KNOWLEDGE ORGANISER

£2

NAME & FORM

YEAR 8

SUMMER TERM

English Knowledge Organiser – SUM1

Brief Summary of the Poems:

Dulce et Decorum Est by Wilfred Owen

This poem describes how soldiers in the trenches of WW1 were often mistreated and neglected and how miserable their lives were.

Dreamers by Siegfried Sassoon

This poem is told from WW1 soldiers' perspective as they 'dream' about what they miss about home whilst living in the trenches.

Who's For the Game? By Jessie Pope

This is a propaganda poem which was written to encourage people to join the war and fight for their country.

Search For My Tongue by Sujata Bhatt

This poem shows how challenging it is for the speaker to have to speak only in a foreign language, and suggests that in losing her "mother tongue," she would lose part of herself.

Blessing by Imtiaz Dharker

This poem reminds us of the importance of water to a community. The speaker emphasises how hard it is to find water in certain parts of India.

Presents From My Aunts in Pakistan by Moniza Alvi

This poem describes the inner conflict experienced by the speaker who is trapped between two worlds – the one she has grown up in and the one she and her family originate from.

Valentine by Carol Ann Duffy

This poem portrays the speakers feelings about love and the ways in which society will often share these, and she challenges this with the idea of an unusual object and how this is, in fact, a truer symbol of real love.

Key Quotes from the Poems

Dulce et Decorum Est

'like old beggars under sacks'. This simile makes the soldiers seem old before their time through sheer exhaustion. They look unsightly because they have been so traumatised by war.

'Fitting the clumsy helmets'. The adjective clumsy implies that the soldiers are panicking and cannot get their helmets on in time because they are so afraid.

Dreamers

'death's grey land'. The metaphor 'death's grey land' makes us visualise the land in which the soldiers fight as something depressing and a horrible place to be, or die in. it seems far from the green hills of home.

'gnawed by rats' The verb 'gnawed' highlights the unsanitary and harsh conditions of war. Furthermore, it suggests that the soldiers are treated like vermin as they have the share the same small, dirty spaces as rats.

Who's for the Game

'Who'll give his country a hand?' The personification of 'give his country a hand' could suggest that if people did not sign up for war, they would have been seen as not helping their country in the war.

'Come along, lads -' The slang noun 'lads' shows us that the speaker is trying to forma a relationship with the reader so they are more likely to listen to the message – join the war!

Search for My Tongue

'Your mother tongue would rot' The verb 'rot' makes us think that if it goes unused, the language would die away and no longer have any purpose.

Key Quotes from the Poems

Search for My Tongue

'it ties other tongues in knots'. The metaphor 'ties other tongues in knots' could portray that it is complex and beautiful, and that, perhaps, it is seen as more beautiful than other languages.

Blessing

'The skin cracks like a pod' The simile in 'like a pod' makes us think that it is so dry that the skin cracks and there is little water to go around.

'Sometimes the sudden rush of fortune' The metaphor 'rush of fortune' implies that any water is scarce, and therefore, when it becomes available, is priceless.

Presents from My Aunt in Pakistan

'glistening like an orange split open.' The verb in 'glistening' could imply that the speaker feels like she is alive whilst in her traditional clothing, or exposed as she feels less confident.

'was an alien in the sitting room' The metaphor in 'was an alien' creates imagery of someone who does not feel conformable in her traditional clothing and feels awkward.

Valentine

'Its fierce kiss will stay on your lips' The personification in 'fierce kiss' could suggest that the kiss is passionate and will last in your memory.

'It is a moon wrapped in brown paper.' The metaphor 'It is a moon' is used to show that the speaker's love is constant like the moon and everlasting, or sincere.

English Knowledge Organiser

Key Poetic Techniques:

Rhyme- The ends of the lines have the same sound *e.g. pie and sky.*

Repetition – A word or phrase is used more than once. *E.g. faster and faster, the cheetah ran…*

Onomatopoeia- When a word sounds as it is *e.g. boom.*

Metaphor- Two things are compared by saying one thing is the other *e.g. the sun was a glittering ball in the sky.*

Simile- Comparing something using 'like' or 'as. *E.g. the sun was like a glittering diamond.*

Personification- When an inanimate object is given human features. *E.g. the tree danced.*

Hyperbole- Exaggeration *e.g. the sun melted my skin.*

Alliteration – when sounds or letters are repeated in succession within a sentence. E.g. The slithering snake hissed.

Key Themes in Poems:

Can you decide which poems explore each of the following themes? Some might even link to more than one poem!

Nature

Conflict

Patriotism (love of your country)

Identity

WAGOLL Paragraph:

Bhatt uses an extended metaphor in 'Search For My Tongue' to highlight the importance of speaking your native language. By comparing language to a growing plant "it grows back", the reader can understand that the more one uses their native language, the more it grows and the more important it becomes. The writer has used the word "back" purposefully as it implies that the native language, once used, can never be forgotten. The metaphor of the plant growing has connotations of new life and the hope that our multi-lingual society can bring. Bhatt clearly wanted to demonstrate that we should appreciate and be grateful for the languages we inherit at birth, and that we should never forget them or take them for granted.

QTA + AO3 Sentence Structures:

An effective way of writing can often be by including the name of the technique in your opening sentence. Alternatively, you can rephrase the question to get you started.

(T) In the poem, one way the poet displays _____ is through the use of…

(T) The poet uses _____ to present the idea of…

(Q) This is shown in ' … '

(Q) This is evident in the quote ' … '

(Q) A quote to show this is '…'

(A) This suggests/this shows…

(A+) It could also suggest that…

(A) The word _____ could highlight…

(A+) Another word that supports this is _____ because…

(A)As a reader I understand…

(AO3) The poet intended to show that…

Can you add any key quotes to the image below?

Plot Summary:

What do we need to include in a successful paragraph?

1. A **QUOTE**, or multiple quotes, that prove whatever point or argument that you are making about the play

2. The name of the **TECHNIQUE** or techniques that Shakespeare is using within your chosen quotes

3. **ANALYSIS** of how your quotes prove your point, or the effect of their techniques on an Elizabethan audience.

Key Words:

Verona: The setting of Romeo and Juliet. It is the second-largest city in Northern Italy, and so old that its origins remain a mystery!

Shakespeare: William Shakespeare wrote Romeo and Juliet (along with many other famous plays) and lived from 1564-1616. Shakespeare is also famous for his poetry: he is still known as England's national poet!

Elizabethan: The era (or period in history) when Elizabeth I was Queen of Great Britain is often called the "Elizabethan era". It lasted from 1558-1603, and historians sometimes call it the "golden age" of English music and literature!

Stereotype: an oversimplified idea that people can have about what someone or something is like. For example: Romeo calls Juliet "bright angel", which links with the sadly common stereotype of Shakespeare's time that women were only useful as something to be beautiful and be worshipped by men!

Expectation: a strong belief that someone or something will happen or be proven correct. Stereotypes are based on expectations of people or things.

Feud: a long and bitter argument or disagreement. Romeo and Juliet's love for one another is so dangerous because their powerful families are locked in a violent and hateful feud with one another!

