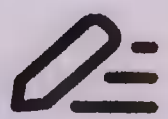
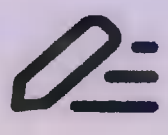
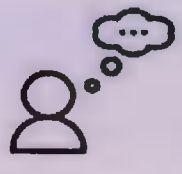
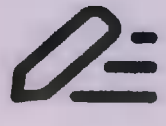
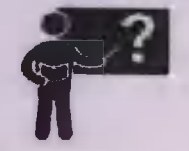
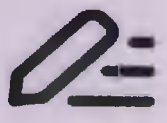
Year 7

Home Learning

Knowledge Organiser Booklet
Summer Term 2026

Name: **Form Class:**

How to use a knowledge organiser – step by step guide

	Look, Cover, Write, Check	Definitions of Key Words	Flash Cards	Self Quizzing	Mind Maps	Paired Retrieval
Step 1	Look at and study a specific area of your KO. 	Write down the key words and definitions. 	Use your KO to condense and write down key facts or information onto flash cards. 	Use your KO to create a mini quiz. Write down your questions using your KO. 	Create a mind map with all the information you can remember from your KO. 	Ask a friend or family member to have the KO or flash cards in their hands. 
Step 2	Cover or flip the KO over and write down everything you can remember. 	Try not to use your KO to help you. 	Add pictures to help support. Then self-quiz using the flash cards. You could write questions on one side, and answers on the other! 	Answer the questions and remember to use full sentences. 	Check your KO to see if there are any mistakes on your mind map. 	They can test you by asking you questions on different sections of your KO. 
Step 3	Check what you have written down. Correct any mistakes in green pen and add anything you have missed. Repeat. 	Use your green pen to check your work. 	Ask a friend or family member to quiz you on the knowledge. 	Ask a friend or family member to quiz you using the questions. 	Try to make connections, linking the information together. 	Write down your answers. 

Knowledge organisers contain essential, fundamental knowledge that you MUST know in order to be successful in Year 7 and subsequent years. Using the methods above, they help you to **recap, revisit and revise** what you have learnt in lessons, enabling you to move the knowledge from your short-term memory to your long-term memory. They are very useful in developing your confidence at home with topics you have covered in class, which in turn will mean you are more prepared for your lessons, as well as your GCSEs that you will sit in the future.

Contents Page

Insects

Good examples of work can be seen on these platform below

OneDrive

Microsoft Teams

The first Roman art can be dated back to 509 B.C.E

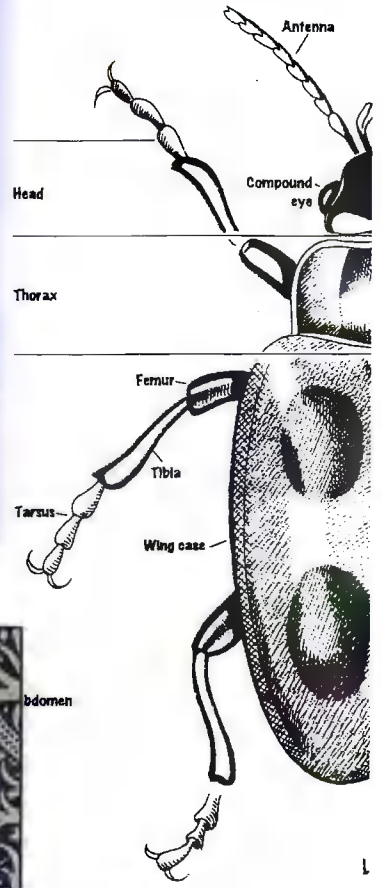
William Rowe Border design

Art Deco is a popular design style of the 1920s and '30s characterized especially by sleek geometric or stylized forms and by the use of man-made materials. **William Rowe's** illustrations look like the Art Deco style.

Celtic Borders design

Celtic Art =700 year period from the 5th century, (Roman withdrawal from Britain) to the 12th century.

Key Vocabulary	
Composition	A posh word for **design** or **layout**
Foreground Middleground Background	3 layers to your composition are ideal and make your work look so professional and creative.
Blending	When one colour smoothly changes in to the next e.g. red into orange or green into yellow. Blending can also be done with *paint *coloured pencils * Pencil tonal *even tiny bits of collaged paper
Mosaic	Tiny little squares of tiles, paper, fabric etc. Typical in Roman Art.
Geometric shapes	Think of the shapes in Maths (circles, squares, triangles, hexagons etc.
Continuous line	A single, unbroken line used to develop an image. Many continuous line drawings can stand on their own as finished works of art e.g. Celtic Art designs use continuous lines.

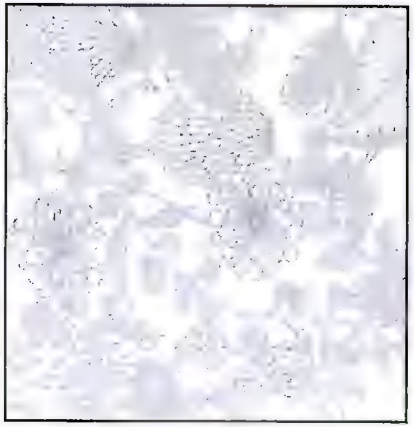


Misconceptions or areas of difficulty

Blending is achieved by:

1. Holding pencil on side = soft blended tones
2. Moving the pencil n a circular motion
3. Applying different levels of pressure to your pencil

Millie Marotta design



William Morris design

Computing: Summer

Databases 7-2

A database is an **organised** store of **information.**
Information about a collection of items is stored in a data table.

Superhero	Real name	gender	Occupation
Superman	Clark Kent	male	Reporter
Spiderman	Peter Parker	male	Teacher
The Hulk	Robert Banner	male	Nuclear physicist
Batman	Bruce Wayne	male	Industrialist
Wonder Woman	Diana Price	female	Teacher
Iron Man	Tony Stark	male	Millionaire
Plastic Man	Eel O'Brian	male	Full time superhero
Green Lantern	Hal Jordan	male	Freelance Artist

A **record** is all the information stored about a single item in the data table.
A **field** stores a piece of information about the item. The type of information it stores is decided by the data type of the field.
The **key field** is a field that is used to identify each record. It has to be **unique** and **cannot change**.

Searching a Data Table
Data tables can be searched for records that match certain conditions. This is called a query and queries are written using a language called **Structured Query Language (SQL)**.

```
SELECT <field names>
FROM <table name>
WHERE <condition>;
```

This query finds all the superheroes that are teachers and shows their name and gender

```
SELECT Superhero, gender
FROM Superheroes
WHERE Occupation = "Teacher";
```

E-Safety 7-1

Your **online identity** is the information that is available about you **online**.
Public Information is information that is available to anyone. An example of this is posts that you make on social media and post as public.
Private Information is information that is stored online but is kept private and only shared with people that you have chosen to share it with.

Tips To Stay Safe Online

- **Think before you post**. Don't upload or share anything you wouldn't want parents, carers, teachers or future employers seeing. Once you post something you lose control of it.
- **Don't share personal details**. Keep things like your address, phone number, full name, school and date of birth private, and check what people can see on your privacy settings.
- **Think about who you are talking to**. There are lots of ways that people trick you into trusting them. Even if you like and trust someone that you met online, never share personal details with them.
- **Keep your device secure**. Make sure that you are keeping your information and device secure.
- **Never give out your password.** You should never let other people know your password or log-in information. Make sure that you pick strong and secure passwords.

Computing: Summer

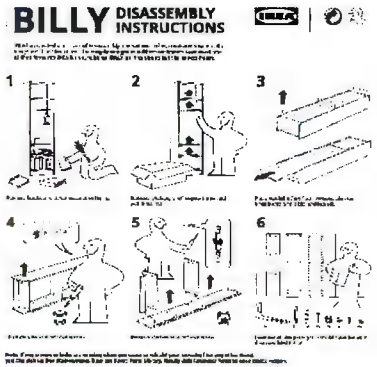
Algorithms 7-2

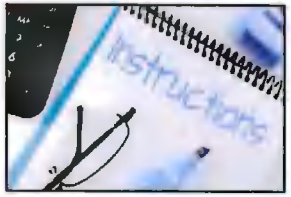
An **algorithm** is a **sequence of instructions** to **complete** a task or **solve** a problem.

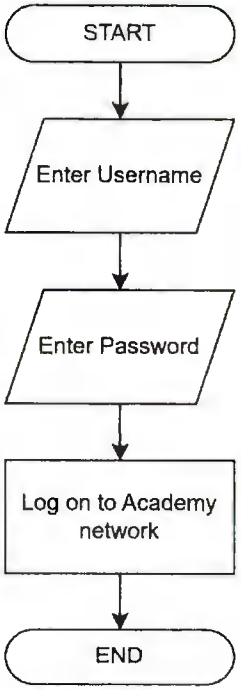
Flowcharts can be used to show algorithms

Symbol	Name	Function
	Start/End	An oval represents a start or end point
→	Arrows	A line is a connector that shows relationships between the representative shapes
	Input/Output	A parallelogram represents input or output
	Process	A rectangle represents a process

Keywords
Algorithm
Instruction
Sequence
Problem
Flowchart
Process
Input
Output







Algorithms can be given in diagrams as well as flowcharts.

Data Representation 7-2

Computers store all information as **Binary** data. Binary uses only **0**'s and **1**'s.
A single binary digit, a 0 or a 1, is called a **bit** and eight bits make a **byte.**

Unit	Size	Use
Byte	8 bits	Single character
Kilobyte	1000 bytes	Low resolution images
Megabyte	1000 kilobytes	High resolution images, audio
Gigabyte	1000 megabytes	Video
Terabyte	1000 gigabyte	High capacity drives

Binary Numbers
Computers store numbers using Binary digits, which is a **base 2** number system as it uses 2 digits. Our normal number system, decimal numbers, uses 10 digits so is a **base 10** number system.

1011

8	4	2	1
1	0	1	1

8 + 2 + 1 = 11

Year 7 English: Summer 1: Narrative Writing

Narrator

Every narrative must have a narrator. This is someone who exists as the voice of the story and it becomes the reader's lens to observe the characters and events.

1st person narrator: written as if the narrator is a character, observing or taking part in the story.

2nd person narrator: written as if the narrator is talking directly to the reader

3rd person narrator: Written as if the narrator is talking about the characters, but is not part of the story.

Limited narrator: a narrator aligned to a specific character, knowing nothing outside of that character's thoughts and interactions with the world and story.

Omniscient Narrator: a narrator who is god-like, able to move from place to place and character to character, moving the reader to any perspective they wish to share.

SENTENCE TYPES

Simple sentences

One idea and one action (one noun and one verb) e.g. *The rain fell.*

Compound sentences

Two simple sentences which are connected with a co-ordinating conjunction, e.g. *The rain fell and the wind howled.*

Complex sentences

A sentence with a subordinate clause e.g. *While the rain fell, the wind howled and blew through the tree's branches.*

Subordinate Clause

Extra information that doesn't make sense alone.

WRITING SKILLS

VOCABULARY

Use ambitious and sophisticated words

SPELLING

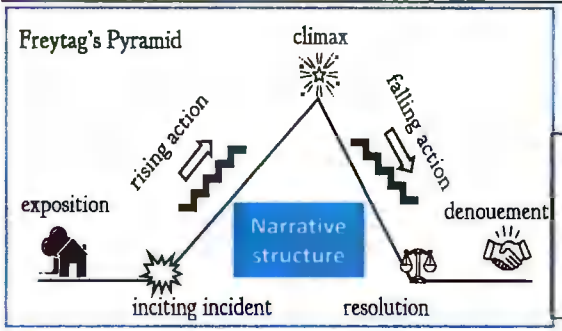
Common words - write these accurately

Ambitious words – learn how to spell these

Revise spelling rules - prefixes, suffixes, plurals, word endings e.g. '-es', '-ed', '-ing', '-ly'

STANDARD ENGLISH

Use formal English at all times e.g. no slang words



USEFUL LINKS AND FURTHER STUDY

- Create story ideas on Writing Exercises
- Complete these BBC Bitesize activities
- How to engage the reader in a story opening for KS3 English students - BBC Bitesize

WRITING TECHNIQUES

Adjective	describes the noun e.g. honey brown hair
Adverb	describes the verb e.g. shouting loudly
Alliteration	repetition of the consonant sound e.g. mighty mountain
Assonance	repetition of the vowel sound e.g. slice of ice
Colour imagery	descriptions using colours e.g. crimson red rose
Imagery	creating a picture for the reader e.g. pure white dove
Metaphor	describes one thing being something else e.g. heart of gold
Narrative Voice	first person (I, me, my, we), third person (he, she, they)
Onomatopoeia	words that sound like the action e.g. crunch, creak, splash
Personification	giving something human qualities e.g. sun smiles down
Simile	describes one thing like another e.g. as light as a feather
Sensory imagery	describes sights, sounds, touch, taste, smells
Verb	describes an action e.g. dancing, smiling, waving

Knowledge Organiser: – Poetry from Different Cultures

Poetic term	Examples	Definition
Alliteration	'flowing flakes that flock'	When letter sounds at the beginning of words are repeated.
Simile	'the world overflowing, like a treasure chest'	When something is described as being like something else.
Rhyme	feet-heat, Mass – grass, must – dust, where – care	When more than one word sounds the same – usually at the end of a line but can be within lines of poetry.
Rhetorical question	When can their glory fade?	A question used to make the reader think about the answer.
Rhythm	I met a traveller from an antique land	When a poem/line has a beat/pace to it – can be used to emphasise a poet's point by changing the pitch of the voice.

Key Quotations

1. "Always remember. Never forget. Forever Manchester"
2. "The world can be looked at another way"
3. "the blessing sings/over their small bones."
4. "No sign says it is:/but we know where we belong."
5. "looking down like some/gargoyle Quasimodo"
6. "as if anything at all were possible/between them/ across that small gulf/in the high sea/of this democracy".
7. "Go to your wide futures, you said"

Comparing connectives	Contrasting connectives
Likewise	However
Similarly	Whereas
Equally	On the other hand
Likewise	Alternatively
As with	Although

Themes	
Identity	Conflict
Violence	Faith
Loss	Belonging
Cultural Experiences	Responsibility
Power	Political Correctness

General subject terminology used in poetry: simile, metaphor, personification, onomatopoeia, oxymoron, juxtaposition, emotive language, pathetic fallacy, alliteration, dissonance, imagery, symbolism, semantic field, tone, sensory imagery, synaesthesia, form, ambiguity, connotation

Subject terminology more specific to poetry

Stanza	A Stanza is a set amount of lines grouped by rhythmical pattern and meter. (A verse)
Enjambment	The continuation of a sentence or phrase from one line to the next, without pause.
Dramatic Monologue	A poem spoken by a character.
Plosive alliteration	Repetition of the 'B', 'D' and 'P' sound at the beginning of words.
Sibilance	Repetition of the S or SH sound at the beginning of words.
Half-rhyme	Words in which the consonants rhyme, rather than the vowels.
Iambic Pentameter	A line of verse with five beats, which fall on the second syllable of each pair.
Rhyming Couplets	Two lines following one another which rhyme
Sonnet	A poem of fourteen lines, usually ending with a rhyming couplet.
Rhythm	The arrangement of words to form a regular beat through a pattern of stresses.

