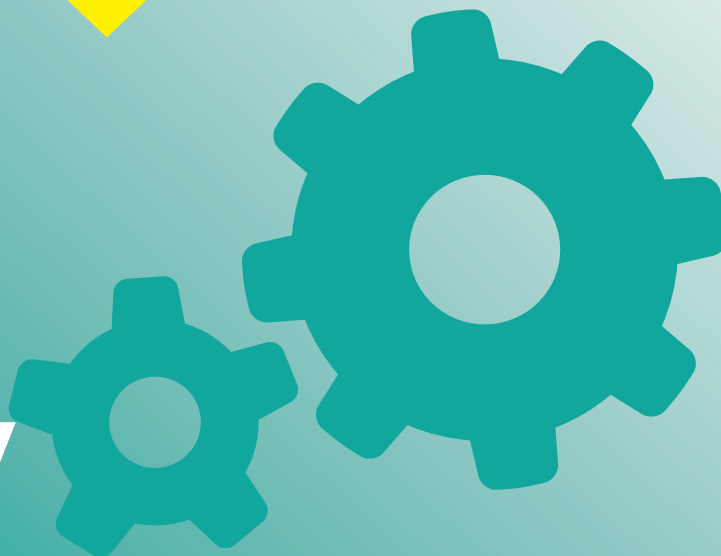
A **pivot** that attaches one link to another, but neither to the base, such as a **pivot** connecting an input link to a lever. It is represented in drawings by an open circle.



### 3. Boards

Type	Description and uses
<b>Corrugated card</b>	<ul style="list-style-type: none"> <li>strong and lightweight</li> <li>used for packaging protection and point of sale stands</li> <li>available in different thicknesses</li> </ul>
<b>Duplex board</b>	<ul style="list-style-type: none"> <li>large foam-based board</li> <li>different finishes available including metallic and hologrammatic</li> <li>used for food packaging, e.g. take-away pizza boxes</li> </ul>
<b>Foil lined board</b>	<ul style="list-style-type: none"> <li>quality cardboard with a aluminium foil lining</li> <li>ideal for ready made meals or take away meal cartons</li> <li>The foil retains the heat and helps keep the food warm</li> </ul>
<b>Foam core board</b>	<ul style="list-style-type: none"> <li>very light, very stiff and very flat.</li> <li>It has a white, rigid polystyrene foam centre, with smooth white paper laminated onto both faces.</li> <li>It is easy to cut with a knife, a mount cutter or on a wall cutter</li> <li>great for modelling</li> </ul>
<b>Ink jet card</b>	<ul style="list-style-type: none"> <li>Has been treated so that it will give a high quality finish with inkjet ink</li> <li>available in matt and gloss</li> </ul>
<b>Solid white board</b>	<ul style="list-style-type: none"> <li>top quality cardboard made from quality bleached wood pulp.</li> <li>used for hard backed books and more expensive items</li> <li>excellent print finish</li> </ul>

# Food Technology





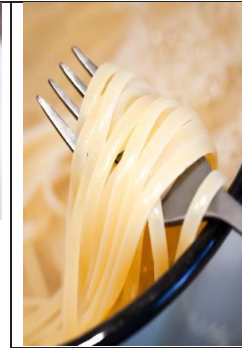
## KS3 Y8 Food Tech Knowledge Organiser

### Gelatinisation: using a starch to thicken a liquid

<p>Getting warm</p>	<p>I'm swelling up</p>	<p>I'm Bursting!!</p>	<p>Didn't we do well</p>
<p><b>COLD</b> Flour particles suspended in liquid. They don't dissolve so they form a <b>SUSPENSION</b> (solid particles floating in a liquid)</p>	<p><b>60°C</b> Getting warmer... 60 degrees Celsius The walls of the flour particles soften and start to absorb water so start to swell up</p>	<p><b>HOT..... 80°C</b> At 80 Degrees Celsius Flour particles swell to 5 times normal size then burst, releasing their starch into the liquid thus thickening it</p>	<p><b>HOT..... 100°C</b> Degrees Celcius Flour particles continue to swell and burst right the way to 100°C at which point the process is complete.</p>



**Why do we need to 'knead'?**  
The dough is kneaded to give the bread its texture. The protein in the flour (**gluten**) is stretched to make an elastic dough and pockets of gas are formed.