Montague: the family of Romeo. Shakespeare based them on the rich and powerful Montecchi family of 13th Century Italy. The Montecchi family actually lived in Verona, where they fought with the Capuleti family for control and attention from Italy's king!

Capulet: the family of Juliet. Shakespeare based them on the rich and powerful Capuleti family of 13th Century Italy.

Fate: the idea that things are bound to happen in a particular way that people cannot change or control. Romeo and Juliet makes clear from the very beginning that the fate of the two characters is tragedy. Many of the events or speeches in the play hint at this fate!

Romantic: something characterised by the expression of love.

Y8 Romeo & Juliet Knowledge Organiser

Plot Summary:

1. Two wealthy families, the Montagues and the Capulets, have another brawl in the city of Verona. The Prince declares that the next person to break the peace will be killed.
2. Romeo & his friends gate-crash a Capulet party and Romeo meets Juliet Capulet. He falls in love with her instantly. They are shocked to discover they are sworn enemies due to their feuding families. Friar Laurence marries Romeo and Juliet in secret.
3. Romeo goes to celebrate his marriage with his friends, Mercutio and Benvolio, but gets into a fight with Juliet's cousin, Tybalt. Tybalt kills Mercutio and Romeo avenges his death by killing Tybalt. The Prince banishes Romeo because he killed Tybalt.
4. Capulet, Juliet's father, decides she should marry Paris. Juliet refuses and goes to Friar Laurence where they come up with a plan for Romeo and Juliet to be together.
5. Juliet fakes her death and lies in a tomb waiting for Romeo to come so they can run away together. Romeo doesn't receive the message about the plan, so thinks Juliet has actually died. He goes to Verona and sees Juliet in her tomb, 'dead'.
6. Romeo drinks poison so he can be with Juliet in death. She wakes up to discover Romeo is dead. Juliet kills herself with his dagger.
7. The Capulet and Montague families vow never to argue again.

Key Characters:

Romeo Montague- Son of Lord & Lady Montague.
Juliet Capulet- Daughter of Lord & Lady Capulet.
Nurse- Juliet's nanny/maid and primary carer.
Friar Laurence- Priest & friend of the Montagues and Capulets. Marries R&J in secret.
Tybalt- Juliet's violent and aggressive cousin.
Mercutio – Romeo's best friend.
Paris-The man Lord Capulet wants Juliet to marry.
Prince Escalus – the Prince of Verona.

Social & Historical Context:

Marriage:
In Elizabethan times, people got married much earlier than they do today. It would be common practice to get married at 13 years of age. Normally, parents chose their child's partner and this would be based on wealth, potential titles and family ties.

Romeo and Juliet both decide who they are going to marry - this would have been ***highly disrespectful*** to their families, particularly as they both decided to marry their family's sworn enemy.

Family:

The father was the head of the household in this ***patriarchal society***. Women had no rights or authority in law: they could not own property or money but could influence their husbands. In high society, children were often raised by a 'wet nurse' and did not have a strong bond with their parents.

Where do we see these ideas in the play?

Key Themes:

QTA sentence structures:

Shakespeare has created the character of ____ in order to…

Shakespeare presents…

This can clearly be seen when…

A quote to support this is…

This suggests to the audience...

Alternatively, it could be argued that Shakespeare was trying to…

In particular, Shakespeare's use of (method/technique) implies...

Shakespeare's audience would have...

Shakespeare thought/felt that…

Art Knowledge Organiser

Red and blue = violet

Red and yellow = orange

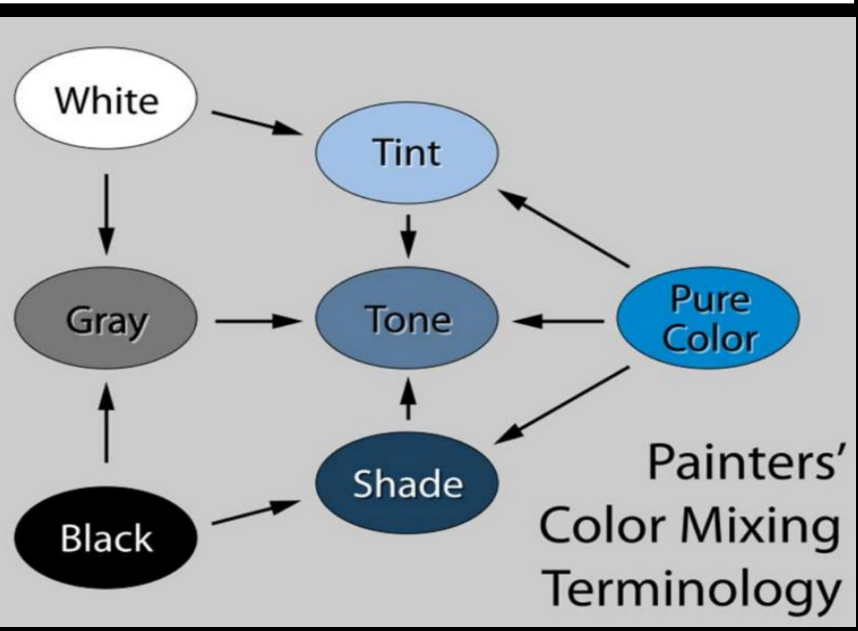
Blue and yellow = green

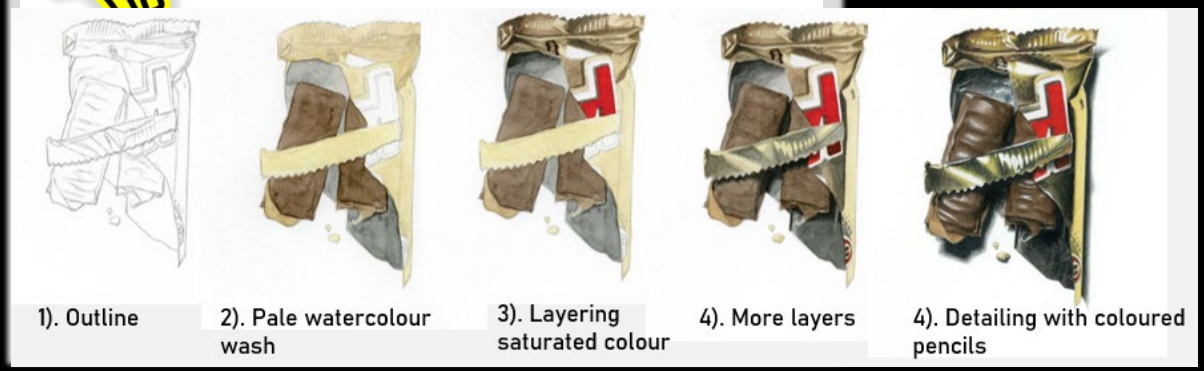
TERTIARY colours are made from mixing a primary and a secondary together

e.g red and violet = tertiary red violet

KEY WORDS – test yourself! (definitions on the next page)
Hyper realism- Reflection- Shadow- Highlight- Accuracy- Opaque- Transparent- Shade- Tint- Tone- Primary- Secondary- Tertiary- Proportion