Y7 Globalisation Knowledge Organiser P1

Key terms

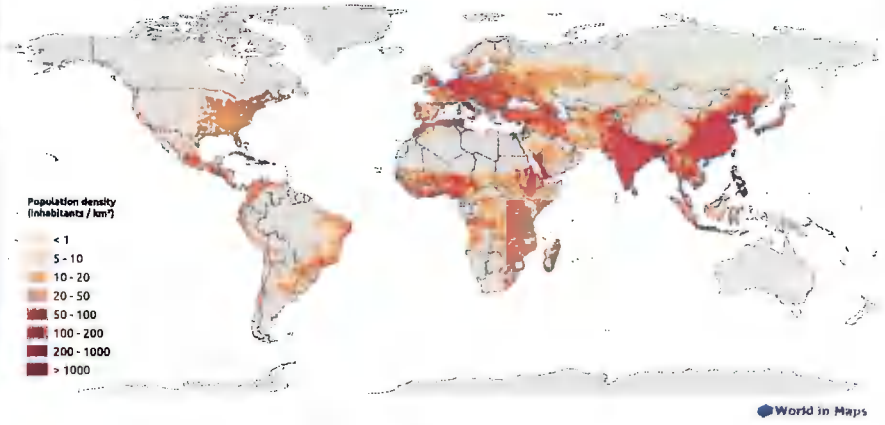
- Child Labour -The employment of children in an industry, which means that they are exploited, and do not receive an education.
- Consumer –Someone who buys and uses products or services such as food, clothing, music, film or electronic items.
- Food miles a way of attempting to measure how far food has travelled before it reaches the consumer.
- Globalisation – the process of the world and its people becoming increasingly more interconnected.
- Global brand – products or services tat are recognised worldwide, often with a familiar logo.
- HIC – High Income country (earning over $12, 746 per person)
- Interdependence - this means places depend on one another in some way.
- LIC – Low Income Country (earning less than $1,047 per person)
- MNC – Multi-National company (or corporation) A large company worth huge amounts of money, that has factories, shops and offices in many countries around the world.
- NEE – Newly Emerging Economy (Earning between $1,048 – $12, 747 per person)
- Outsourcing - When a company gets some of its jobs/processes done in a different country.
- Producer – the person or people who have made the goods and products.
- Sweatshop – a factory or workshop where workers are paid very low wages for long hours in poor working conditions. Health and safety standards are often very low too.
- Sustainable – something that meets people's needs now, without compromising the ability of future generations to meet their own needs.

How to describe distribution on a map.

Distribution refers to the way something is spread out over an area. Many things we study as geographers occur in some places but not others which means there is UNEVEN distribution and it creates patterns which can be seen on a map.

Maps that show these different areas of density are called **choropleth** maps. They use darker colours to show higher densities. The map below shows population density (the number of people living per km²)

When describing these patterns you should use compass directions, continent or country names, etc. and relate position to other features on the map i.e. 'north of the equator' or ' along the east coast'.



Our belongings are often made in LICs and NEEs such as China, Cambodia, Vietnam and Bangladesh. China is in East Asia, with a long coastline and many ports on the East China Sea, great for exporting goods and products! Bangladesh is in South Asia. Cambodia and Vietnam are in South East Asia. You will learn more about these places in the Y9 Almighty Dollar topic.

Y7 Globalisation Knowledge Organiser P2

Why has globalisation increased?

Communication and Technology – The internet, Wi- Fi and mobile phones mean thoughts, trends and information can be shared instantly around the world.

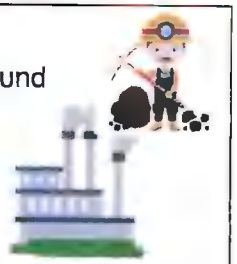
Transport improvements – Larger cargo ships means that the cost of transporting goods has decreased, while transport improvements means that goods and people can travel more quickly. From England to Australia 200 years ago would have taken almost a year on a sailing boat. Today, the same distance can be covered in about 24 hours!

MNC's – More of these global companies means the same businesses, products and services can be found around the world which means people in different countries can buy and experience the same things.

Extra:
Governments – Now work with each other more than ever to try to solve global problems such as climate change. Globalisation has been driven by political organisations such as the European Union, United Nations and World Trade Organisation. These groups promote free trade between countries which helps to remove barriers between countries. This is political globalisation.

Sectors of employment

Primary jobs involve extracting raw materials from the ground e.g. a miner.



Secondary jobs involve making or manufacturing goods or products e.g. a factory worker.

Tertiary jobs offer a service or skill to people e.g. a shop assistant or teacher.

Quaternary jobs involve information and communication technologies and research and development of new ideas and products e.g. a software engineer or scientist.

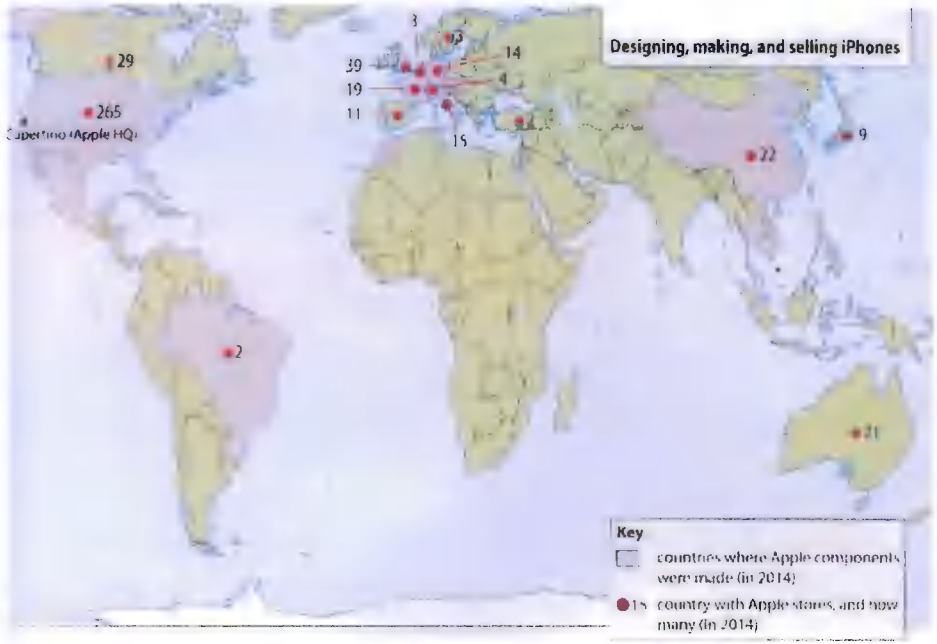
Multinational Corporations

MNC's operate in more than one country. They often have factories in LICs. This is because labour is cheaper (they can pay their workers less). This is called outsourcing. Keeping their costs down ensures that their profits remain high. The offices and headquarters tend to be located in more developed countries (HIC's). Examples include:

- Coca-Cola
- Nike
- Apple
- Starbucks
- McDonalds

Apple – a Multi-National Corporation

- Apple are a Multi-national technology company.
- Apple has 528 shops worldwide and employs over 161,000 workers.
- Most of its stores (265) are in the USA.
- Africa is the only inhabited (meaning people live there) continent with no Apple stores.
- Apple assemble all iPhones in Chinese factories, where they have operated since 2001. Their largest factory is located in Zhengzhou, China.
- Their raw materials are sourced from all over the world, and each component is made in a range of different countries (see the purple countries below), and then shipped to China for final assembly.
- iPhones are designed in the headquarters in Cupertino which is in California in the USA, making an iPhone a global product.



1 The quaternary sector

At Apple HQ, engineers, designers and programmers work on features for your phone. What would appeal to you? Log in by fingerprint? Voice commands? Pay for things by waving your phone at the till?

After many months of top-secret work, the design is perfected.

2 The primary sector

All the materials that make up your phone come from Earth's crust.

The plastic is made from chemicals in oil. The glass is made from minerals extracted from rock.

And then, the metals. Around *sixty* different metals are used in smartphones. Some familiar ones – like gold, silver, copper, tin – and others you may not have heard of – like indium, cerium, and neodymium.

The metals come from all over the world. Many belong to an important group called the **rare earths**, which are mined mainly in China.

3 The secondary sector

The parts for your mobile are made – but *not* by Apple. (Apple does the design and marketing.) They are made in other people's factories, in several countries. Then the phones are assembled, mostly in China.

4 The tertiary sector

And now, the focus is on you. The phones are in the shops. The staff are ready to sell them to you. You are so tempted!

5 The quaternary sector again

You pay for a call plan. You go on the internet, and send texts and images. You download apps and music. All made possible by clever people in the quaternary sector, in many different companies.

Multi-National Corporations - The primary and secondary stages

Where do Multi-National Corporations get their raw materials from?

- The Democratic Republic of Congo (DRC) is a country in Central Africa.
- Workers, often children, mine in difficult and unsafe conditions to extract a metal called cobalt. This is called child labour. These children are being exploited.
- The workers receive very little pay, sometimes earning less than $1 a day.
- The cobalt is then shipped to China or another country which uses it to manufacture components of Apple iPhones, amongst other things.
- Cobalt is used in many manufactured products including lithium-ion batteries in smartphones and cars and in televisions.
- We are consumers who buy and use these items, so this is a global problem.

Why do Multi National Corporations like Apple and Nike build factories in LICs and NEEs?

LICs and NEEs often have many advantages for a company looking to build factories.

- **Wages are often lower** so more profit can be made. On average, workers in **Apple**'s Zhengzhou, **China** factory earn just $3.15 per hour. The minimum wage in the UK is over $10 per hour.
- **Fast, cheap production** - Laws to protect workers from exploitation are weaker so companies can get away with longer working hours, fewer breaks and unsafe working conditions, in sweatshop factories such as the **Rana Plaza** in **Bangladesh,** which collapsed killing more than 1,100 workers. This all leads to poor social conditions for workers, but fast production and higher profits for MNCs such as **Nike**.
- **Available workers** - Unemployment is often high so there are a large number of workers available.
- A **larger market** - Building in LICs means companies can sell their goods to more people.
- **Weaker environmental laws** means they do not always have to pay to clean up pollution which saves them money and increases profits.

Globalisation of our food

- 46% of the UK's food is imported. This means that it is not grown or produced in this country, but bought from other countries, and transported here.
- Perishable foods (food that will rot quickly) e.g. fruit and vegetables, are brought here quickly on refrigerated planes, so that it is still fresh.
- Non perishable items e.g. bottled water, are shipped here on large container ships,
- Both of these forms of transport add to food miles.
- All of the ingredients in a supermarket chicken casserole may have travelled 30,000km in total!



ADVANTAGES	DISADVANTAGES
We can have fresh produce like strawberries and apples all year round, and not just in summer when we can grow them. We can have a much wider range of foods such as bananas, coffee, rice and spices, which won't grow in the UK, no matter the season. Food is often cheaper when it's imported as costs are lower.	Extra fuel use for planes, ships and trucks. Extra trucks on the road cause traffic congestion. Extra carbon dioxide emissions which cause global warming.

Sustainable food production

Grow your own fruit and vegetables in your garden or an allotment. Broccoli and parsnips grow well in winter. Potatoes and onions grow well in the summer.

Feed animals such as cattle (cows) on grass not grain. Growing grain needs lots of land, and deforestation often happens to create this land. Also, the grain uses too much water, which we need to make sure we don't waste. Even better....eat less meat!

Allow smaller fish to escape through small holes in the fishing net. This allows them to grow in to adult fish, breed and produce more fish, so we don't run out.

Organic farming avoids the use of chemicals, which reduces the pollution of land and rivers. Use manure as a fertiliser instead!

Reduce food miles by eating more locally produced food, when it is in season. This will reduce carbon emissions

Reduce food waste. Make sure that all of the food you buy gets eaten. This may involve better meal planning, freezing leftovers and buying less food, but not throwing any of it away.

Y7 Globalisation Knowledge Organiser P6

Positive impacts of globalisation	Negative impacts of globalisation
1.MNC's create jobs and help develop new skills in LICs and NEEs. Apple currently provides about 5 million jobs in manufacturing and retail. 2. LIC wages may be poor, but they are probably better than they were before the MNC arrived. This helps to lift people out of poverty. 3. MNCs bring wealth – when there are more jobs, people earn more money and spend this money in their local communities. 4. More tax will be paid to the LIC government so they can improve education, healthcare, roads and railways. The country develops. 5. We have increased awareness of events in far-away parts of the world e.g. deforestation, global warming and natural disasters. 6. Ideas, experiences, food and lifestyles are shared around the world due to the media and better transport (cultural globalisation). 7. We are able to buy cheaper products, and a wider range of products, from abroad.	1.Globalisation mostly helps the richest countries get richer. It has created a larger gap between the wealthiest and the poorest. 2.The profits are often sent back to the richer countries where the MNC is based. Some would say that MNCs often put profit over people. 3.Small businesses are forced to close due to the competition from global chain stores. Towns and cities become clones of one another. 5.The world becomes increasingly similar as local businesses, languages and cultures get drowned out. Mcdonaldization and Disneyfication occurs! 6. Large amounts of pollution are created by air travel and the movement of goods on ships and lorries. 7. Globalisation has lead to an increased use of energy. As a result more fossil fuels are burned e.g. gas and oil. This releases greenhouses gases e.g. carbon dioxide which contributes to global warming. 7. MNCs exploit poorer countries for their resources. In some cases people are given low pay or made to work in illegal conditions. A BBC report alleged that Apple workers work 12 hour shifts or more, occasionally falling asleep, not allowed breaks or any days off. 8. Diseases such as Covid-19 can spread from one country to another far easier with so many people and goods moving around the world.

Players in globalisation	Opinion on globalisation
MNCs	Positive opinion, as they made globalisation happen. It helps their profits grow. **However, they may have to pay tax to host countries.**
LIC governments	Positive opinion - the companies help them to reach their resources. The wages will help the economy. **However, it could stop them from developing if they are always paid small amounts.**
HIC governments	Able to do business overseas which spreads the country's influence and provides more jobs. **However some think globalisation gives them too much power.**
Workers	Positive opinion as they can get good pay and they make the product for the famous companies. **However they have to work long hours in uncomfortable conditions.**
Economists	They think it will help develop the countries where MNCs set up factories or call centers. **However, it widens the development gap.**
World Trade Organisation	Globalisation is good because it breaks down the barriers between countries. **However it could increase inequality as the majority of the profits go to HICs.**

Reducing the negative impacts of globalisation

- The Ivory Coast is in West Africa.
- 70% of the world's cocoa comes from the Ivory Coast.
- The cocoa grows in pods on trees. Cocoa is used to make chocolate.
- Many cocoa farmers live in poverty because the global price of cocoa fell, so they cannot get a good price for their cocoa.
- MNCs such as Cadbury earn a huge share of the profit from the sale of a chocolate bar (about 43%), whilst the farmers who grew the cocoa get just 3%.

Fairtrade

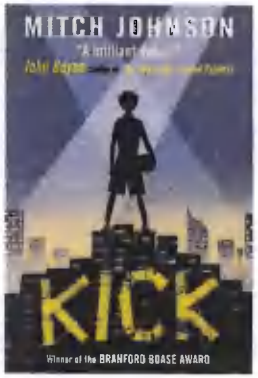
- Fairtrade is a co-operation that ensure farmers get a fair price for their goods, even if the value of cocoa decreases on the global market.
- It aims to ensure workers' rights, safer working conditions and fairer pay.
- Consumers can choose to buy Fairtrade products such as coffee, chocolate, bananas and as a result more of the money goes to the farmers rather than large companies
- A fair trade premium is used to build water pumps and schools in the farmers' villages, to improve health and life chances for their children in the future.

Other ways to reduce the negative impacts

- Buying ethically sourced goods means buying clothes that have not been produced in sweatshops or through child labour.
- Governments giving aid (help) and charities such as Oxfam can help those who are affected most. Charities collect money from the public and this money is then used to help the people who have been affected by the economic unfairness of globalisation.