**How to check when pasta is cooked:**

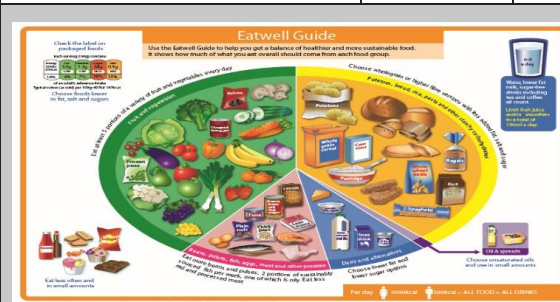
- Taste:** If it taste good, s'all good!
- Chop a piece in half.** If it's still white inside, cook some more.



### Composite Meals:

Nutrient Dense Foods=	Energy Dense Foods=

**Composite meals are:** meals made up of foods from different parts of the Eatwell Guide. Much of the food people eat is in the form of dishes or meals with more than one kind of food in them. For example, pizzas, casseroles, pies, lasagne, spaghetti Bolognese and sandwiches are all made with foods from more than one of the five food groups.



The **Eatwell Guide** is based on the 5 food groups and shows how much of what you eat should come from each group.

### The 5 different groups are:

- Fruit & Veg:** Vitamins and minerals
- Starchy Carbs:** Our body's chosen source of energy
- Protein:** Build & repair muscle cells, a source energy
- Dairy & Alternatives:** good source of calcium
- Fats/oils:** helps body absorb vitamins, source of energy



See FoodTech 101 for all KS3 practicals

**Energy value of the major 'macronutrients':**  
 Fat: 37kJ (9 kcal) per gram  
 Carbohydrates: 17kJ (4 kcal) per gram  
 Protein: 17kJ (4 kcal) per gram



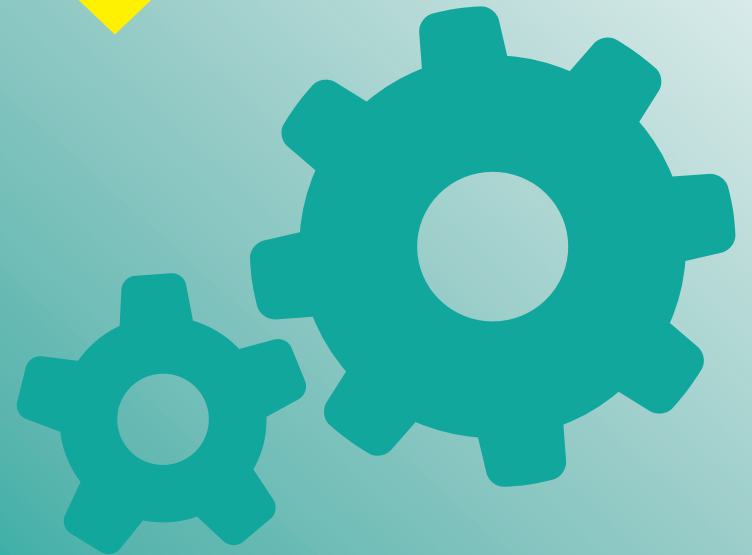
### Function of ingredients in bread:

- Butter: adds moisture/ softens
- Flour: main bulking agent
- Water: helps combine ingredients
- Salt: used to add flavour
- Yeast: helps dough to rise
- Sugar: feeds/activates the yeast
- Warm water: perfect temp for yeast
- Oil: Prevents dough from sticking

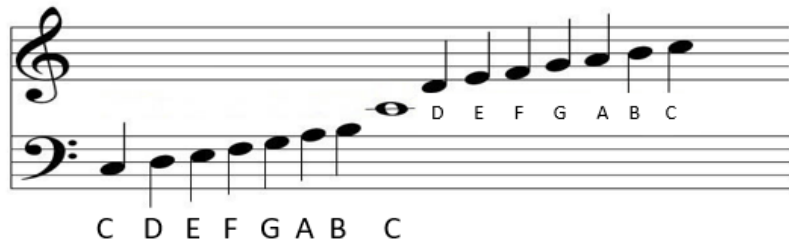
How much of your daily calorie allowance is taken up with your favourite foods? Use the following formula to work it out:

$$\text{calories (in food)} \times 100$$

**RDA (recommended daily amount e.g. 1600 teen girl, 1800 teen boy)**



# Music

C D E F G A B C

Working out a chord – remember 1, 3 and 5

If 1 is C, 3 is E and 5 is G

If 1 is F, 3 is A and 5 is C

MAJOR SCALE: T T S T T T S

### MELODIC RIFF

Riff in C



C D C G E D C

Riff in F



F G F C A G F

BASS IN C



CCC G E G

BASS IN F



FFF F C F

## THREE LITTLE BIRDS



1 2 3 4

Lyrics: Don't wor - ry a bout a thing

5 6 7 8 9

Vocals: 'cause eve - ry lit - tle thing is gon na be al right

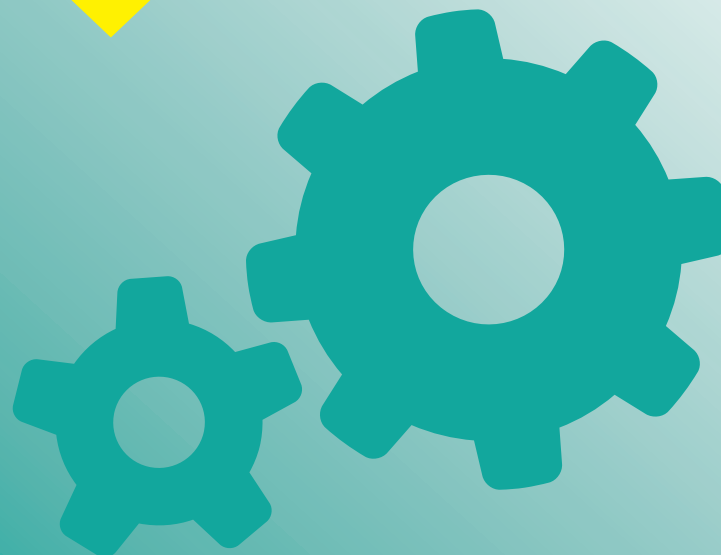


# Music - Reggae - Topic One



Word	Definition	In a sentence	Synonyms
Accompanying	Adjective: occurring at the same time	The chords, melodic riff and bass riff are accompanying the vocals.	Backing
Accurately	Adverb: in a way that is correct in all details; exactly.	The rhythm was accurately performed as it had a steady pulse.	Correctly
Dynamics	Noun: the varying levels of volume of sound in different parts of a musical performance	The dynamics are moderato (medium)	Volume
Expressed	Adjective: conveying thoughts and feelings	The quest for peace, love and brotherhood are expressed through the lyrics	To make known
Influential	Adjective: having an impact on	His state of mind and political unrest were influential when writing this song.	Important
Riff	Noun: a short repeated phrase	The two bar bass riff is repeated moving throughout the chord structure.	Repeated pattern
Tempo	Noun: the speed at which a passage or music is or should be played.	The tempo starts off largo (slow tempo) and accelerates to allegro (fast tempo)	Speed

# Drama







# Drama - Aliens



YEAR 8 <b>DRAMA</b> KNOWLEDGE ORGANISER	
HT1 – Darkwood Manor	
Subject Terminology:	
<b>Atmosphere</b>	The atmosphere is the mood of feeling of a scene. For example, tense, scary, light, happy.
<b>Tension</b>	Tension is the word to describe the feeling that something is about to happen.
<b>Pace</b>	The speed at which someone speaks.
<b>Pitch</b>	Speaking in a high, low or natural voice.
<b>Tone</b>	Tone of voice is its 'colour' or emotional quality. You must make sure that your tone of voice matches the character's mood and what you need to communicate about their feelings.
<b>Corpsing</b>	Where an actor breaks character. This is considered very unprofessional.
Dramatic Techniques:	
<b>Soundscape</b>	A soundscape is a series of sounds created by actors (not words, echoes, repetition, or speaking together) that create a setting or suggest a scene. Sounds could range from wind, to creaking boards, to laughter.
<b>Thought-Tracking</b>	A thought-track is when a character steps out of a scene to address the audience about how they're feeling. Sometimes the character might feel something different to the words they're speaking.
<b>Narration</b>	Narrating is adding a spoken commentary for the audience about the action onstage. A narrator is like a storyteller informing the audience about the plot. Narration is useful in making a story more
<b>Hot-Seating</b>	Hot Seating is a Drama strategy that helps actors to develop their knowledge of their character. Questions are asked to the actor sitting in the 'hot-seat' who answers in character. They can use their imagination to answer the questions if they do not already know the answer.
<b>Choral Speaking</b>	Speaking as a group and in unison (all together)