Painting and mixed media
Year 8 Summer term



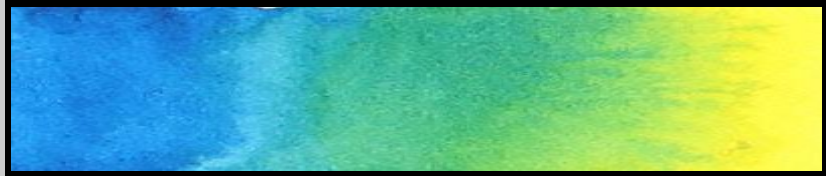


Watercolour techniques

Sponging

Colour to light gradient

Colour to colour gradient



Flat wash

Wet on wet

KEY WORDS AND MEANINGS:	
Hyper realism	Hyperrealism is a genre of painting and sculpture resembling a high-resolution photograph.
Tertiary	When a primary and secondary colour are mixed, you get a tertiary colour. E.g. turquoise.
Transparent	The quality of being able to see through (or partially see through) one or more layers in an artwork.
Tone (painting)	When you add grey to a colour to cool or darken it down.
Opaque	A paint that is opaque will give a solid colour.
Shade (painting)	When you add black to a colour, making it darker.
Tint (painting)	When white is added to a colour to lighten or brighten.
Form	Form refers to objects that are 3-Dimensional, or have length, width, and height.
Highlight	The lightest part or one of the lightest parts of a painting, drawing, etc.
Shadow	A dark area where light from a light source is blocked by an opaque object.

Colour code: BLUE= Tier 3 words ORANGE= Tier 2 words Look out for colour coding during lessons!

TOP TIPS FOR LEARNING A SCRIPT

1. Read through the script a line at a time then cover it up and say it out loud

2. Break the script into sections then write each section onto a post it note rearrange them and put them back into the correct order.

3. Rehearse with movement. Add a movement to each section to help you remember.

4. Annotate your script with the vocal and physical skills you want to use so that you don't forget them!

OUR DAY OUT by Willy Russell

ACT/SCENE SUMMARIES

The plot centres on a school trip to Conwy Castle in North Wales. Mrs. Kay teaches a class for illiterate children, called the "Progress Class". The whole class - along with Digga and Reilly, the slightly older pupils who used to be in the Progress Class - are taken on a coach trip. The headmaster asks deputy head, Mr Briggs, to go on the trip as an extra member of staff, emphasising his mistrust of the liberal values of Mrs Kay.

On the way, the coach stops at a roadside cafe with a snack shop, where the students take advantage of the storekeepers' confusion to shoplift sweets and snacks, while the teachers are unaware. It makes a second stop at the zoo, where the students enjoy the animals so much that they try to steal most of them. The zoo attendant discovers this just in time before the coach pulls out, and makes them return the animals.

When the coach finally reaches the castle, the students race around exploring the grounds, cliffs and beach. Soon it's time to leave, but one of the best-behaved students, Carol, is missing. A search ensues and Mr. Briggs finally finds Carol at the cliff edge. She is depressed because she doesn't want to return to the bad conditions at home, and becomes so upset that she threatens to jump off. Mr. Briggs shows a more understanding side as he convinces Carol to re-join the rest of the group.

At the suggestion of Mr Briggs, the coach makes one more stop at a fairground where the students have some more fun before returning home. Mr. Briggs joins the students on some of the rides, wears a funny hat, and joins in with the sing-song on the journey home, all of which is photographed by Mrs. Kay. Mr. Briggs offers to develop the photos but he secretly unravels the undeveloped film, exposing and ruining the photos.

THEMES

Social class	Poverty	Conflict	Morality
Nature vs nurture		Education	Stereotyping
Prejudice		Pride	Relationships

CONTEXT

Playwright 	Willy Russell was born in 1947 into a working-class family near to Liverpool. He left school at 15 without academic qualifications and began work. Dissatisfied with his job, he went to university and then became a teacher at a school in Liverpool. Russell wrote 'Our Day Out' in 1977 which was based on his experience while teaching at Shorefields School in Liverpool.	Genre	**COMEDY/ REALISM/ SATIRE**: Russell's plays and novels are about ordinary working class people His collection of work is funny and moving with a comic touch
		Socio-historical Contexts	Escalating economic decline in the 1970s meant many had little or no income, which divided the rich and poor. This is social exclusion where people do not have access to adequate health care or education.
		Political context	Margaret Thatcher became the Conservative Prime Minister in 1979. One of Thatcher's central political beliefs was that success came to those who chose to work hard. Russell contradicts this view as he shows that the pupils in the class are already intended for menial, low paid jobs and have effectively been written off by society. Willy Russell would have seen the poverty and lack of aspiration first hand in his home city. Liverpool's famous docks, a traditional source of local employment, were allowed to run down and thousands of households fell into poverty; crime levels increased; housing was allowed to deteriorate and drug use became more common.

MAIN CHARACTERS

Mrs Kay	A kind-hearted and generous teacher of the progress class
Mr Briggs	The deputy-head of the school who believes in very strict discipline
Colin/ Susan	Young teachers who are helping support those on the trip
Carol	A thoughtful student who seems unhappy with her life in Liverpool
Reilley/ Digga	Older students who used to be in the progress class; a bad influence on the others
Lindo	A girl with a bad attitude, she has a crush on Colin and clashes with Mr Briggs
Andrews	A young student with a difficult home life

Vocal Skills (Scan the QR code to find out more about vocal skills)

Pitch

Pace

Tone

Volume

Accent

Physical Skills (Scan the QR code to find out more about physical skills)

Body Language

Gesture

Levels

Facial Expressions

Posture

and IMPROVISATION

Year 8 Summer Term

KEY WORDS – test yourself! (definitions on the next page)

Blues Walking Bass Line String Bass Big Band Saxophone Improvisation Introduction (Extended) Chords Melody Sequence Lyrics New Orleans Structure 12 Bar Blues

ORIGINS and DEVELOPMENT – African slaves brought their musical traditions with them when they were transported to work in the North American colonies. These *Work songs* were sung rhythmically in time with the task being done. Their songs were passed on orally (word of mouth) and were never usually written down. They used ***call and response*** (phrases from a lead singer were followed by the others). Early styles of Blues were known as *country blues* and were usually a solo singer accompanied on guitar or piano sometimes with added harmonica or drums. This developed through to *BIG BANDS* which used ***trumpets, trombones, saxophones, piano, drum kit, string bass and clarinets***.