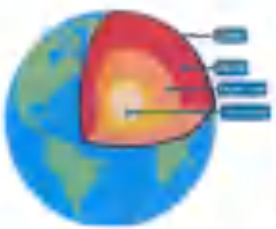
You could watch and read these to extend your understanding:

1. Globalisation - BBC Bitesize
2. World Learners 7- What is Globalisation? (youtube.com)
3. Kick by Mitch Johnson
4. Apple accused of using child labour to mine cobalt, promises to switch to 100% recycled cobalt by 2025 (firstpost.com)



Y7 Tectonics P1

Structure of the Earth



Key words and terms:

Crust:
The rocky outer layer of the earth, made up of oceanic and continental crust.

Mantle:
Semi-molten rock, moving beneath the earth's crust. It is the movement (convection currents) in the mantle which cause tectonic plates to move

Outer core:
A 2000km thick liquid made up largely of iron and nickel.

Inner Core:
A dense solid of extreme temperature (5,500°C) made up of iron and nickel.

Lithosphere:
Crust and upper part of the mantle. Broken up into big slabs called tectonic plates.

Oceanic and Continental Crust

Oceanic Crust	Continental Crust
Forms under ocean	Forms under land
Denser	Lighter
Newer	Older
Thinner (6-8km)	Thicker (30-50km)

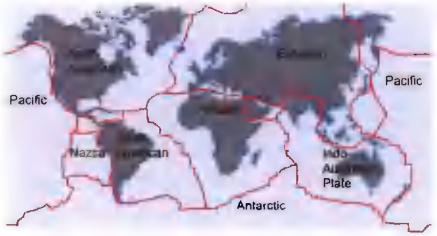
Theory of Continental Drift

- The Theory of Continental Drift suggests that the Earth was once one big supercontinent called Pangea. This supercontinent has since broken and drifted apart to form the structure of the Earth as we know today.
- The Theory was suggested by Alfred Wegner.
- Evidence for this theory includes:

1. Fossils of the Mesosaurus found in Africa and South America, even though the animal could not swim across salt water.
2. The fact some of the world's continents seem to fit together like jigsaw puzzle pieces.
3. Bands of the same rock and glacial deposits are found on several continents.

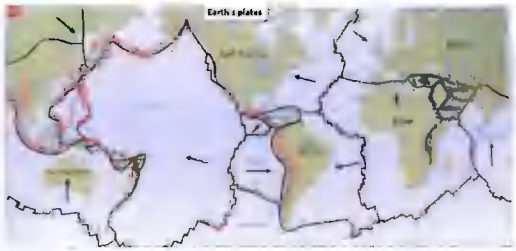
Tectonic Plates

- Tectonic plates are the Earth's lithosphere broken into big pieces.
- These tectonic plates are always moving.
- There are eight major tectonic plates. They tend to be named after the continent or ocean they are below.
- Some tectonic plates are oceanic plates and others are continental plates.



Distribution of Earthquakes and Volcanoes

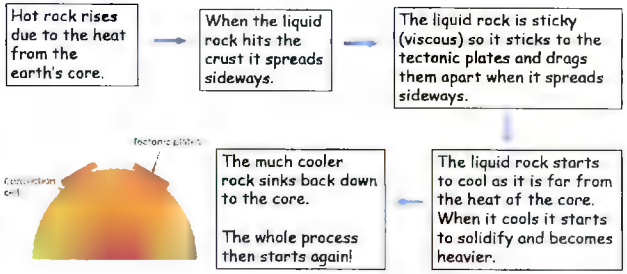
- Earthquakes and volcanoes tend to occur on plate boundaries (edges of the tectonic plates).
- This is because here the tectonic plates are moving towards each other, scraping against each other and moving apart from each other.
- There is a famous ring of volcanoes around the Pacific plate called the Pacific Ring of Fire.



Key:
Red dot = earthquake

Yellow triangle = volcano

How do the Tectonic Plates Move? – Convection Currents



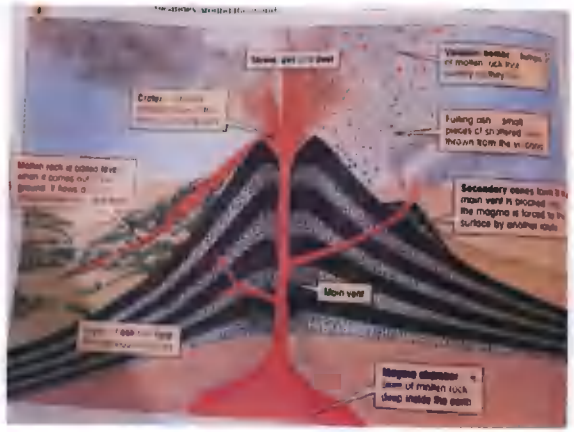
Tectonics P2

Plate Boundaries

- There are three different types of plate boundary: **destructive**, **constructive** and **conservative**. Which type they are depends on how the plates move at this boundary
- Different plates boundaries have different landforms, such as volcanoes and fold mountains.

Boundary	Movement	Diagram	Example	Landforms
Destructive	The plates either collide or the oceanic plate **subducts under** the continential plate.		The Nazca plate being forced under the **South American plate.**	Volcanoes Fold mountains Earthquakes
Constructive	The plates **move apart.**		The African plate and the South American plate.	Volcanoes
Conservative	The plates move **alongside** each other.		The Pacific plate and the North American plate.	Earthquakes

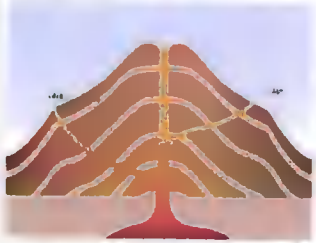
Features of a Volcano



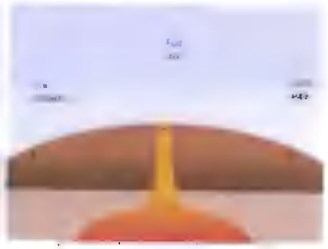
Different Types of Volcano – Shield and Composite

- Steep sides
- More violent eruption
- Destructive plate boundary
- Thicker sticker lava

- Sloping sides
- Less violent eruption
- Constructive plate boundary
- Runnier lava



Composite Volcano



Shield Volcano

Mount Vesuvius

Location: Italy's west coast. Overlooks the Bay and City of Naples.

When did it erupt?: 79AD is the most famous eruption when it destroyed the Roman cities of Pompeii and Herculaneum. It's most recent eruption was in 1944.

Plate boundary: Destructive plate boundary where the African Plate subducted beneath the Eurasian plate. The Africa plate melted due to heat of the mantle and created volcanic eruption.

Impacts: 16,000 killed, large cloud of volcanic ash and rock.

Next eruption: 3 million people art risk. Expect next eruption to be a Plinian eruption lie the last, this means that there will be lots of ash and rock moving at speeds of about 100mph. The Bay of Naples has been divided into different zones to determine each areas risk of damage. Around 600,000 people are in the red zone (highest risk).

Features of an Earthquake

Focus = Point where the earthquake occurs. Point where the tectonic plates move past each other and get stuck or bump.

Epicentre = Where the vibrations caused by movements of the earth's plates reaches the surface. It is directly above the focus. The most damage occurs at the epicentre.

Seismic waves = Energy released from the movements of the earth's plates. Seismic waves spread out from the focus. They get weaker the further away they are from the focus.

Aftershocks = Smaller earthquakes that occurs after the main earthquake. Occur as the plates settle into their new positions.

Measuring Earthquakes

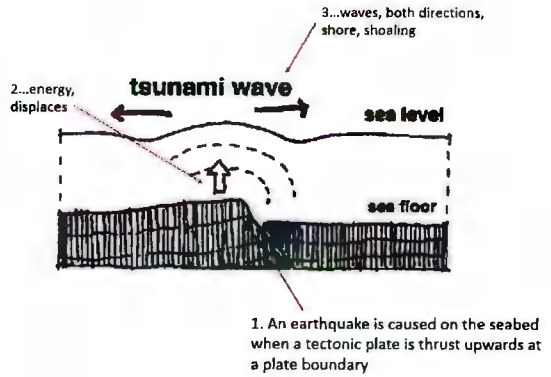
- Earthquakes magnitude (how strong they are) are measured using Seismometers.
- They record the strength of the earthquake on a graph called a Seismograph.
- The magnitude of an earthquake is determined by its position on the Richter Scale. The Richer Scale tends to go from 1 to 10, although this number may rise if there are stronger earthquakes in the future. The higher the number the stronger the earthquake. Every increase of 10 represents a 10x stronger earthquake than the previous number.
- The intensity of an earthquake is measured Using the Mercalli Scale. This scale goes from 1 to 12. The higher the number the more destruction the earthquake has caused.

Tectonics P3

Tsunamis

- Tsunamis are most likely to be caused at destructive plate boundaries.
- Tsunamis are caused by:

1. Tectonic plates moving towards each other under the ocean at a destructive plate boundary.
2. The less dense (lighter) continental plate moves upwards, causing an earthquake and a release of energy into the ocean.
3. The energy released displaces the ocean above, forcing the water to rise upwards.
4. This creates a tsunami wave that spreads out quickly in both directions.
5. As the waves approach shallow water they slow down and increase in height. This is called shoaling.
6. The tsunami crashes onto the shore, flooding coastal settlements.



Japan (2011) Earthquake and Tsunami

- March 11th 2011
- Magnitude 9
- Earthquake occurred in the Pacific Ocean leading to a tsunami.
- Earthquake was formed at a destructive plate boundary where the Eurasian Plate and Pacific Plate where moving towards each other.

Social = effects on people and communities.

Economic = effects on industry, employment and money.

Environmental = effects on the environment.

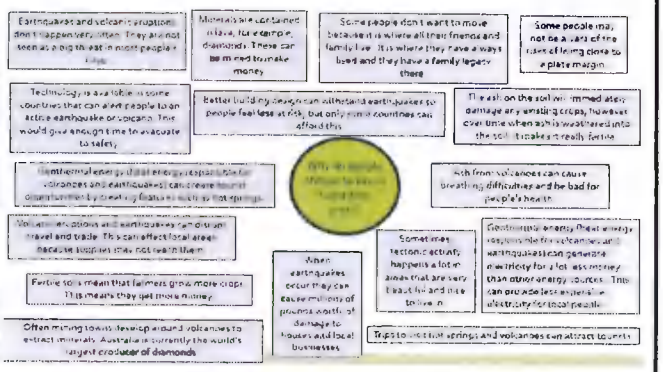
Social Impact	Economic Impact	Environmental Impact
Dangerous nuclear radiation leaking into the air, affects people's health.	Damaged cost 16.9 trillion Japanese Yen.	Nuclear radiation damaged the environment.
Lack of electricity supply.	Toyota car assembly plant forced to close. Lost a lot of money as could not produce and sell cars.	Farmland destroyed due to salt from the tsunami.
16,447 people died.		
5,942 people injured.	Farmers lost money as could not grow and sell crops.	
Homes destroyed.		
Food cannot be grown on land for many years. Reduction in food supply.	111,944 buildings destroyed.	
111,944 buildings destroyed.		

Preparing and Responding to an Earthquake

- To prepare for a natural disaster most countries employ the 3 P's policy: Protect, Predict and Plan.
- In Japan they prepared and responded to the earthquake and tsunami by:
  - Tsunami detection buoys.
  - Seismometers to detect ground shaking to predict when an earthquake is going to occur, although earthquake are hard to predict.
  - Earthquake drills.
  - Earthquake proof buildings.
  - Bullet trains automatically stop.
  - Households are encouraged to have an emergency bag of essentials such as bottled water and rations.
  - TV challenges witch to give information about a disaster that has happened. Tsunami warnings are then given if needed.
  - Search and rescue teams.
  - Tsunami levees (walls)

Why do People Live in Tectonically Active Areas?:

- A tectonically active area is somewhere where tectonic activity takes place (e.g. somewhere with lots of earthquakes and volcanoes).



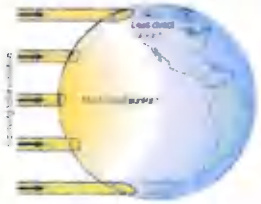
Japan

Japan Location

- East Asia
- North of Pacific Ocean
- Surrounding seas are Sea of Japan and Yellow Sea
- Japan is made up of 6,852 islands
- 4 main islands
- Capital city is Tokyo

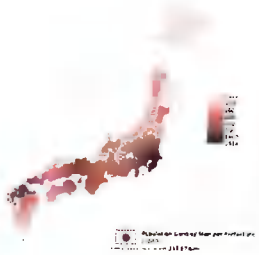
Japan Physical Features and Climate

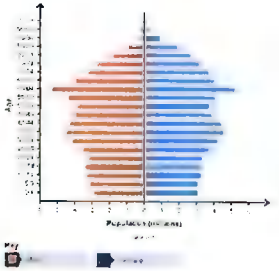
- Japan's Northern Islands are colder than its Southern islands.
- This is because the Islands in the South are closer to the equator where there is more direct sunlight.
- On the island of Hokkaido snow can fall in the winter due to cold temperatures.
- The Island of Kyushu has a warm tropical climate.
- Mount Fuji is Japan's largest volcano. It is located on the island of Honshu.



Japan Population

- Japan is the most densely populated on the islands of Honshu, in particular to the east of the island. This is because Tokyo is located here.
- Japan's population is 126,085,141.
- Japan has an ageing population.
- Japan's population is declining as birth rate is decreasing and death rate is increasing.





Japan Development

- Japan is a highly developed country:
  - Electricity (% of people with electricity)– 100%
  - Human Development Index (HDI)(standard of living ranked between 0 and 1, made up of literacy rate, life expectancy and GDP) – 0.919
  - Life expectancy (how long on average expected to live)– 84.63
  - GDP per capita (total value of goods and services produced by a country in a year divided by the total number of people living in the country) – $42,931
  - Child mortality rate (deaths per 1000 under the age of 5) - 2
- Japan designs and creates many electronic devices such as robots (e.g. ASIMO), cars (e.g. Nissan) and the bullet train.

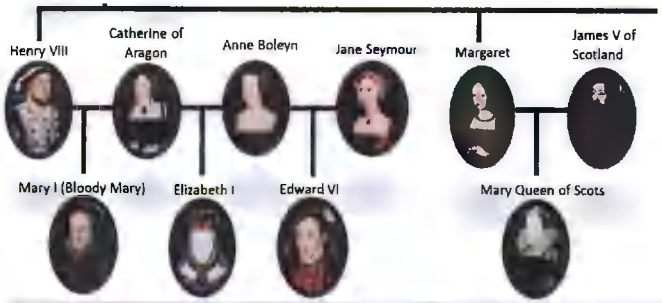
Japan Opportunities and Challenges

Opportunities	Challenges
Volcanic ash has made soils very fertile and good for farming.	Japan is located in the Pacific Ring of Fire, split across four tectonic plates.
Being an island makes it easy to have ports for fishing and shipping goods in and out of the country.	Typhoons hit Japan 2 or 3 times per year on average.
Heat from underground can be used to make electricity (geothermal power).	Monsoons and rainy seasons cause extreme flooding.
There are small amounts of minerals such as iron, coal and oil.	Almost ¾ of Japan is mountainous making it difficult to build on.
Most of the rivers are fast flowing so they can be used to create electricity (Hydroelectric Power).	Earthquakes and volcanic eruptions occur often. When they happen under the sea they cause tsunamis.

Key Words

- **Climate** = Average weather in a place over a 30 year period.
- **Weather** = Day to day changes in the atmosphere.
- **Equator** = An invisible line of latitude that runs around the world. It is 0° latitude.
- **Population** = Number of people in a place.
- **Population Density** = The number of people in an area (per square km)
- **Population Distribution** = The pattern of where people live.
- **Ageing population** = Increasing numbers of population over 60.
- **Development** = Measure of progress within a country.
- **Birth rate** = Number of live births per 1000 of the population per year.
- **Death rate** = Number of deaths per 1000 people per year.
- **Literacy rate** = Percentage of people aged 15 and over who can read and write.
- **Pacific Ring of Fire** = a region around much of the rim of the Pacific Ocean where lots of earthquakes and volcanic eruptions occur.
- **Typhoon** = A tropical storm, also called a hurricane.
- **Fertile** = Fertile soil is able to support the growth of a large number of strong and healthy plants.

Elizabethan England 1558-1603



Key People		
1	**Phillip II**	Catholic King of Spain
2	**Sir William Cecil**	Secretary of State until 1573 (Chief Advisor)
3	**Sir Francis Walsingham**	Elizabeth's chief spy
4	**Sir Francis Drake**	Elizabeth's privateer. He was the first Englishman to circumnavigate the globe.
5	**Walter Raleigh**	Courtier who organised colonisation of Virginia
6.	**Mary Queen of Scots**	Elizabeth's cousin. Queen of Scotland but was imprisoned and eventually executed after plotting to kill Elizabeth.

Key terms		
1.	**Legitimate**	Born to parents who are married to each other
2.	**Privy council**	Advisors to Elizabeth.
3.	**Babington Plot**	A Catholic plot involving Mary Queen of Scots. The plan was to kill Elizabeth and put Mary on the throne.
4.	**Circumnavigate**	To travel all the way around the world.
5.	**Vagabonds**	Homeless people without jobs who roamed the countryside begging for money or perhaps committing crimes in order to survive.
6.	**Roanoke**	Lost colony in Virginia where everyone disappeared.
7.	**Colonies**	Land under the control or influence of another country.
8.	**Armada**	The Spanish fleet sent to invade England in 1588.

The Stuarts, Civil War and The Republic (1642-1666)

March 1603 - Elizabeth I dies and James VI of Scotland becomes James I of England.

5th November 1605 – The Gunpowder Plot was uncovered and Guy Fawkes was arrested.

March 1625 – James I dies and his son Charles I takes the throne.

1629 – Charles I closes down Parliament for 11 years.

1640 – Charles reinstates Parliament.

1642 – The English Civil War begins.

Key People

James I

James was both King of England and Scotland, and joined the two nations together. He was the target of the Gunpowder Plotters. He believed in the Divine Right of Kings, the belief that God gave King's their power, and therefore could not be argued with by anyone.

Charles I

The eldest son on James I, Charles also believed in the Divine Right of Kings. This led to arguments with Parliament, which in the end led to the English Civil War. Charles eventually loses, and is the only King to be put on trial and executed by the country.

Oliver Cromwell

Oliver Cromwell was an MP, who rose to fame due to New Model Army in the English Civil War. After the war, he was one of the MP's who signed Charles I death warrant. He later became Lord Protector of England, leader of England until his death in 1658.

Charles II

Charles II, son of Charles I, was in hiding in France after his father was beheaded. When Oliver Cromwell died he started to plan his return. In 1660, he successfully landed and paraded through London to cheering crowds. Often called "The Merry Monarch"

Key Terms		
1	**Divine Right of Kings**	Belief that Kings power came from God and therefore nobody could defy them
2	**Treason**	The crime of acting to overthrow the government or harm/kill the monarch
3	**Monarch**	Sovereign head of state – usually a King or Queen
4	**Parliament**	Body of chosen representatives that run Great Britain
5	**Regicide**	The act of killing a monarch
6	**Puritan**	Very strict Protestants
7	**Hung, drawn and quartered**	The punishment for high treason. The convicted is hanged until almost dead, their stomach is cut open and intestines pulled out and finally their limbs and head are cut off. Some accounts say they are pulled apart by horses running in different directions.
8	**Matthew Hopkins**	The Witch Finder General responsible for around 300 people's deaths after they were found guilty of witchcraft.
9	**Witchcraft**	A supernatural practice. It was believed the witch had sold her soul to the devil in exchange for magical powers.
10	**Ship Money**	An emergency tax on England, taken advantage of by Charles I
11	**New Model Army**	New type of army created by Parliament
12	**Lord Protector**	Title given to Oliver Cromwell
13	**Restoration**	The return of monarchs to the throne of England
14	**Cavaliers**	Nickname given to supporters of Charles
15	**Roundheads**	Nickname given to supporters of Parliament
16	**Plague Doctor**	Famous for their bird-like masks. They entered the houses of plague victims to offer 'treatments'.

1645-47 – The witch hunts of Matthew Hopkins.

1649 – End of the Civil War and the execution of Charles I.

1653 – Oliver Cromwell is made Lord Protector of England.

1660 – Restoration of the monarchy. Charles II becomes King.

1665 – The Great Plague of London.

1666 – The Great Fire of London.

Year 7
Knowledge Organisers

Summer Term

Percentages
Factors, Multiples, Primes
Rounding and Estimating
Basic Algebra 2
Linear Equations
Simultaneous Equations

Year 7 – Percentages

What do I need to be able to do?

By the end of this unit you should be able to:

- Find the percentage of an amount using mental methods
- Find the percentage of a given amount using a calculator

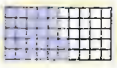
Keywords

Percentage: parts per 100 (uses the % symbol)

Express as a % - Non-calculator

Percent – per hundred

7 per every 10 are orange $\frac{7}{10}$ → This means that 70 per every 100 are orange $\frac{70}{100}$ → 70%



27 per every 50 shaded $\frac{27}{50}$ → 54 per every 100 shaded $\frac{54}{100}$ → 54%

Denominator 100 | Equivalent fractions

Express as a % - Calculator

$\frac{13}{30}$ → □/□ → $\frac{13}{30}$ → × 100 → 43.3333...% → 43%

Can't use equivalence easily to find 'per hundred'

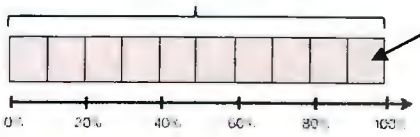
This the same as 13 ÷ 30

Decimal percentages are still a percentage

Find the percentage of an amount (Mental methods)

The **whole** represents 100%

10% = $\frac{1}{10}$ of the whole



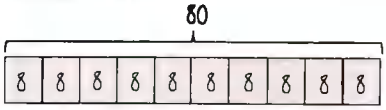
10% = $\frac{1}{10}$ of the whole

50% = $\frac{5}{10} = \frac{1}{2}$ of the whole

20% = $\frac{2}{10} = \frac{1}{5}$ of the whole

5% = $\frac{1}{20}$ of the whole

Find 65% of 80



For bigger percentages it is sometimes easier to take away from 100%

Method 1

65% = 10% x 6 + 5%

= (8 x 6) + 4

= 52

Method 2

65% = 50% + 10% + 5%

= 40 + 8 + 4

= 52

Find the percentage of an amount (Calculator methods)

Using a multiplier

Find 65% of 80

Fraction, decimal, percentage conversion

65% = $\frac{65}{100}$ = 0.65 ← The multiplier

0.65 x 80 = **52**

Using the percent button

Find 65% of 80

This brings up the % button on screen You will see 65%

Type 65

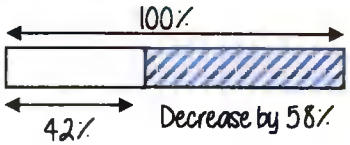
Press SHIFT ((%)

Press × 80 and then press =

You can also use the calculator to support non calculator methods and find 1% or 10% then add percentages together

"of" can represent 'x' in calculator methods

Percentage decrease: Multipliers

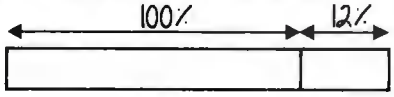


Decrease by 58%

100% - 58% = 42%

100 – 058 = 042 ← Multiplier Less than 1

Percentage increase: Multipliers



Increase by 12%

100% + 12% = 112%

100 + 012 = 112 ← Multiplier More than 1

Year 7 – Factors, Multiples, Primes

What do I need to be able to do?

By the end of this unit you should be able to:

- Find and use multiples
- Identify factors of numbers and expressions
- Recognise and identify prime numbers
- Recognise square and triangular numbers
- Find common factors including HCF
- Find common multiples including LCM

Keywords

Multiples: found by multiplying any number by positive integers
Factor: integers that multiply together to get another number
Prime: an integer with only 2 factors
HCF: highest common factor (biggest factor two or more numbers share)
LCM: lowest common multiple (the first time the times table of two or more numbers match)

Multiples

The "times table" of a given number

All the numbers in this lists below are multiples of 3.

3, 6, 9, 12, 15...

This list continues and doesn't end

3x, 6x, 9x ...

x could take any value and as the variable is a multiple of 3 the answer will also be a multiple of 3

Non example of a multiple

45 is not a multiple of 3 because it is 3 x 15

Not an integer

Factors

Arrays can help represent factors

5 x 2 or 2 x 5

Factors of 10
1, 2, 5, 10

10 x 1 or 1 x 10

The number itself is always a factor

Factors and expressions

6x × 1 OR 6 × x

Factors of 6x
6, x, 1 6x, 2x, 3, 3x, 2

2x × 3

3x × 2

Prime numbers

2

The first prime number
The only even prime number

- Integer
- Only has 2 factors
- and itself

Learn or how-to quick recall...

2, 3, 5, 7, 11, 13, 17, 19, 23, 29...

Square and triangular numbers

Square numbers

odd even odd

Representations are useful to understand a square number n^2

1, 4, 9, 16, 25, 36, 49, 64 ...

Triangular numbers

Representations are useful – an extra counter is added to each new row

Add two consecutive triangular numbers and get a square number

1, 3, 6, 10, 15, 21, 28, 36, 45...

Common factors and HCF

1 is a common factor of all numbers

Common factors are factors two or more numbers share

HCF – Highest common factor

HCF of 18 and 30

18: 1, 2, 3, 6, 9, 18

30: 1, 2, 3, 5, 6, 10, 15, 30

Common factors (factors of both numbers)
1, 2, 3, 6

HCF = 6

6 is the biggest factor they share

Common multiples and LCM

Common multiples are multiples two or more numbers share

LCM – Lowest common multiple

LCM of 9 and 12

9: 9, 18, 27, 36, 45, 54

12: 12, 24, 36, 48, 60

LCM = 36

The first time their multiples match

Comparing fractions

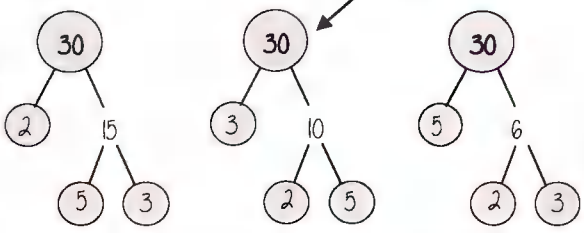
$\frac{3}{5}$ and $\frac{7}{10}$

Compare fractions using a LCM denominator

$\frac{6}{10}$ and $\frac{7}{10}$

Product of prime factors

Multiplication part-whole models



All three prime factor trees represent the same decomposition

Multiplication is commutative

30 = 2 x 3 x 5

Multiplication of prime factors

Using prime factors for predictions

eg 60 30 x 2 2 x 3 x 5 **x 2**

150 30 x 5 2 x 3 x 5 **x 5**

Year 7 – Rounding and Estimating

What do I need to be able to do?

By the end of this unit you should be able to:

- Round numbers to powers of 10 and 1 sf
- Round numbers to any dp
- Estimate solutions

Keywords

Significant: Place value of importance
Round: Making a number simpler but keeping its value close to what it was
Decimal: Place holders after the decimal point
Overestimate: Rounding up – gives a solution higher than the actual value
Underestimate: Rounding down – gives a solution lower than the actual value

Round to powers of 10 and 1 sig. figure

If the number is halfway between we "**round up**"

5495 to the nearest 1000

5475 to the nearest 100

5475 to the nearest 10

Round to the first non-zero number

Round to decimal places

2.46192 ← Focus on the numbers **after** the decimal point

"To 1dp" – to one number after the decimal
"To 2dp" – to two numbers after the decimal

2.46192 (to 1dp) - is this closer to 24 or 25

2.4 6192 ← This shows the number is closer to 25

2.46192 (to 2dp) - is this closer to 246 or 247

2.46 192 ← This shows the number is closer to 246

Estimate the calculation

Round to 1 significant figure to estimate

$4.2 + 6.7 \approx 4 + 7 \approx 11$ This is an **overestimate** because the 67 was rounded up more

The equal sign changes to show it is an estimation

$21.4 \times 3.1 \approx 20 \times 3 \approx 60$ This is an **underestimate** because both values were rounded down

It is good to check all calculations with an estimate in all aspects of maths – it helps you identify calculation errors

Year 7 – Basic Algebra 2

What do I need to be able to do?

By the end of this unit you should be able to:

- Understand like and unlike terms
- Simplify algebraic expressions

Keywords

Equation: a mathematical statement that two things are equal
Equals: represented by '=' symbol – means the same
Term: a single number or variable
Like: variables that are the same are 'like'

Like and unlike terms

Like terms are those whose variables are he same

♡ and 3♡ are **like** terms

the variable is the same

★ 3♡ are **unlike** terms

the variables are NOT the same

Examples and non-examples

Like terms	Un-like terms
y, 7y	y, 7x
$2x^2$, x^2	$2x^2$, $2c^2$
ab, 10ba	ab, 10a
5, -2	5, -2t

Note here ab and ba are commutative operations, so are still like terms

Equivalence

Check equivalence by substitution

e.g. m= 10

5m	2 x 2m	7m – 3m
5 x 10	2 x (2x 10)	(7x 10) – (3x 10)
= 50	= 2 x 20	= 70 – 30
	= 40	= 40

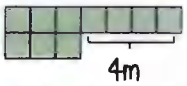
Equivalent expressions

Repeat this with various values for m to check

5m

2 x 2m

7m – 3m



Collecting like terms ≡ symbol

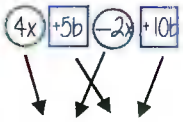
The ≡ symbol means equivalent to

It is used to identify equivalent expressions

Collecting like terms

Only **like terms** can be combined

$4x + 5b - 2x + 10b$



$2x + 15b$

Common misconceptions

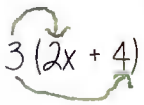
$2x + 3x^2 + 4x \equiv 6x + 3x^2$

Although they both have the x variable, x2 and x terms are un-like terms so can not be collected

Multiply single brackets 3 (2x + 4)

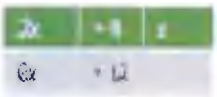
Multiply everything outside by everything inside.

Method One (Curly Arrows)



-6x + 12

Method One (Grid Method)



-6x + 12

Factorise into a single bracket

FACTORISE Find HCF of terms, put back into a bracket

8x + 4

HCF of 8x and 4 = **4 (outside bracket)**

8x + 4

÷4 ÷4

4(2x + 1)

Year 7 – Linear Equations

What do I need to be able to do?