PRACTICAL SKILLS USED IN BLUES MUSIC:

The 12 Bar Blues Chord Sequence

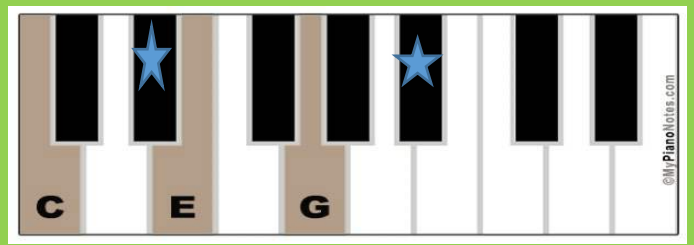
A chord is 3 notes played together at the same time. Blues music only uses 3 chords which are played in this order:

C	C	C	C
F	F	C	C
G	F	C	C

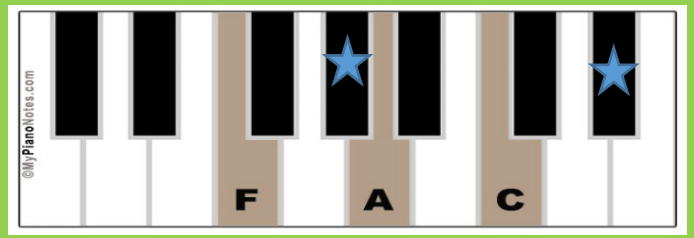
BESSIE SMITH –one of the greatest blues singers of the 20th Century. She had a deep, soulful voice and made her way from poverty to stardom because of her fantastic talent. She was at the height of her success in th 1920s. She sang about her own harsh experiences as a black woman in the deep south of American. She worked with jazz legends such as Louis Armstrong and Benny Goodman

THE CHORDS (ADVANCED IMPROVISATION NOTES ARE STARRED)

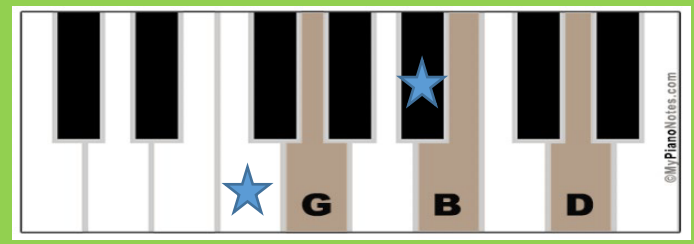
CHORD OF C MAJOR:



CHORD OF F MAJOR:



CHORD OF G MAJOR:



KEY WORDS AND MEANINGS (Tier 2 words in ORANGE, Tier 3 words in BLUE)	
Improvisation	To make music up as you go along
Structure (Twelve bar blues)	The way the music is put together. The twelve bar blues has a very specific chord sequence that you will need to learn off by heart
Lyrics	The words to a song
New Orleans	A city in Louisiana, America. It has strong associations with Jazz and Blues music
Introduction	The first section of a piece of music – usually before the voice or solo instrument enters
Extended chords	Chords are usually a collection of THREE notes played together. Extended chords add more notes on top of these e.g. 7ths to give a 'blues' feel
String Bass/ Double Bass	A large string instrument used to play the bass line in Blues and Jazz music
Saxophone	A WOODWIND instrument, comes in a variety of sizes which determines the pitch – soprano (smallest and therefore highest pitch), alto, tenor and baritone (larges and lowest)
Big Band	A collection of instruments (like an orchestra) which includes clarinets, saxophones, trumpets, trombones, piano, drum kit and string bass. Sometimes flutes are added too.
Chord Sequence	Chords played in a specific order e.g. the 12 bar blues chord sequence.

Geography Knowledge Organiser – Globalisation A

Key terms	
Globalisation	That the world is becoming more interconnected by trade and culture.
TNC	Trans-national company. A company that works across different countries
HIC	Higher income country
LIC	Lower in come country
Interdependence	The need to rely on other countries/ businesses for something
Sustainable	The ability to meet todays needs, without damaging the environment for the future
Raw materials	Items that have not been processed, they are normally grown or dug out of the ground e.g. wood, metals
Manufacturing	The process of turning raw materials into something e.g. wood into a table
Infrastructure	The basic items needed for an area to operate smoothly e.g. roads, airports, pipes, internet
Ethically right	When something is morally right it is ethically right. It is good.
Slum	Highly populated, very poor area of a city. Normally houses are made from scrap material.

Positives (green) and negatives (red) for TNCs			
New jobs are created for low-skilled workers	Employees in poorer countries may have to work longer hours and in poor conditions	Jobs in the poorer countries aren't secure (safe, always going to be there) – TNCs could decide to close the factory at any time!	Competition from TNCs with huge economies of scale (they produce a lot, therefore sell products cheaply) may force local companies out of business
Employees in poorer countries may be paid lower wages than employees in richer countries	Employees in poorer countries get more reliable income compared to traditional jobs like farming	TNCs spend money to improve the areas their factory is in e.g. better airport, roads (infrastructure)	Increased wealth in the host country may be spent on improving education, training and healthcare
New technology are bought to poorer countries	Most of the profits of the TNC go out of the country the factory is in	People learn new skills	Over time, local economies, traditions and languages may be lost.

What has allowed industry to change?

Transport changes – trains, airplanes, cargo ships

Improved education

Communication technology – mobiles, internet, Zoom/Teams,

Change in laws and trading

Improvements in refrigeration (keeping food fresh and cool for longer)

Outsourcing – putting parts of you business in another country because it's cheaper, more workers, different skills, space

Geography Knowledge Organiser – Globalisation B

Nike		Cadbury	
Positives	Negatives	Positives	Negatives
• Manufacturing in LICs has created new jobs for more than 1 million people. • Jobs helps the social and economic development of host countries, bringing new skills, technology and higher wages. • This ultimately improves living standards.	• profits are taken back the USA. Nike is worth £22 billion • Rubber for Nike's trainers comes from Malaysia and Indonesia and cotton comes form Turkey, India and the USA. Cotton workers in India earn just £65 per month. • 2013, 1,134 people tragically died during the collapse of an eight story "death trap", the Rana Plaza building in Dhaka, Bangladesh - home to factories previously used by TNCs, including Nike and H&M.	• Positive for the TNC is that Cadbury chocolate is manufactured in more than 15 overseas factories, located lower income countries, such as China, India and Brazil. This helps keep manufacturing and transportation costs down and increase profits. • Cadbury has tried to improve the quality of life of its cocoa farmers by investing in training, education and infrastructure.	• On average, cocoa farmers earn less than £1 per day. As a result, farmers often resort to the use of child labour to keep their prices competitive. • Up to 1.5 million children, as young as 5, work on cocoa farms in the Ivory Coast and Ghana. The work can be extremely difficult. Trafficked children are often abused by landowners and are rarely paid. • Cocoa industry is a huge boost to the West African economy, creating employment for 20 million people.

Positives (green) and negatives (red) of Shell in Nigeria

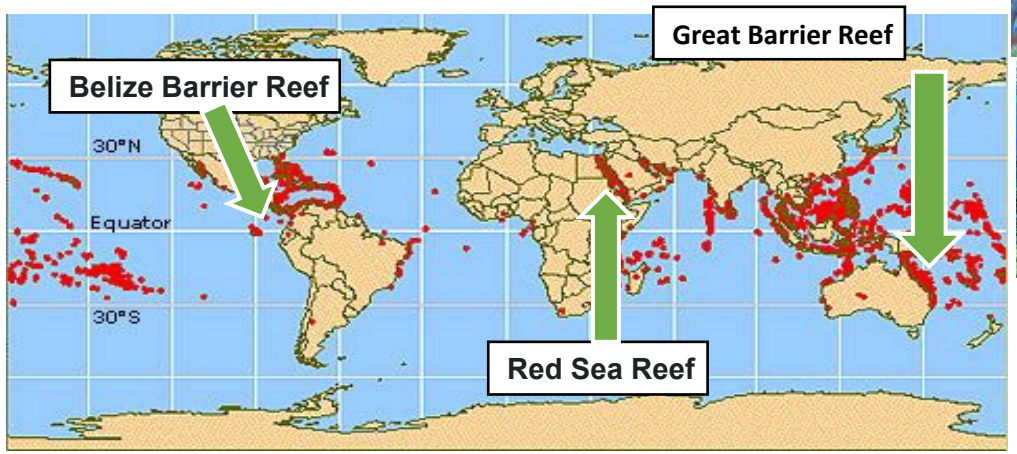
Impacts of palm oil

- Jobs are generally low paid. The money going to the TNC like Modelez / Cadbury
- 30% of Borneo's rainforests have vanished
- Deforestation – burning of large areas releases Co2
- Threatens the existence of indigenous rainforest tribes
- Job opportunities, 721, 000 new jobs for farmers in South Asia
- Efficient crop – if we used a different crop we might need MORE land

Shell gives money to Nigeria through taxes on its oil that it sells. This is in the billions of pounds.	**Noise pollution** can be created from the heavy machinery. **Civil unrest (wars) in Nigeria** – people disagree if TNCs like Shell are a good or bad thing.	**Employment (jobs) for 65,000** workers in the oil plants. A further 250,000 people are employed in related industries (transport, maintenance etc.)
91% of Shell's contracts with other companies, are **deliberately given to local Nigerian** companies. Bringing lots of money and extra jobs in to Nigeria.	**Oil spills cause water pollution and damage soil.** Farmers and fishermen can't use the land or water. Fish are dead, soil is damaged.	**Burning oil pollutes the air with toxic fumes.** Terrorist groups damage the oil supply, in protest against "non-Nigerian" companies
The Nigerian government uses money to attract more businesses to Niger. The **money could be better spent on local Nigerian people and environment.** 	Local people have **water sources polluted** – **impacting on people's health**. Many babies have been still born (dead), toxic fumes being breathed in lead to lung cancers.	**Shell has invested in the infrastructure around Nigeria**. There are some better roads, training and education services. **Shell makes most of the profit** (billions of pounds!) and that money **does not go to Nigeria.** It goers to Shell in the Netherlands.

Geography Knowledge Organiser – Human Disasters A

Describe the locations of the coral reefs of the world.
Coral reefs are found in tropical areas. North and south of the equator. An example of a coral reef is the Belize Barrier Reef. This is located off the south coast of Mexico, to the north east of the South American continent in the Pacific.



Importance of Coral reefs

- Protect the shoreline, minimizing wave impacts from storms.
- Provide habitats and shelter for 100s of organisms, this also helps ensure fish for commercial fishing
- Attract tourist/important for tourism (provides jobs and economical growth)
- Provide food for those who live close to the reef
- Many potential treatments for illness and disease

How to save coral reefs?
Stop sea level rise and climate change.
Recycle and dispose of rubbish properly.
Minimize use of fertilizers that get into the ocean.
Use environmentally-friendly modes of transportation/no boats over the reefs.
Be conscious when buying aquarium fish.
Tourists not to take any bits of coral home

Effects of oil spills

BP, 2010, in the sea of the Gulf of Mexico

1. Began 20 April 2010
2. Lots of jobs were created during May to help people out with insurance claims.
3. By 13th August, many dead animals: 4,080 birds, 525 sea turtles, 72 dolphins, and 1 crocodile.
4. 4.9 million barrels of crude oil had leaked
5. By late August, impact on tourism would cost $23 billion.

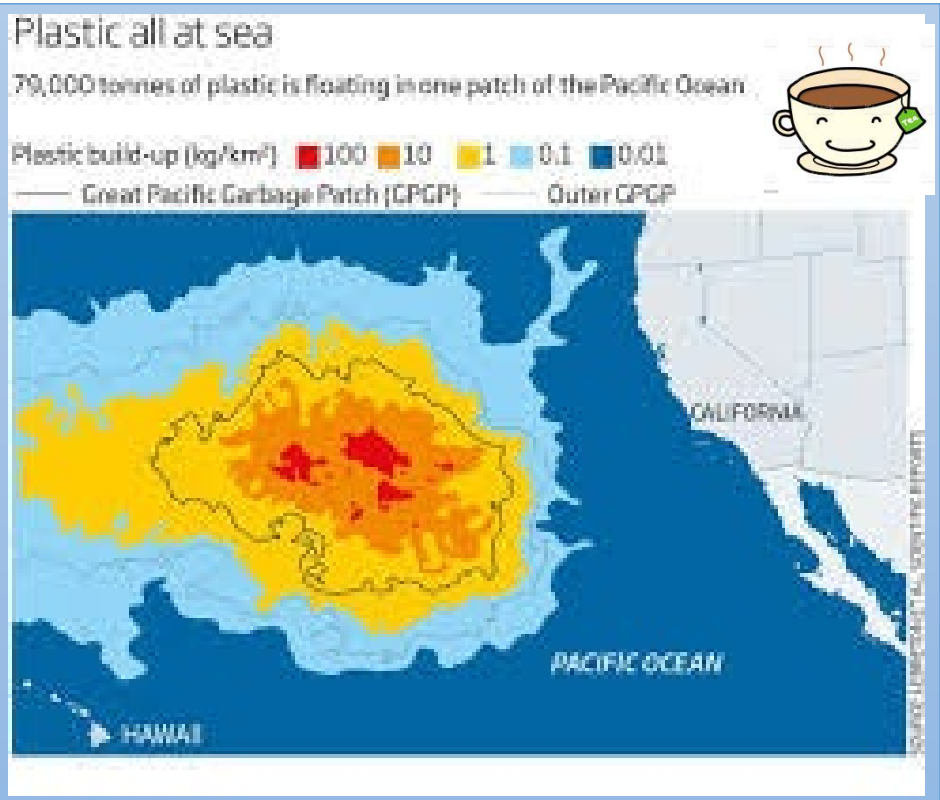
Shell's 2008 spill in the town of Bodo, Nigeria, Africa

1. The pipe breaking in 2008
2. Pipe break fixed but already lost 2,000 barrels of oil into the water . Leaked for 3 months (Dec to Feb)
3. 69,000 people living here now health at risk. Fish die and fishermen can't work. Water polluted for drinking and washing.
4. Shell blames vandalism and doesn't accept full responsibility in 2008
5. Shell accepts responsibility in 2018 and agrees to pay

Describe the Great Pacific garbage patch as shown in the graph. TEA.
TREND: *The graph shows that the Great Pacific Garbage Patch is located in the Northern Pacific off the west coast of North America / USA. It says there is 79, 000 tonnes of plastic floating in the sea here.*

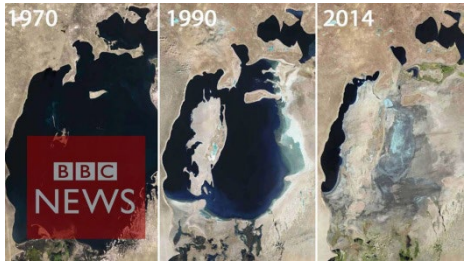
EXAMPLE: *The thickest layer is 100 kg/km² (red) is in parts the central east of the patch. It then has a ring around this that is 10 kg/km² (orange). It then goes to 1 kg/km² (yellow) this is the largest section of the main patch. The biggest section that goes from the west coast of the USA and across the north of Hawaii is 0.1 kg/km² (light blue).*

ANNOMALY: *There is a bit of 0.1 kg/km² (light blue) thickness that goes up to the north east.*



Geography Knowledge Organiser – Human Disasters B

The Aral Sea is located in **west Asia**. On the boarder of **Uzbekistan and Kazakhstan.** The "sea" is actually a fresh water inland lake.