By the end of this unit you should be able to:

- Form and solve linear equations

Keywords

Solution: the set or value that satisfies the equation
Solve: to find the solution
Inverse: the operation that undoes what was done by the previous operation (The opposite operation)

Solve one step equations (+/-)

$x + 42 = 59$

x → +42 → 59

−42

$x = 17$

$x - 10 = 72$

x → −10 → 72

+10

$x = 82$

Solve one step equations (x/÷)

$5x = 55$

x → ×5 → 55

÷5

$x = 11$

$\frac{x}{3} = 7$

x → ÷3 → 7

×3

$x = 21$

Solve two step equations

$2x + 11 = 35$

x → ×2 → +11 → 35

÷2 ÷10

$2x = 14$

$x = 7$

Without a function machine:

$3x + 6 = 42$

−6 −6

$3x = 36$

÷3 ÷3

$x = 12$

Without a function machine:

$\frac{x}{4} - 2 = 10$

+2 +2

$\frac{x}{4} = 12$

×4 ×4

$x = 48$

Equations with Brackets

Expand the brackets, solve as normal

$3(2x + 4) = 30$

$6x + 12 = 30$

−12 −12

$6x = 18$

÷6 ÷6

$x = 3$

Year 7 – Simultaneous Equations

Simultaneous Equations

Finding 2 unknowns at the same time

♡♡♡ + ★★ = 12
♡♡ + ★★ = 10 −

♡ = 2
★★ = 10
★ = 5

Using algebra:

$3h + 2s = 12$
$2h + 2s = 10$ −

$h = 2$
$2s = 10$
$s = 5$

Year 7 Mandarin → Term 2 → Jin Bu 1 Chapter 5

Sentence Builder –Asking about food and drink preferences

You	+ like +	eat/drink	+ item	+ question word
你	喜欢	吃/喝	面包/果汁	吗?

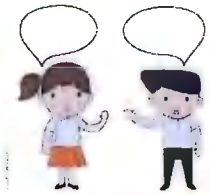
PERSON	(NEGATION)	LIKES TO EAT	FOOD ITEM
我 哥哥 爸爸 妈妈 弟弟 姐姐 我的朋友	(不)	喜欢吃 xi huan chī	面包 *bread* miàn bāo 面条 *noodles* miàn tiáo 米饭 *rice* mǐ fàn 鸡蛋 *egg* jī dàn 比萨饼 *pizza* bǐ sà bǐng 水果 *fruit* shuǐ guǒ

Sentence Builder –giving a reason.

I like	eat/drink	item	because	item	delicious
我喜欢	吃	比萨饼	因为	比萨饼	好吃 hǎo chī
我喜欢	喝	咖啡	因为	咖啡	好喝 hǎo hē

Talking about mealtimes.

person/subject	meal	eat/drink	item
我 哥哥 爸爸	早饭 zǎo fàn (breakfast)	吃 chī 喝 hē	水果 鸡蛋 咖啡 英国茶



Year 7 Revision

Basics about yourself name, age, birthday

我叫 ___。

我 ___ 岁。

我的生日是 ___。

Your family and pet

我家有 ___ 口人。

我有 ___ (爸爸、妈妈...)。

我有一只 / 条 ___。

Your hobbies

我喜欢打 / 踢 / 玩儿 / 看 ___。

School subjects you like/dislike, when you have lessons, your class

我喜欢 ___ 课。

我不喜欢 ___ 课。

我星期 ___ 有 ___ 课。

我们班有 ___ 个 男学生 / ___ 女学生。

Food you like/dislike

我喜欢吃/喝 ___。

1. ¿Qué estudias? (What do you study?)

Los lunes (on Mondays) Los martes (on Tuesdays) Los miércoles (on Wednesdays) Los jueves (on Thursdays) Los viernes (on Fridays) Todos los días (every day) A menudo (often) A veces (sometimes) Casi nunca (almost never) Nunca (never)	estudio (I study) estudiamos (we study) no estudio (I don't study) no estudiamos (we don't study)	dibujo (art) inglés (English) francés (French) español (Spanish) teatro (drama) educación física (PE) música (music) religión (RE) geografía (geography) historia (history) tecnología (technology) informática (IT) ciencias (science) matemáticas (maths)
Cuando era más joven (When I was younger) Antes (before)	estudiaba (I used to study)	
En el futuro (In the future)	voy a estudiar (I am going to study) me gustaría estudiar (I would like to study)	

Me gusta (I like) No me gusta (I don't like) Me encanta (I love) Odio (I hate)	el dibujo el inglés el francés el español el teatro la religión la historia la technología la geografía la informática la educación física la música	porque es Ya que es Dado que es (because it is)	muy (very) bastante (quite) un poco (a bit)	divertido/a (fun) interesante (interesting) útil (useful) práctico/a (practical) creativo/a (creative) aburrido/a (boring) pesado/a (annoying) una pérdida de tiempo (a waste of time)
Me gustan (I like) No me gustan (I don't like) Me encantan (I love) Odio (I hate)	las matemáticas las ciencias	porque son Ya que son Puesto que son (because they are)		divertidas (fun) interesantes (interesting) útiles (useful) prácticas (practical) creativas (creative) aburridas (boring) pesadas (annoying) una pérdida de tiempo (a waste of time)

En mi insti hay (in my school there is/are) En mi insti no hay (in my school, there isn't/aren't)	un campo de fútbol (a football pitch) un comedor (a dining room) un gimnasio (a gym) un patio (a yard) un laboratorio (a lab)	moderno (modern) antiguo (old) banito (beautiful) feo (ugly) pequeño (small) grande (big)
En mi escuela primaria había (In my primary school, there was/were)		
En el futuro habrá (In the future, there will be)	una aula de informática (an IT lab) una piscina (a swimming pool) una biblioteca (a library) muchas aulas (many classrooms)	moderna (modern) antigua (old) bonita (beautiful) fea (ugly) pequeña (small) grande (big)
En mi insti ideal habría (In my ideal school there would be)		

Year 7 Spanish – Summer Term – Module 3

4. ¿Qué haces durante el recreo/almuerzo? (What do you do at break/lunch time?)

Ahora (Now) Actualmente (currently)	durante el recreo (during break) durante el almuerzo (during lunch)	si hace buen tiempo (if it's good weather) si hace mal tiempo (if it's bad weather) todos los días (every day) a menudo (often) a veces (sometimes) casi nunca (almost never) nunca (never)	como un bocadillo (I eat a sandwich) bebo zumo de naranja (I drink orange juice) leo mis mensajes (I read my messages) leo un libro (I read a book) chateo con mis amigos (I chat with my friends) juego al fútbol (I play football)
En mi primaria (In my primary)		comía un bocadillo (I used to eat a sandwich) bebía zumo de naranja (I used to drink orange juice) leía mis mensajes (I used to read my messages) leía un libro (I used to read a book) chateaba con mis amigos (I used to chat with my friends) jugaba al fútbol (I used to play football)	
Mañana (Tomorrow) La próxima semana (Next week)		voy a comer un bocadillo (I am going to eat a sandwich) voy a beber zumo de naranja (I am going to drink orange juice) voy a leer mis mensajes (I am going to read my messages) voy a leer un libro (I am going to read a book) voy a chatear con mis amigos (I am going to chat with my friends) voy a jugar al fútbol (I am going to play football)	

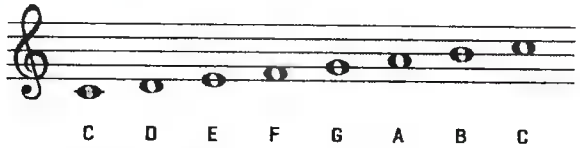
Mi insti es (My school is) Opino que mi insti es (I think that my school is) Todo el mundo dice que mi insti es (everyone says that my school is)	muy (very) bastante (quite) un poco (a bit)	moderno (modern) antiguo (old) bonito (beautiful) feo (ugly) pequeño (small) grande (big)
Mi insti ideal sería (My ideal school would be)		mixto (mixed gender) masculino (all boys) femenino (all girls) público (public/state) privado (private)
Mi escuela primaria era (My primary school was)	muy (very) bastante (quite) un poco (a bit)	moderna (modern) antigua (old) bonita (beautiful) fea (ugly) pequeña (small) grande (big)

Me encanta (I love) Me gusta mucho (I really like) Me gusta (I like) No me gusta (I don't like) No me gusta nada (I really don't like) Odio (I hate)	mi insti (my school)	porque es Ya que es Dado que es (because it is)	más (more) menos (less)	moderno (modern) antiguo (old) bonita (beautiful) fea (ugly) pequeño (small) grande (big)	que (than)	mi escuela primaria (my primary school school) otros institutos (other schools) Los institutos españoles (Spanish schools)

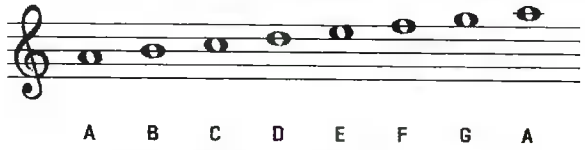
Whitburn C of E Academy Music Department
Year 7 – Summer (Composing a melody)

Extra Curricular:
Choir, Orchestra & Instrumental lessons.
musictuition@whitburncofeacademy.org

C major key signature



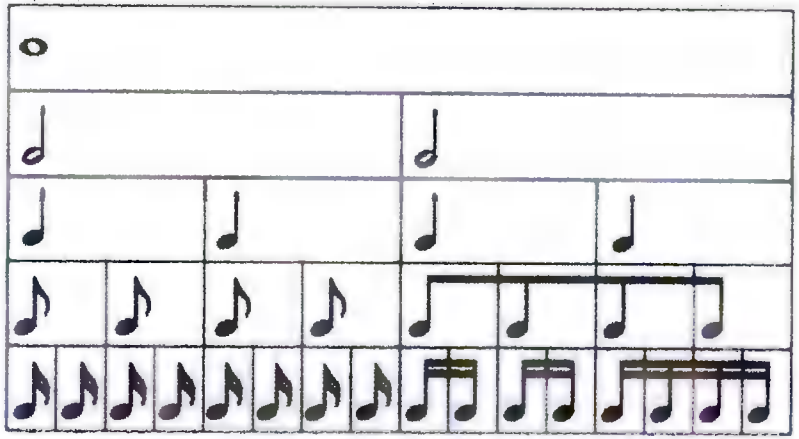
A minor key signature



www.teachinggadget.com User name: 'Whitburn' Password: 'music.1234'

Type Of Beat	Duple Time	Triple Time	Quadruple Time
Crotchet Beat	2/4 ♩ ♩	3/4 ♩ ♩ ♩	4/4 ♩ ♩ ♩ ♩

Note Values



Semibreve
4 beats
Minim
2 beats
Crotchet
1 beat
Quaver
1/2 beat
Semiquaver
1/4 beat

MELODY

The tune

SONORITY

Instrumental tone colour

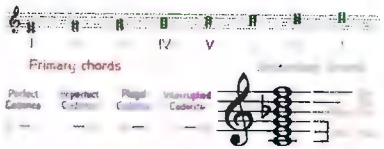
TONALITY

Major, Minor, or Atonal

TEXTURE

How the parts fit together

HARMONY



Describes the chords

RHYTHM

Patterns of notes and rests

STRUCTURE

The order of the sections

DYNAMICS

Volume

Whitburn Church of England Academy. Y7 Unit 5: How are Sikh teachings on equality and service put into practice today?

Key words

Sikh – someone who follows the religion of Sikhism
Waheguru – the Sikh name for God
Khanda – symbol of Sikhism
Gurdwara – temple/place of worship, literally means 'doorway to the Guru'
Guru Granth Sahib – holy book and living Guru
Equality – treating people the same
Guru - teacher
Guru Nanak – founder of Sikhism
Langar – free kitchen & vegetarian food in a Gurdwara
Khalsa – a community of committed Sikhs. They wear the **5Ks**
Duty – something that must be done
Nam Japna – remember God
Kirt Kana – work hard
Vand Chakna – serve others
Gurmukh – God-centred
Manmukh – Man-centred
Worship – to honour or show respect to something
Soul – the spiritual part of a person
Rebirth or reincarnation – to be born again
Karma – the consequences of one's actions
Samsara – the cycle of birth and rebirth
Mukti – no longer reborn
Sewa – selfless service

Key Facts

- **Guru Nanak** (1469-1539) is the founder of Sikhism
- Sikhism originated in the Punjab region of **India**
- God is called **Waheguru**
- The symbol of Sikhism is called the **Khanda**
- Sikhs worship in a **Gurdwara**
- The Sikh holy book is the **Guru Granth Sahib**
- The first words of the Guru Granth Sahib: **'Ik Onkar'** ('There is only One God')

- Many Sikhs wear special items that have symbolic meaning. These are the **5Ks**

The Sikh Path of Life

- Sikhs believe that all animals, including humans have a **soul**
- When someone dies, their soul leaves their body and is reborn into another. This **is rebirth or reincarnation**
- Sikhs believe that we can live thousands of lifetimes
- In order to escape the cycle of birth and rebirth **(samsara)**, Sikhs have to gain **karma**
- The aim of every Sikh is for their soul to achieve **mukti**; their soul is no longer reborn and is at rest forever

The Gurus

- There are 10 Gurus in Sikhism
- The first Guru is Guru Nanak
- The 9th Guru is Guru Gobind Singh
- The last Guru is the Guru Granth Sahib (a living Guru!)

- Guru Nanak showed respect to people who held different religious beliefs
- He supported **equality** of men and women
- Guru Nanak developed the idea of a **langar** (a free kitchen in a Gurdwara)
- In the langar, meals are vegetarian and prepared by men and women
- Everyone sits on the floor together to eat

- Guru Gobind Singh asked a crowd of people, 'Who will die for God and his Guru?'. 5 men stepped forward
- These men were the first **Khalsa Sikhs**; they had shown commitment to God and the Gurus. They wear the **5Ks**

Sikhs Making a Difference

- **Sewa** means selfless service, there are 3 kinds:

1. **Tan** – using your body to serve others, e.g. cooking
2. **Man** – this is mental sewa, using your mind/mental skills to help others, e.g. teaching the Guru Granth Sahib
3. **Dhan** – this is material sewa, using your money or belongings to help, e.g. giving to charity

- Sewa is a way of life for Sikhs
- **Worshipping** other people is a way to worship God
- Communities are important to Sikhs, many volunteer in hospitals and community centres

The Teachings of the Gurus

- Guru Nanak taught 3 important duties.
- These are 3 ways that Sikhs can worship God

1. **Nam Japna** – remember and meditate on the name of God
2. **Kirt Kana** - work hard in a truthful and honest way, to benefit others
3. **Vand Chakna** – share your time and money with others

- Sikhs want to be God-centred, rather than self-centred

- **Gurmukh** – having your mind centred on God and spiritual things
- **Manmukh** – living a life centred on ourselves and material posessions

What is Good and what is Challenging?

Reasons why it might be good to be a Sikh in the UK:

- ✓ Opportunities to be part of Sikh communities
- ✓ Being a Sikh may encourage you to think of others, e.g. because of sewa
- ✓ Focus on gaining karma can make you a better person

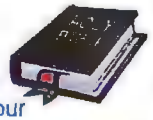
Reasons why it might be challenging to be a Sikh in the UK:

- ❖ Some Sikhs may experience discrimination, e.g. because of their turban
- ❖ It might be difficult in areas where Sikhs are a minority

Whitburn Church of England Academy. Y7 Unit 6: What is so radical about Jesus?

Key words

Radical – supporting change (usually political or social); doing something different to how it was done before
Disciple – a follower of Jesus
Tax collector – people, usually Jewish, who collected taxes. They were often outcasts
Outcast – someone who is excluded/left out of society
Sinners – someone who goes against religious laws by committing immoral/bad acts
Law of Moses – the Torah
Pharisees – Jewish leaders
Street Pastors – Christians who help vulnerable people in urban areas at night
Hostel – accommodation
Hypocrite – someone who says that everyone should do something, and then goes and does something else
Tallith – Jewish prayer shawl with tassels to remind them of God's law
Teffillin – Straps and boxes made of leather containing Torah verses, worn during prayer services
Humble – to not show off and to put others first
Authority – being in charge/giving orders



Key Bible teachings

- Love your neighbour
- Treat others the way you want to be treated
- 'Dinner with Sinners'
- Healthy people don't need a doctor, but sick people do

Why did Jesus mix with 'sinners'?

- Bible passage: Mark 2:15-17
- Jesus spends time with tax collectors and sinners
- Some of the Pharisees questioned why Jesus did this
- Jesus replied, **'Healthy people don't need a doctor but sick people do. I didn't come to invite good people to be my followers. I came to invite sinners'**
- Jesus wanted to help/save sinners!

- The Street Pastors are a group who are inspired by this message, they put Jesus' teaching into action
- They are trained Christian volunteers who help vulnerable people at night

Should Christians today help people who are excluded by our society?

- There are many sinners in today's society, e.g. people who break the law or harm others
- There are many outcasts in today's society, e.g. those in poverty, homeless people
- Christians are inspired by Jesus to help these people

Homelessness

- Often there are many causes, e.g. eviction, addition, losing a job
- There are many responses to homelessness, e.g. they might be ignored, or helped
- In the Bible, Jesus says **'love your neighbour as yourself'** (Mark 22:39)
- Christians are inspired by this message to help homeless people. Why is this a radical thing to do?

Are Christians doing enough to help the homeless?

Salvation Army

- This is a Christian church and charity
- They provide: temporary shelter, food, clothing, addition support & drop in centres
- They give people ongoing support to help people live independently
- In Sunderland, they have a 65 bed **hostel**

St George's Crypt

- Homeless charity in Leeds, set up by a vicar as he saw homeless people and believed that Christians should help
- They provide: accommodation, space to rest, food, clothing, links to other services
- Based on Jesus' teaching of 'love your neighbour as yourself'

Do Christians have a responsibility to ensure that everyone in society is valued?

- Christians believe that they should ensure that every person in a community is treated with dignity and can live a fulfilling life

L'Arche

- Christian charity that began in the 1960s
- L'Arche communities are groups of people with and without learning disabilities who live together
- Each person is valued for who they are
- In the UK, L'Arche provide care, support and day services
- Day services include: arts and drama workshops, crafts, woodwork and gardening
- L'Arche believe that every person is of equal value before God

How did Jesus challenge authority?

- Bible passage: Matthew 23:1-12
- **Jesus accuses the Pharisees of being hypocrites;** they tell people to follow God's law but do not themselves
- They wear the tallith and tefillin to show off!
- Jesus teaches his followers to be humble, respect God, and serve others

- Can you think of any politicians or leaders who are like the Pharisees?
- Should Christians today continue Jesus' radical action by speaking out against those in authority?

How did Jesus inspire others?

Elizabeth Fry (1780-1845)

- Elizabeth Fry helped reform prisons in the UK
- She was inspired by Jesus' teachings in the Bible
- She visited Newgate Prison and provided: food, clothing & an education

Harriet Tubman (1820-1913)

- Harriet Tubman guided slaves to their freedom in the USA
- She worked for the Underground Railroad, a system of safehouses and secret codes, to help the slaves
- She was also inspired by Jesus' teachings!

- How can Christians be like Jesus today?

Whitburn Church of England Academy. Y7 Unit 6: Why is there suffering? Are there any good solutions?

Key words

Suffering – pain, distress or hardship
Evil – morally bad; the opposite of good
Natural evil – occurs without humans, e.g. natural disasters
Moral evil – caused by humans, e.g. stealing
Philosopher – a thinker
Theist – someone who believes in God/religion
Atheist – someone who does not believe in God/religion
Agnostic – someone who is unsure of their belief in God/religion
Inconsistent Triad – an argument used to suggest that God is not powerful and/or loving
The Fall – the story of Adam and Eve disobeying God
Original sin – the first sin; humans are now born with the tendency to
Free will – the ability to make choices freely
Buddha – a person who has achieved enlightenment
Buddhist – a person who believes in Buddhism
Enlightenment - gaining knowledge and wisdom
Ascetic – someone who denies themselves of luxuries in order to try to discover spiritual truths
Meditation – thinking about God
Dukkha - suffering
Middle Way – a life of neither luxury nor extreme self-discipline
Anicca – impermanence; the belief that nothing stays the same

Why is suffering a problem?

- Suffering and evil cause many problems
- There are two kinds: natural evil and moral evil
- Philosopher David Hume (1711-1776) wrote about evil and suffering. He was an agnostic
- His argument is called the **Inconsistent Triad.** In simple terms, he gives us three ideas that do not fit together very well
- He claims:

1. God is **omnibenevolent** (all-loving). So God should want to stop suffering!
2. God is **omnipotent** (all-powerful). So God should be able to stop suffering!
3. Yet, evil and suffering exist.

- Some people use this argument to claim that **God does not exist.** How could a loving and powerful God allow humans to suffer?

What does the Old Testament say about suffering?

- The story of **The Fall of Humanity (Genesis 3)** can explain the origins of evil and suffering
- Adam and Eve disobey God by eating from a tree which he commanded them not to eat from
- The snake (Satan!) tempted them to do this
- This introduced original sin into the world
- Adam and Eve were banished from the Garden of Eden
- Sin and death now enter the world

- This story tells Christians that suffering is because of human actions (sins)
- The world is no longer the way it was created to be
- Humans now must use their own freewill to make choices

- **Job (Old Testament).** Job lived a happy and successful life. Satan claimed Job only worshipped God because he was successful. God allows Satan to inflict suffering on Job to test his faith. Job continues to worship God.

What does the New Testament say about suffering?

- Jesus gives humanity many teachings and guidance on how to live a good life and avoid sin and suffering
- Christians believe that Jesus understands pain and suffering, for example, when he was crucified
- This is because of the incarnation; Jesus was both God and human so experienced human feelings

What do Buddhists believe about human suffering?

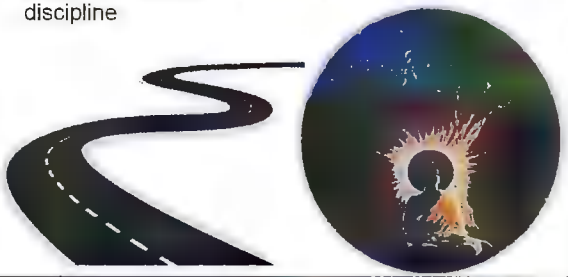
- Buddhists follow the teachings of the Buddha, he was not a god but a man who achieved enlightenment
- He was born into a life of luxury, he was a prince
- One day, he left the palace and saw 4 things for the first time: an old man, a sick man, a dead man and a holy man
- The Buddha was inspired by the holy man
- He decided to leave his life of luxury and become an ascetic
- The Buddha sat under a Bodhi tree until he found a way to overcome dukkha (suffering) and reach enlightenment
- Whilst he meditated, he remembered his past lives, understood that nothing stays the same, and learnt that suffering is caused by craving our desires

What do Buddhists believe about ending human suffering?

- The Buddha came up with the 4 noble truths

1. Life has suffering (dukkha)
2. Suffering is caused by craving (tanha)
3. There is a way to end suffering (nirodha)
4. The way to end suffering is to follow Buddhist teachings (magga)

- The Buddha taught his disciples to follow the Middle Way and to accept anicca
- The Middle Way means that you do not live a life of luxury and indulgence, nor a life of extreme self-discipline



Responses and solutions to suffering

- The Fall teaches Christians to follow God's commands
- The book of Job tells Christians to trust that God knows what he is doing
- Jesus' teachings tell Christians to help others when they are suffering
- The Buddha tells Buddhists to stop craving things they cannot have

Are these religious teachings useful?
Is it always easy to trust God when you are suffering?
Would following Jesus' teachings completely end suffering?
Would the Buddha's teachings end all kinds of suffering?

Year 7 Knowledge Organiser – Breathing

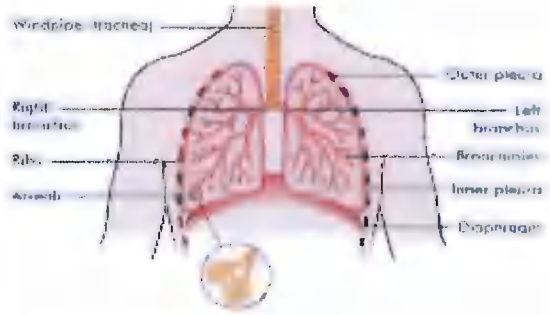
Respiration and breathing are not the same!
Respiration is a chemical reaction occurring in living cells, breathing brings air into and out of your lungs.

Key words:

Breathing: The movement of air in and out of the lungs.
Trachea (windpipe): Carries air from the mouth and nose to the lungs.
Bronchi: Two tubes which carry air to the lungs.
Bronchioles: Small tubes in the lung.
Alveoli: Small air sacs found at the end of each bronchiole.
Ribs: Bones which surround the lungs to form the ribcage.
Diaphragm: A sheet of muscle found underneath the lungs.
Lung volume: Measure of the amount of air breathed in or out.

Asthma reduces the diameter of the airways and prevents air from reaching the alveoli.

Lung Structure



How do the lungs work?
Air containing oxygen enters the lungs. In the tiny alveoli, **oxygen diffuses** from the air sac into the blood.
Carbon dioxide diffuses in the opposite direction and is then breathed out.

How does smoking damage the lungs?
Tar in cigarettes causes cells to mutate and this causes **cancer.**
Nicotine is a very **addictive** drug.
Other chemicals in cigarette smoke like carbon monoxide contribute to **heart disease, emphysema** and **bronchitis.**

Exercise and breathing rate
When you exercise, you require more oxygen for working muscles to **respire.** This means you have to breathe faster to supply this oxygen. Your heart rate also increases to send the blood round your body more quickly.

How are the alveoli adapted to their function?
Alveoli have a **huge surface area** to allow more diffusion
They have **thin walls** so that gases have a short distance to travel
They have a **good blood supply** to remove oxygenated blood quickly

Websites that might be useful:
https://www.bbc.com/bitesize/guides/zq349j6/revision/2

Extension ideas to research:
How are fish gills similar to lungs? How are they different?
How do animals like worms and spiders breathe?

Year 7 Knowledge Organiser - Respiration

Key words:
Aerobic Using oxygen
Anaerobic Not using oxygen
Oxidation A reaction with oxygen. In this case, food molecules like glucose reacting with oxygen.
Fatigue Tiredness. In muscles is caused by a build-up of lactic acid, which is produced during anaerobic respiration.
Oxygen debt After exercise, the lactic acid has built up and caused an extra need for oxygen – called the oxygen debt.

Key difference

Respiration is a chemical reaction that happens in all living cells. It releases **energy** from glucose. This energy allows all the other processes that keep us alive to happen.
It is **not** the same as breathing. **Breathing** is the movement of your lungs that brings in the oxygen for respiration and gets rid of the carbon dioxide produced.

How can we measure the rate of respiration?

When yeast cells respire aerobically they produce carbon dioxide which creates a foam. We can measure the height of the foam produced in a certain time to give us an indication of how fast they are respiring.

Equation for aerobic respiration

glucose + oxygen → water + carbon dioxide + energy
$C_6H_{12}O_6 + O_2 \rightarrow H_2O + CO_2 + ATP$

Equation for anaerobic respiration

glucose → lactic acid + energy
$C_6H_{12}O_6 \rightarrow C_3H_6O_3 + ATP$

The Response To Exercise.

During exercise, more energy is required by the body than when resting, due to increased muscle contractions. The body reacts to this increased demand for energy by:

- **The heart rate, breathing rate, and volume of each breath all increase.**
- Together, these increase the amount of oxygenated blood reaching the muscles.
- The **oxygenated blood provides the extra oxygen and glucose** needed for respiration in muscle cells, to release more energy to meet demand.

Websites that might be useful:
https://www.bbc.com/bitesize/guides/zq349j6/revision/1

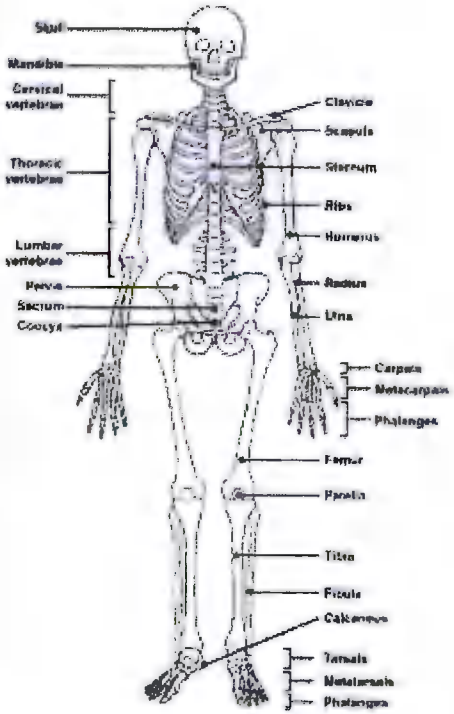
https://www.bbc.com/bitesize/articles/zth9ng8

https://www.bbc.com/bitesize/articles/zcsbmsg

Extension ideas to research:
Why are some people better at sprinting than others?
How can you improve your endurance?

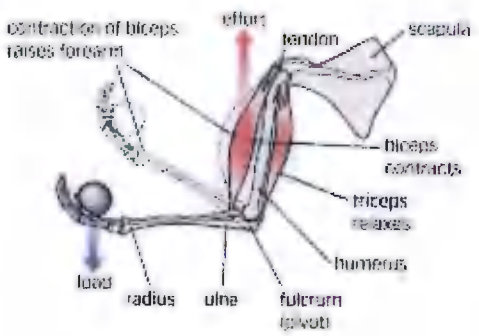
Year 7 Knowledge Organiser – Movement

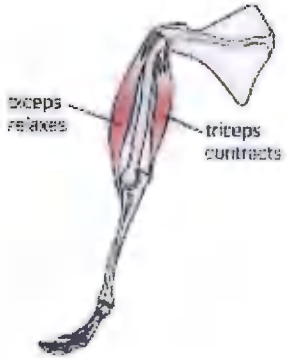
Key words:
Joints: Places where bones meet.
Bone marrow: Tissue found inside some bones where new blood cells are made.
Ligaments: Connect bones in joints.
Tendons: Connect muscles to bones.
Cartilage: Smooth tissue found at the end of bones, which reduces friction between them.
Antagonistic muscle pair: Muscles working in unison to create movement.



Bones
The parts of the human skeleton work as a system for support, protection, movement and the production of new blood cells.
Our skeleton is made of more than 200 bones.
Calcium, phosphorous and vitamin D make the bone strong but slightly flexible. If you don't get enough nutrients bones become brittle and break easily.

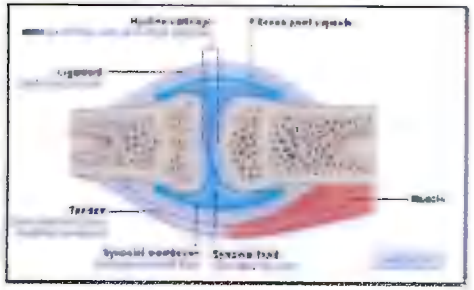
Muscles
Bones only move because of muscles pulling on them. Muscles work in pairs called antagonistic pairs. When one muscles contracts and the other relaxes. If one of the muscles is damaged you won't be able to move the bones at the joint.