Causes, effects and solutions to the Aral Sea Disaster

Aral Sea used to have an area of 26,300 sq miles and produce thousands of tons of fish for the local economy annually.

The Aral Sea began drying up when lots of dams and canals were built in the 1960s.

The water was used to irrigate cotton crops in Uzbekistan and Kazakhstan.

Irrigation wasn't very efficient and a lot of water leaked or evaporated in the process.

In 1987, it dried up so much that instead of one lake, there were now two: the Large Aral (south) and the Small Aral (north).

After the 1990s the top and bottom waters of the lake were not mixing well, which caused the salinity (salt) levels to be high.

Aral Sea produced about 20,000 to 40,000 tons of fish per year. This was reduced to a low of 1,000 tons of fish a year at the height of the crisis

Dried remnants of the lake contain not only salt and minerals but also pesticides like DDT.

The ecosystems have collapsed, towns are abandoned, the fishing industry has basically stopped (jobs), people suffer diseases like lung cancer.

2014, the eastern lake completely evaporated and disappeared, leaving behind the desert called Aralkum.

In 2005 the Kok-Aral Dam was finished on the southern lake. The dam has helped the northern lake to grow.

A fishery hatchery was build to grow fish eggs and release them – carp, flounder and sturgeon fish. To help the lake produce 12,000 tons of fish a year.

Effects of climate change:

Hazards such as landslides, floods and avalanches may become more common in mountainous areas.

Fewer deaths or injuries due to cold weather

Some areas may experience desertification

Previously frozen regions may be able to grow crops in a milder climate.

Climates may become drier and more prone to droughts, leading to starvation and civil war.

Energy consumption may go down in densely populated parts of the world as temperatures increase.

Low-lying islands may disappear complete y as sea levels rise.

Possible solutions to climate change
Eat seasonal and locally grown food – reduce your own carbon footprint and food miles
Eat less meat. Methane is 7x more harmful than CO2. Agriculture produces a lot of methane.
Stop using fossil fuels. Use renewables – solar, wind, tidal, geothermal, hydroelectricity

History Knowledge Organiser

Causes of the First World War

Archduke Franz Ferdinand

Long term causes of WW1

Militarism
The belief that military power is essential for national success. This fuelled a European arms race.

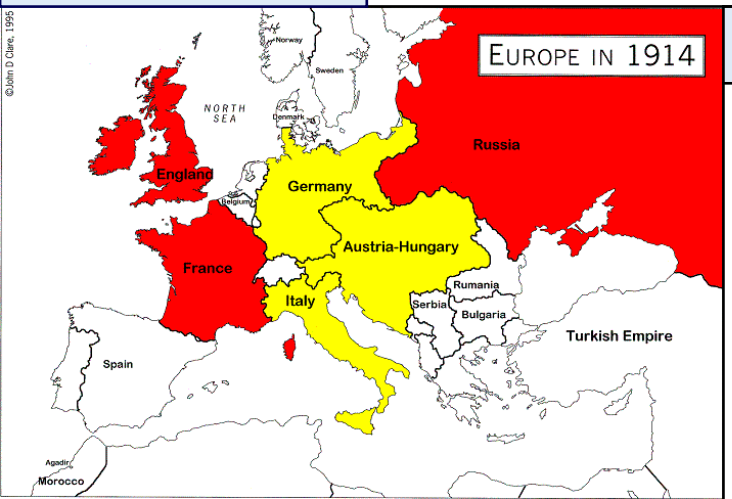
Alliances
The alliance system was a network of agreements and treaties that were negotiated before 1914. They added to the suspicion and tension in pre-war Europe.

Imperialism
A system where powerful nations control territory outside its own borders. Many nations fought to gain more territory.

Nationalism
Intense love for ones own country. Germany became obsessed with their own empire and wanted more.

The assassination of Franz Ferdinand

- The Archduke Franz Ferdinand was the heir to the throne of the Austrian-Hungarian empire.
- The Archduke was assassinated on June 28th 1914, in the city of Sarajevo; the capital of Bosnia and Herzegovina.
- A Serbian nationalist group called the Black Hand were behind the assassination.
- The Serbian nationalists believed that some territory controlled by the Austrian and Hungarian empire belonged to Serbia.
- The assassination led to the Austrian and Hungarian empire declaring war on Serbia, who were allied to Russia.



Alliance System

Triple Entente
Britain
France
Russia

Grand Alliance
Germany
Austria-Hungary
Italy

Key Word – Propaganda: Information, especially of a biased or misleading nature, used to promote a political cause or point of view.

Reactions to the war

Joining up

When the war started Germany had 4.5 million men ready to fight. In comparison, Britain had 700,000. Britain used propaganda to encourage men to join the army. Propaganda was used through posters, radio broadcasts and speeches.

There were many reasons men joined the army:
- Sense of Adventure
- Well paid job
- Patriotism
- Hatred of the Germans
- Fear of cowardice

Conscientious Objectors

There were many men who chose to either delay signing up to the Army or refuse outright. These men were Conscientious Objectors. They objected to the war for many reasons, such as religion and would refuse to volunteer for the war in 1914 and many would refuse when it was compulsory in 1916.

Weapons of the First World War

Artillery	Machine Guns	Aircraft	Gas	Tanks
The big guns of the war. These long ranged weapons accounted for 60% of battlefields deaths during WW1. Shells fired from artillery would explode.	The Machine Gun had been a concept since the musket, but in World War I it became a well designed, brutal killing tool. Machine guns would protect the trench.	WW1 was the first conflict involving the large-scale use of aircraft. They were mainly used for reconnaissance missions and dog fights. Dog fights involved two aircraft attempting to shoot one another down.	To get past deadly machine guns and rifle fire, both sides tried using Poison Gas. One example is deadly Chlorine Gas which attacked the lungs and caused panic and coughing fits. Gas masks were worn.	Developed to offer protection when pushing through no-mans land. They could drive over trenches and barbed wire. Tanks were very slow and would often break down.

History Knowledge Organiser

The Battle of the Somme

- The battle started on July 1st and continued until November.
- The battle was launched to take pressure off the French fighting the Germans at Verdun.
- The allies bombarded the German trenches for 7 days before and fired 1,738,000 artillery shells.
- Many British soldiers were ordered to “walk “ across No-mans land and occupy enemy trenches.
- Around 60,000 Men were killed or wounded on the first day of the Battle (most within the first 15 minutes).
- The first day of the battle is referred to as ‘the British army’s darkest day’.

Reasons for high British casualties

- Barbed wire was not destroyed by artillery.
- Germans had dug up to 60ft deep in their trenches, which offered good protection.
- Mines exploded by the British before the attack alerted the Germans to an attack.

Empire at war

Troops from all over the British Empire fought during WW1. Below:
14th Punjab Regiment fighting at the battle of Ypres.

Nations that fought for Britain during WW1

- Canada
- Australia
- India
- Ceylon (Sri Lanka)
- Nepal
- Pakistan
- Burma
- South Africa
- New Zealand

Women at war

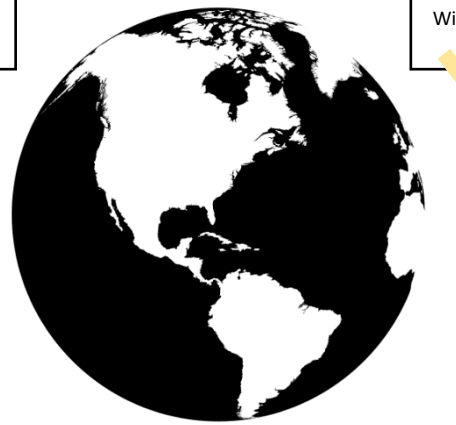
The Munitionettes	Munitionettes produced 80% of the weapons and shells used by the British Army.
The Women’s Land Army	A government organisation that offered cheap female labour to farmers. Many women were employed as field labourers, digging up land and planting crops for the nation.
First Aid Nursing Yeomanry	They would be assisting the nursing of wounded soldiers, working as ambulance drivers and cooks both in the hospitals of the home front and in Field Hospitals close to the trench lines.
Civil Servants	Thousands of women answered the call to work from the British Government by replacing many male led jobs

Immigration Nation

When we describe Britain or England, we are describing a country that has been shaped by thousands of years of settlers. Each group has left its mark.

The first migrants
Pre 1066, three main groups of settlers shaped Britain. The Romans, Saxons and Vikings brought many changes. These included: straight roads, coinage and Christianity.

Jewish Migration
British Jews had numbered fewer than 10,000 in 1800 but grew above 120,000 after many fled Eastern Europe to escape the pogroms. Nowadays the Jewish population of the United Kingdom is closer to 300,000. Many fought against the Nazis.



Black Migration
The History of black Britons begins during the roman period and stretches all the way through the history of the British isles. One of the most notable examples was the Windrush ship which brought hundreds of migrants to help Britain after WW2.

South-East Asian Migration
Since ferry and plane transport have become ever more common we have seen a more diverse group of migrants arrive on our shores. After the 1940s we saw an influx of migrants from Asia.

Religion and Ethics Knowledge Organiser

Unit 3: Summer 2 What are core Sikh beliefs?

Sikhi Belief in God

Sikhi often refer to God as **Waheguru**, which means 'wondrous enlightener'. Sikhs believe that there is **only one God**, who created everything and that Waheguru must remain in the mind at all times. Sikhs' beliefs reflect their actions on a daily basis and bring them closer to Waheguru.

5 K's of Sikhism:

10 Sikh Gurus and the Guru Granth Sahib

Sikhism was established by **ten human Gurus**. These Gurus created and defined Sikhism from one to the next through their words, hymns, writings and actions. By living a spiritually pure life, they taught people in India the importance of equality and the belief that all religions.

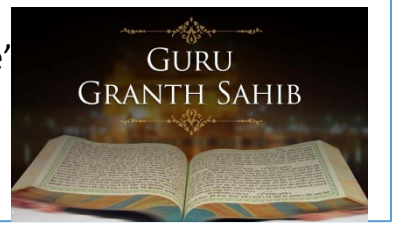
Guru Nanak is the founder of Sikhism. He was succeeded by nine other human gurus until in 1708 **Guru Gobind Singh** passed the Guruship to the holy Sikh scripture, **Guru Granth Sahib**, which is now considered the living Guru by the followers of the Sikh faith.

Khalsa and Amrit Sanskar

Amrit Sanskar is the **initiation ceremony** that Sikhi take part in when they make the decision to become fully committed Sikhi. Once they have gone through this initiation ceremony, they commit themselves to the **Khalsa.** This means that they wear the five Ks and are expected to follow the strict rules.

Key Terms:

Guru – A spiritual teacher
Guru Granth Sahib- The 'Eternal Guru' - The holy book for Sikhi.
Gurdwara- Sikhi place of worship.
Sewa- translates to acts of 'selfless service'
Langar- Communal kitchen
Sangat- the community of Sikhi
Khalsa – Community of initiated Sikhi



What is the importance of the Langar?

SEWA – serving God and other people. Essential to Sikh faith as they believe everyone should be equal.
The Langar – is the kitchen and dining hall where a community meal is served. It is always vegetarian so everyone can eat it, including non-Sikhs who may need a meal.

The Gurdwara is the *centre of the community* and will also host charitable events and fundraising activities to promote and encourage the ideal of equality which is central to Sikh faith.

Gurdwaras in the UK are often houses which are converted into a place of worship. The holiest place of worship for Sikhs is ***the The Golden Temple in Amritsar, India.***

Religion and Ethics Knowledge Organiser

Unit 4: Summer What makes Sacred Spaces Special

How do Sikhi Gurdwaras show respect to God?

Diwan means worship.

1. Sikhs remove their shoes to keep the **Gurdwara** clean
2. The bow down and *prostrate* themselves in front of their holy book which is the **Guru Granth Sahib**.
3. They give offerings of food and money which is shared by the community or **Sangat.**
4. **Diwan** starts with singing sacred songs called **Kirtan.**
5. Passages from the holy book are read. The holy book is placed on a **Takht** *which is like throne* to raise it above everyone as a sign of respect.
6. **A chauri** is waved over the holy book, the Guru Granth Sahib. **Guru = teacher.** The chauri is a symbol that the *book is like a king* as they were used with Indian royalty.

Key Question: Should places of worship be sold to help those in need?

Case Study: Notre Dame Cathedral in Paris is one of France's **most famous landmarks** attracting **13 million visitors** every year and contained many priceless **religious artefacts**. However, on the 15th of April it was **destroyed in a fire.** Many people were devastated as for some the building was part of the French national identity. It had been estimated to cost to **rebuild was £1billion**.

Divided opinion:

The rich and famous pledged to millions of pounds to rebuild.

However, this divided opinions as **some French citizens protested the money** stating it could go to **support the growing numbers living in poverty**.

How and why are church interiors different?

Roman Catholic Churches like to *glorify* God with gold, statues and ***ornate*** carvings, images and stained glass windows.

Protestant Churches prefer to have more simple churches. They 'Protested' against the money spent on holy places and argued that churches should be more plain as money should be spent on the poor not on churches.

Orthodox churches are also ornate and have an **iconostasis** with images of Jesus in Heaven. It is behind here the Holy Communion is blessed.

There are some features of the church which are the same:

- An altar – a table which can be decorated or plain and is where the bread and wine (holy communion) is blessed
- A font – a concrete basin which is situated at the front of the Church and contains water for baptism
- Lectern- a place to read the Bible from
- Pulpit – where the Priest stands to read his sermon from
- Sermon – a speech from the Priest
- Holy Communion- the bread and wine which is eaten by Christians to remember Jesus' Last Supper.