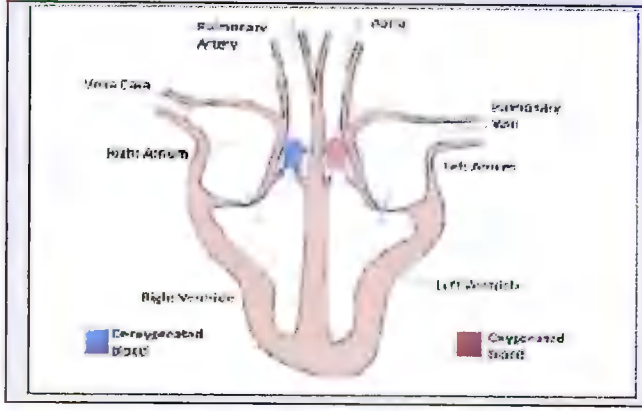


Websites that might be useful:
https://www.bbc.com/bitesize/guides/zpkq7ty/revision/1
https://www.bbc.com/bitesize/articles/z26xgdm
(dissection of a chicken leg – not needed but if you are interested in what the parts look like in real life).
Extension site to explore
https://www.stem.org.uk/resources/community/collection/12272/skeletal-and-muscular-systems-including-biomechanics

A synovial joint

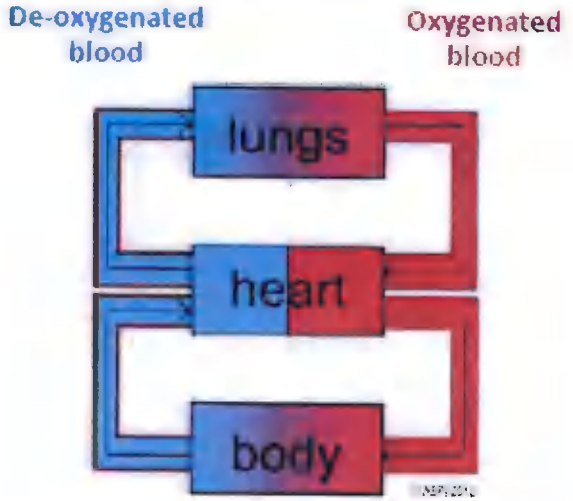


The Function of the Heart:	
1	**Deoxygenated** blood flows into the heart from the body through the veins
2	This **blood** is pumped out to the lungs through the **pulmonary artery**
3	Blood is then **oxygenated** in the lungs
4	Blood returns to the heart through the **pulmonary vein**
5	The oxygenated blood is then pumped out of the heart through the **aorta**
6	The blood travels around the body delivering oxygen and nutrients to the organs.



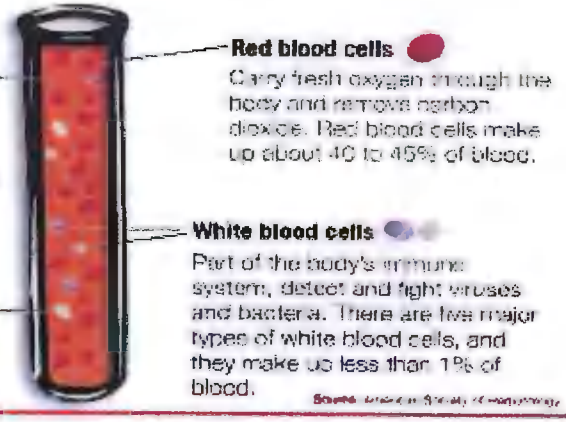
Year 7 Knowledge Organiser – Circulation

The Circulatory system
The system that circulates blood around the body.



Science Vocabulary Dozen	
Heart	A strong muscle in the chest protected by the ribs, that pumps blood around the body.
Capillaries	Microscopic blood vessels found in the muscles and lungs.
Blood Vessels	The tubes that carry blood around the body.
Artery (Arteries)	The vessels that take blood away from the heart.
Veins	The blood vessels that carry blood back to the heart.
Oxygenated blood	Blood that is rich in oxygen.
De-oxygenated blood	Blood that contains very little oxygen.
Blood	Liquid that travels to every cell in the body transporting nutrients and oxygen. Contains red, white blood cells, plasma and platelets.
Atrium (Atria)	The upper right and left chambers of the heart.
Ventricles	The lower right and left chambers of the heart.
Valve	A one-way 'door' that allows blood to flow freely in one direction, not allowing blood to flow back through the value.
Pulmonary	Related to the lungs and breathing.

Components of blood



Plasma
Transports nutrients, hormones, and proteins. It is a yellow liquid that makes up about 55% of the body's blood volume.

Red blood cells
Carry fresh oxygen through the body and remove carbon dioxide. Red blood cells make up about 40 to 45% of blood.

White blood cells
Part of the body's immune system, detect and fight viruses and bacteria. There are five major types of white blood cells, and they make up less than 1% of blood.

Platelets
Form clots to stop bleeding. Platelets make up less than 1% of blood.

C1 Chapter 4: Acids and alkalis
Knowledge organiser

Activate
Question · Progress · Succeed

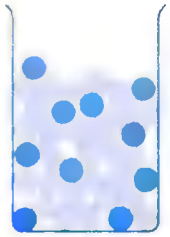
Acids and alkalis

Acids and **alkalis** are special solutions which are chemical opposites to each other.

If a solution is between acid and alkaline it is **neutral**.

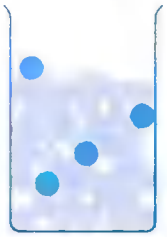
Acids and alkalis can be:

concentrated



Lots of acid/alkali particles for the amount of water.

dilute



A small number of acid/alkali particles in the same amount of water.

Acids and alkalis are **corrosive**

This means that they can cause burns if they get on your skin.

Acids and alkalis can be extremely dangerous, depending on the type of acid/alkali and its concentration.

As a general rule the more concentrated the solution, the more dangerous it can be.

Indicators

If you want to know if something is acidic or alkaline, you need to use an **indicator**. Indicators contain a dye that turns different colours in acidic and alkaline solutions.

Litmus paper is a type of indicator. It can be either **pink** paper or **blue** paper.

- in acid – **blue** paper turns **pink**
- in alkali – **pink** paper turns **blue**

The **pH scale** is a measure of how acidic or alkaline something is.

Universal indicator solution

pH	
0	hydrochloric acid
1	
2	lemon juice
3	orange juice
4	vinegar
5	black coffee
6	rainwater
7	pure water
8	seawater
9	baking soda
10	milk of magnesia
11	soap
12	washing soda
13	
14	oven cleaner sodium hydroxide

less than 7 is acidic

exactly 7 is neutral

more than 7 is alkaline

Universal indicator is a type of indicator that tells you *how* acidic or alkaline a solution is – not just whether it is acidic or alkaline. It turns a different colour at each pH – the pH scale shows the colours of universal indicator in solutions of different pH.

Reactions with acids

When an acid reacts with a metal element or compound a **salt** is formed. The hydrogen atoms of the acid are replaced with atoms of the metal element.

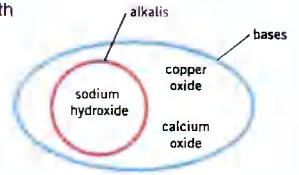
$Zn + H_2SO_4 \rightarrow ZnSO_4 + H_2$

zinc + sulfuric acid → zinc sulfate + hydrogen

A **base** is a compound that can react with an acid to make a neutral solution.

This is called **neutralisation**.

Bases that are soluble in water are alkalis.



Neutralisation reactions produce water and a salt.

acid + base → salt + water

for example,

sodium hydroxide + hydrochloric acid → sodium chloride + water

copper oxide + sulfuric acid → copper sulfate + water

Metals can also react with acids, but they produce a salt and hydrogen gas.

for example,

magnesium + hydrochloric acid → magnesium chloride + hydrogen

Naming salts

The name of the metal comes first, for example, magnesium chloride.

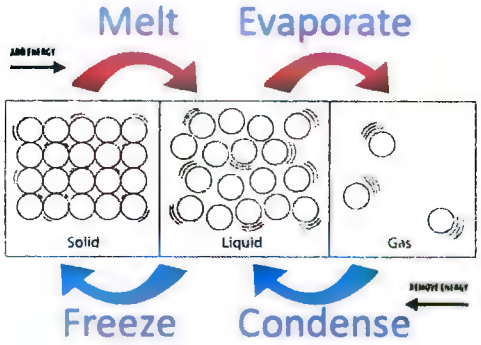
Different acids produce different types of salt:

- hydrochloric acid produces metal chlorides
- sulfuric acid produces metal sulfates
- nitric acid produces metal nitrates

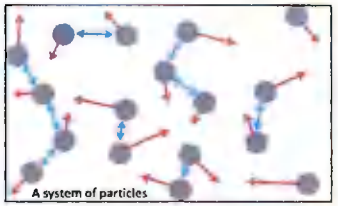
Key terms Make sure you can write definitions for these key terms.

acid · alkali · base · concentrated · corrosive · dilute · indicator · litmus · neutral · neutralisation · pH scale · salt · universal indicator

States of matter



Kinetic theory is used to explain the **behaviour** of matter.



Particles in a system have...

→ Kinetic Energy

↔ Potential Energy

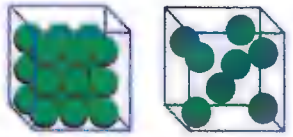
The **higher** the **kinetic energy**, the **faster** particles move.

The **higher** the **potential energy**, the **weaker the forces of attraction** holding the particle together.

	Energy	Arrangement	Behaviour
Solid	• Low kinetic energy. • Low potential energy	The particles are close together held by very strong forces of attraction.	The particles can only vibrate about fixed positions.
Liquid	• Moderate kinetic energy. • Moderate potential energy.	The particles are close together held by strong forces of attraction.	The particles can move about randomly and slide past each other.
Gas	• High kinetic energy. • High potential energy.	The particles are far apart as the forces of attraction are very weak.	The particles can move about quickly and randomly in all directions.

Density is the amount of mass per unit volume.

$$\text{Density } (g/cm^3) = \frac{mass\ (g)}{volume\ (cm^3)}$$

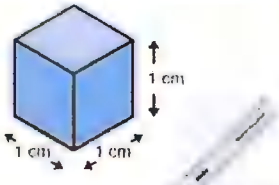


More dense Less dense

Mass is measured using a **balance**.
Check it's on **zero** before use.

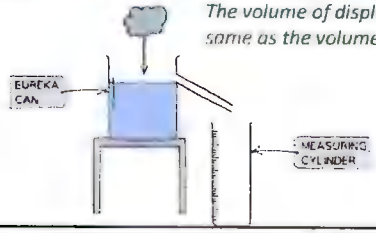
To find the volume of regular shapes

volume = length x width x height



To find the volume of irregular shapes

The volume of displaced water is the same as the volume of the object.



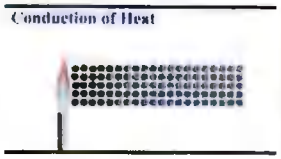
Convection in fluids

Liquids and gases are **fluids** because their particles are free to move. **Heating** fluids gives the **particles** more **kinetic energy** so they move about **faster** and push away from each other. This causes the fluid to become **less dense.**

Less dense fluids **rise** above more dense fluids. This can cause **convection currents.**

Conduction in solids

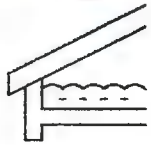
Heating particles in a solid increases their **kinetic energy**. They **vibrate more** and **collide** with adjacent particles, passing on the energy.



Insulators

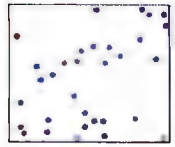
Good insulators prevent conduction and convection from transferring energy away which would lead to an object cooling down

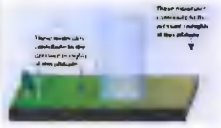
Air is a very good insulator because it doesn't conduct well. Quilts, padded jackets and loft insulation trap air and prevent it from circulating in convection currents.



Gas pressure

Gas pressure happens when fast moving gas particles **collide** with the walls of their container and exert a **force.**





Atmospheric pressure decreases with height because the air is less dense and there are fewer particles pushing down on you.

Year 7 Food (1)

5 ways to be safe and hygienic when cooking in school.

Wash your hands with hand soap before cooking to kill germs/bacteria.	
Tie back long hair to prevent it from coming into contact with the food.	
Wear an apron to both protect your uniform, and prevent your food coming into contact with dust, dirt and germs from your clothes.	
Roll up long sleeves to stop any dirt, dust and germs from coming into contact with your food.	
Never run in the kitchen to avoid slipping and accidents to you or others.	

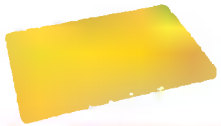
Using a sharp knife

Sharp knife
Use with the grip indents pointing downwards the bench.

Sharp knife

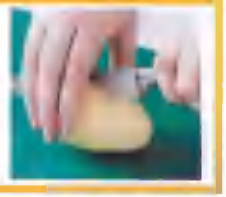
Carry with the blade pointing to the floor.

Chopping board
Used to stop the bench from being scratched and damaged.

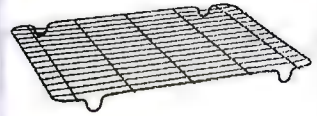


Claw Grip

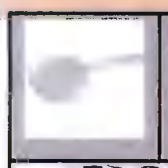
Bridge Technique



5 ways to use the oven safely when cooking in school.

Wear oven gloves to protect your hands from burning.	
Have an oven buddy to keep hold of the oven door for you when using the oven. This will prevent the door burning you.	
Put the tray into the oven 'landscape' so it is easier to get hold of and carry more securely.	
Put the tray into the oven only just far enough to close the door. Don't push it in further or you will get burned.	
Put a cooling rack at the back of your bench to put hot food trays straight onto. This protects the bench and stops you accidently catching and burning your arm on it.	

Year 7 Food (2)

	**Sieve**	Separating and aerating dry ingredients such as flour and cocoa powder.
	**Colander**	Used to rinse fruits and vegetables. Used to drain pasta.
	**Grater**	Grates or shreds food into finer pieces.
	**Glass bowl**	Used for combining and mixing ingredients together.
	**Measuring Jug**	Measures liquid in millilitres.
	**Peeler**	Removes the peel or skin from fruit or vegetables.
	**Pastry brush**	Used to glaze foods with egg wash and to grease a baking tray.
	**Corer**	Used to remove the core and pips from an apple.
	**Masher**	To crush soft foods such as potato.
	**Jug Blender**	Used to process soft ingredients into fine pieces, purees and pastes.

Measuring ingredients

These are all used to measure ingredients.

Scales

- Measure in grams.
- Make sure bowl is on before setting to zero grams.

Measuring Jug

- Measures in millilitres.
- Make sure is on a flat surface.

Measuring Spoons

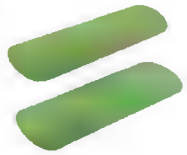
- Measures small quantities. E.g. tablespoons and teaspoons.

How to soften apples using the hob

1. Add 3 tablespoons of water to your pan of chopped apples.
2. Put the handle protector on your pan.
3. Soften on the hob, using a low heat and a wooden spoon until they are a little 'fluffy' around the edges. Don't let the apple pieces stick to the bottom of the pan or they will burn.
4. Take pan off hob and put onto a bench protector to cool.

Pan

Wooden Spoon



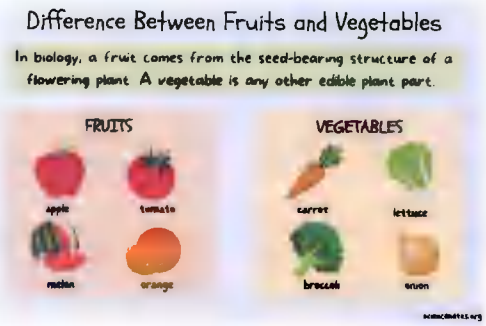
Bench and handle Protectors

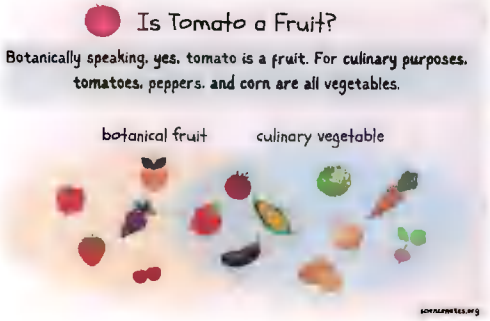
Year 7 Food (3)

Fruits and vegetables

A fruit is the sweet and fleshy product of a tree or other plant that contains seeds and can be eaten as food.

A vegetable is a plant or part of a plant used as food.





Fruit and vegetables give our bodies vitamins.

These can help our bodies in many ways including:

1. Improving our eyesight.
2. Giving us clearer skin.
3. Improving our brain power.
4. Boosting our immune system.
5. Helping our wounds to heal.
6. Making our hair and nails stronger.
7. Helping our hearts to be healthy.
8. Strong bones.
9. Increased energy.
10. Healthy muscle tissue.

Fruit and vegetables can also give our bodies fibre.

This helps our digestive system.
Too much can lead to diarrhoea.
Too little can lead to constipation.

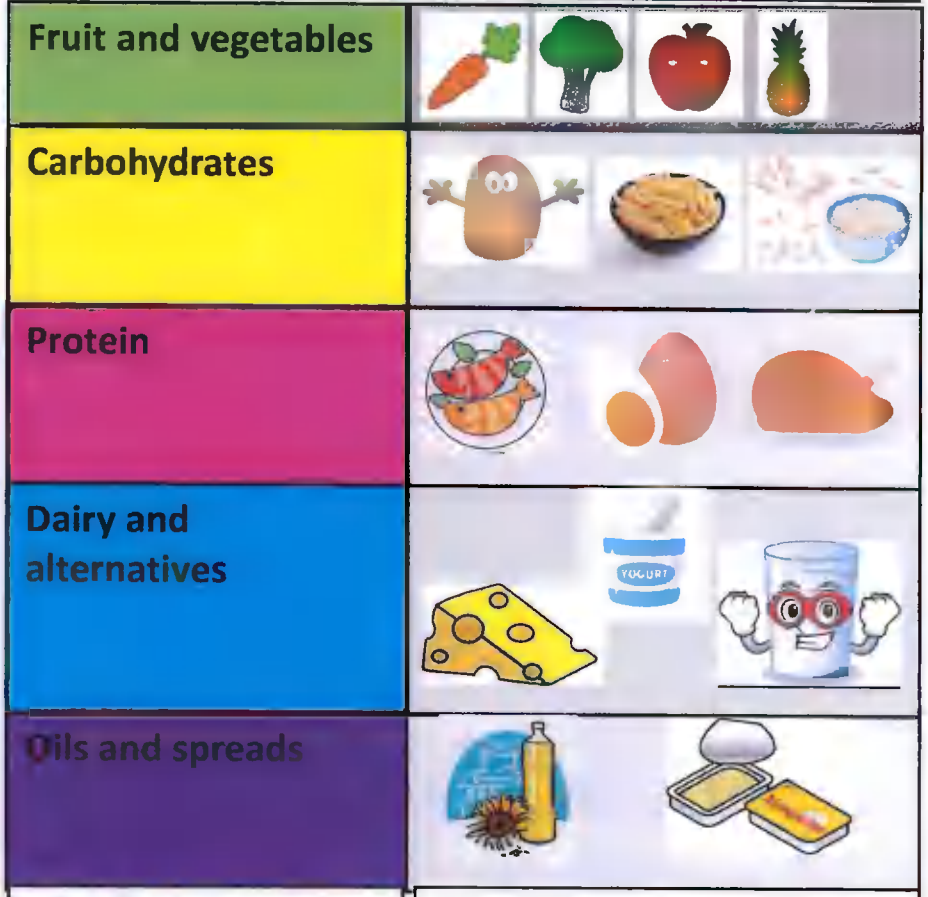
Steaming is healthiest method of cooking vegetables.

This is because:

1. No added fats.
2. Vitamins can't dissolve in the water and be thrown away as the water and vegetables are separated.

The Eatwell Guide

The aim of the Eatwell guide is to help us understand how to have a **healthy** and **balanced diet.**



You should drink 6-8 glasses of water per da

Sugary and fatty foods are not in the Eatwell guide because we don't need them as part of a balanced diet.

Year 7 – Graphic Design and Graphic Products Key words and Design Process 2

Y7 Graphics Key Words	
Contour	A path that is an even distance around another path
Line	Defines shape, outer edge of object
Logo	A symbol or design that identifies a brand
Cellophane	A thin, transparent wrapping material
Eurosiot	A slot punched in a packaged product to allow it to be hung on display
Inkjet Printer	A printer that sprays droplets of ink directly onto the paper or card
Surface Pattern	A decorative pattern used to enhance the look of a product
Card	Stiff paper over 220gsm in weight
Engrave	To create a path in the surface of a material
Net	A 2D diagram that folds into a 3D object

The Design Process	
Design Brief	A statement outlining what is to be designed and made
Specifications	A list of design criteria
Research	Sourcing information and inspiration to help with design work
Ideas	A range of potential solutions to the problem
Development	Further improving an idea
Final idea	A presentation drawing of chosen idea
Manufacture	Making the final outcome
Evaluation	Reviewing strengths and weaknesses of final product and design work

Old Style
Transitional
Modern
Slab Serif
Sans Serif
Script
Decorative

Serif
Sans-serif
DECORATIVE

Technique	Description/ notes	Diagram
Orthographic Projection/ Working Drawings	• Includes "Front", "Plan" and "End" 2D Views, and often an Isometric 3D View • Standardised method for scale, dimensions and line types • Great for manufacturing	
Isometric	• Common 3D sketching method • Can be drawn free-hand or using isometric paper and ruler • Angles are at 30 degrees • Great for seeing most of the products	
1-Point Perspective	• A 3D drawing method • Often used by interior designers and architects • Gives drawings depth • Only uses 1 vanishing point	
2-Point Perspective	• Used for 3D designs • Exaggerates the 3D effect • Objects can be drawn above of below the horizon line but must go to the 2 vanishing points	
Annotated Drawings/ Free and Sketches	• Quick and easy way of getting ideas down • Range of ideas can be seen • Annotation helps explain designs further	
Exploded View	• Helps see a final design of a product and all it's parts • Can see where all the parts fit • Great for manufacturers	

Year 7 – Graphic Design and Graphic Products Key words and Design Process 3

Safety in workshop is very important. Signs will be placed around the workshop and on machines.

Red signs tell you something you must not do

Green signs give you information.

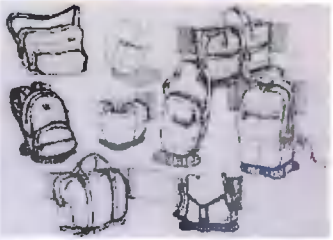
Yellow signs warn you of a potential hazard.

Blue signs tell you something you must do.

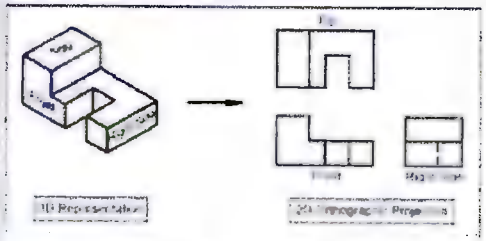
10 Health & Safety Rules in the workshop:

1. Do not run at anytime
2. Tie hair up and tuck loose items away
3. 1 person using a machine at a time
4. Stand behind the yellow line when somebody is on a machine
5. Do not talk to somebody whilst they are on the machine
6. Wear googles when instructed
7. Wear an apron (ensuring it is tied up)
8. Stack chairs/stools up at the side
9. Put bags/coats under the workbenches
10. Ask if you do not know how to use a tool or machine.

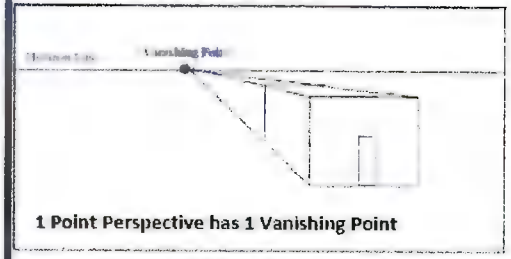
Technical Drawing Styles



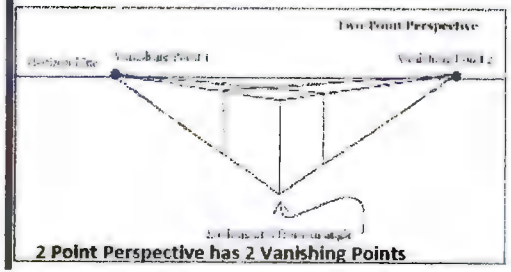
Freehand sketching drawings made without the use of drawing instruments or straightedges.



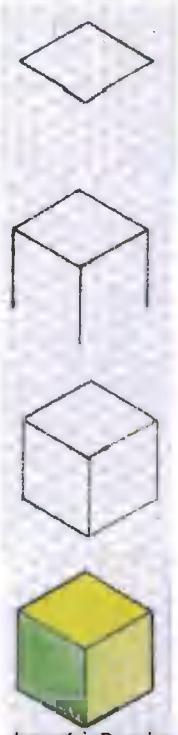
Orthographic Drawings show a 3D product in a 2D way.



1 Point Perspective has 1 Vanishing Point



2 Point Perspective has 2 Vanishing Points



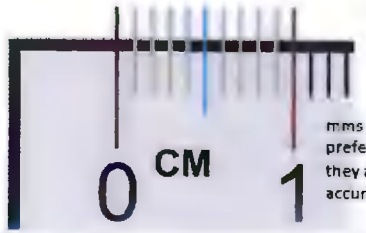
Isometric Drawing

Hardness	resist cutting and indentations to its surface
Toughness	Ability to withstand shock
Strength	The ability to withstand being pulled or stretched, crushed or compressed or twisted.
Elasticity	Ability to be stretched and return to it's original size
Flexibility	The ability to bend without breaking and then spring back to its original shape.
Impact Resistant	Ability to resist sudden shocks
Strength to Weight Ratio	Measure of strength to weight, for instance Aluminium is a light weight material but is strong. Therefore having a high strength-to-weight ratio
Ductility	Ability to be stretched like the length of wire without breaking
Malleability	The ability to be hammered, rolled or pressed into shape without breaking
Durability	Able to last a long time

Using a Ruler:
Rulers are essential for achieving accurate measurements.

100cm = 1000mm
10cm = 100mm
1cm= 10mm
0.1cm = 1mm

- 1cm
- 0.5cm



mms are used preferred as they are more accurate

Keywords

- Annotate
- Inspiration
- Consumer
- Aesthetics
- Environment
- Sustainability
- Function
- Size
- 6Rs
- Sketch
- Evaluate
- Initial Designs
- Final Design
- Mood Board
- Existing Product
- Design Specification
- Design Brief
- Materials
- Primary Research
- Secondary Research
- CAD
- CAM

Textiles

Sewing skills

- Hand stitching – stitches such as Running stitch, Back stitch, Blanket stitch and French knot

Textile techniques

- **Hand stitching**
- **Applique** - pieces or patches of fabric in different shapes and patterns are sewn or stuck onto a larger piece to form a picture or pattern. The technique is created either by hand stitching or machine

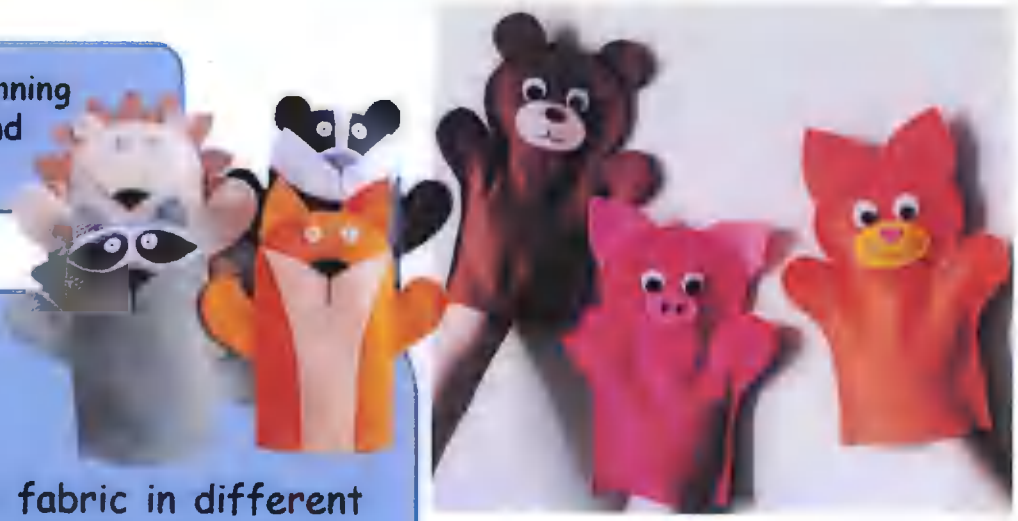
Textured yarns

Embroidery stitches

Mood Boards

Many textile products are designed with a theme or mood as an important starting point. Mood or theme boards help the designer develop design ideas and colourways.

Hand Puppet Project

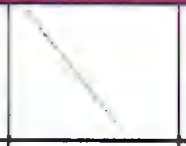


Product Research

Product research is work that's done before designing, to get valuable information before a new product goes to market. Researching products that already exist in shops or online.

Equipment & Key Terms

Year 7 – Textiles Knowledge organiser 1

Needle		Used to hand sew fabric and creating embroidery designs. The 'eye' of the needle is where the thread is fed through.
Pins		Used to hold fabrics in place when sewing, with an 'in/out' motion.
Machining Thread		Used to sewing fabrics together, either by hand or with a sewing machine.
Fabric Shears		Used to cut fabrics and threads only, not paper.
Embroidery Scissors		Used to cut delicate work into fabrics and trim threads.
Embroidery Thread		Comes with 6 threads intertwined that can be 'split' to reduce the thickness. Used to create decorative stitches on products.
Sewing Machine		A electrical product that is used to sew fabrics together securely. The machine can produce a range of stitches including straight & zig-zag.
Tape Measure		Used to measure fabrics and the human body to help make patterns accurate to the desired size.

Over locker		A electrical machine that neatens the edge of fabric to prevent fabric from fraying.
Dyes		Cold water dyes used to apply colour to a fabric, fixed with salt. These dyes are used in tie dying and dip/ plain dying
Pattern		Used as a template for cutting out pieces of a textile product.
Seam Allowance		Added to pattern to ensure that the products ends up in the correct size.
Fabric		Used to create a range of different products, including toys & clothing. Comes in a range of different lengths, widths, colours, finishes & patterns. Can be either Natural or Man-made.
Ironing/ Pressing		Method of removing creases from fabrics to give products a better finish.
Design		A process that is completed to communicate your ideas clearly.
Colour Wheel		Using knowledge of colour to make your product stand out and appeal to others.

Washing Label- will usually have a max. temp number included

Hand Wash only

Do not wring out

Tumble Dry

Iron on low heat. The more dots the higher the heat setting

Do not bleach