What happens in a church which makes it special?

1. Worship, Weddings and baptism.
2. Charity such as food banks. For example the Trussell Trust
3. Community centre – holds events and coffee mornings for different groups of people
4. All bring the community together or help and support the community.

ALTAR

FONT

LECTERN

PULPIT

Maths Knowledge Organiser

FREQUENCY TABLES

Key Concept

Age	Frequency
11	17
12	11
13	8

Mode is 11 as it has the highest frequency

Median is 12 as it is the 18th value (halfway)

Mean is total ages divided by number of people

(11x17) + (12x11) + (13x8) gives total ages and there are 36 people (add up the frequencies)

Mean = 423 ÷ 36 = 11.75

Key Words

Qualitative Data
non-numerical data

Quantitative Data
numerical data

Continuous Data
data that can take any numerical value within a given range.

Discrete Data
data that can take only specific values within a given range.

Year 8

Examples

These are the journey times, in minutes, for a group of railway travellers

25, 37, 12, 32, 28, 17, 20, 43, 15, 34, 45, 22, 19, 36, 44 , 17

1. Construct a grouped frequency table to represent the data
2. What is the modal class?

Time, T (minutes)	Frequency
$10 < T \leq 20$	6
$20 < T \leq 30$	3
$30 < T \leq 40$	3
$40 < T \leq 50$	4

The modal class is $10 < T \leq 20$ as it has the highest frequency

Questions

These are the heights (in metres) of 20 people.

1.65, 1.53, 1.71, 1.72, 1.48, 1.74, 1.56, 1.55, 1.80, 1.85, 1.58, 1.61, 1.82, 1.67, 1.47, 1.76, 1.79, 1.66, 1.68, 1.73

Construct a grouped frequency table and use it to find the modal class

Maths Knowledge Organiser

EXPAND AND SIMPLIFY BRACKETS

Key Concepts

Expanding brackets
Multiply the number outside the brackets with EVERY term inside the brackets

Indices
$a \times a = a^2$ and $a \times a \times a = a^3$

$3m \times 4m = 12m^2$ because $3 \times 4 = 12$ and $m \times m = m^2$

Examples

Expand and simplify where appropriate

1) $7(3 + a) = 21 + 7a$

2) $2(5 + a) + 3(2 + a) = 10 + 2a + 6 + 3a$
$= 5a + 16$

3) $m(m + 6) = m^2 + 6a$

Year 8

Key Words
Expand
Simplify
Indices

Questions

1) Expand and simplify
(a) $3(2 - 7f)$ (b) $5(m - 2) + 6$ (c) $3(4 + t) + 2(5 + t)$

2) Expand and simplify
(a) $a(a + 7)$ (b) $p(p - 4)$ (c) $3p^2(2p - 8)$

ANSWERS: 1) (a) $6 - 21f$ (b) $5m - 4$ (c) $22 + 5t$ 2) (a) $a^2 + 7a$ (b) $p^2 - 4p$ (c) $6p^3 - 24p^2$

Maths Knowledge Organiser

Adding, Subtracting & Multiplying Fractions

Key Concepts

Adding and subtracting fractions: To add and subtract fractions they must have a common denominator. If you have to, find equivalent fractions to get a common denominator.

To multiply fractions you need to multiply the numerators, then the denominators. Simplify if you can.

Year 8

Key Words

Denominator: bottom number of fraction

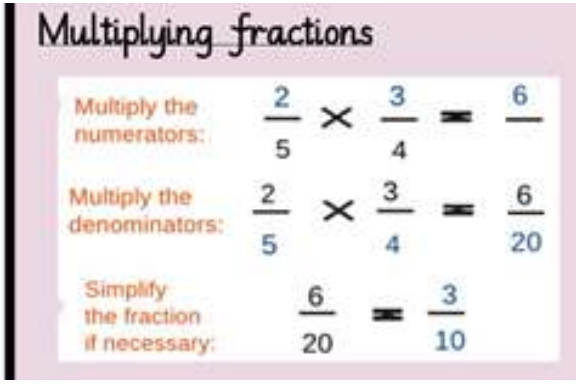
Numerator: Top number of fraction

Examples

$$\frac{1}{2} + \frac{1}{3} = ?$$

$$\frac{1}{2} \overset{\times 3}{\underset{\times 3}{}} = \frac{3}{6} \qquad \frac{1}{3} \overset{\times 2}{\underset{\times 2}{}} = \frac{2}{6}$$

$$\frac{3}{6} + \frac{2}{6} = \frac{5}{6}$$



Questions

Copy and complete the following sums. Cancel down where appropriate.

1). $\frac{5}{6} - \frac{1}{2}$ 2). $\frac{1}{4} + \frac{5}{12}$ 3). $\frac{7}{9} - \frac{2}{3}$ 4). $\frac{7}{8} - \frac{1}{4}$

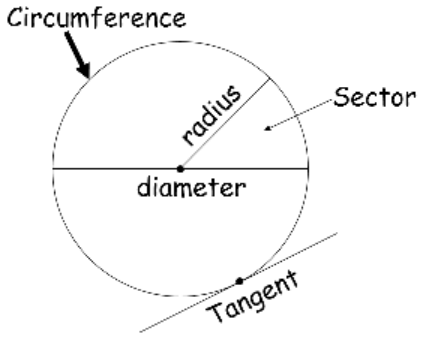
Answers

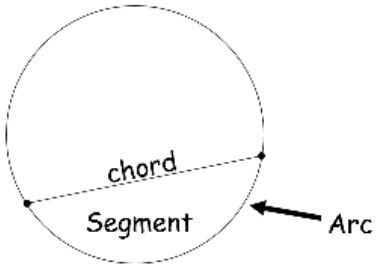
1). $^1/_3$ 2). $^2/_3$ 3). $^1/_9$ 4). $^5/_8$

Maths Knowledge Organiser

CIRCLES

Key Concepts





Key Words

Circumference: The outside edge or perimeter of the circle

Diameter: Distance from one side of the circle to the other, going through the centre.

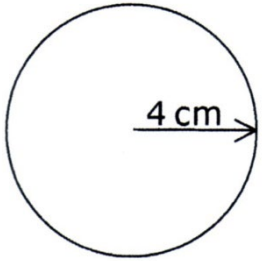
Radius: Distance from the centre of a circle to the circumference.

Chord: A line that intersects the circle at two points.

Tangent: A line that touches the circle at only one point.

Examples

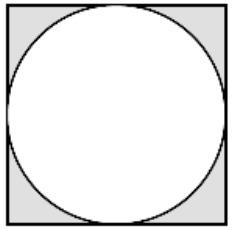
Find the area and circumference to 2dp.



$$Circumference = \pi \times d$$
$$= \pi \times 8 = 25.13cm$$

$$Area = \pi \times r^2$$
$$= \pi \times 4^2 = 50.27cm^2$$

Find shaded area to 2dp.



$$Square\ area = 10 \times 10$$
$$= 100m^2$$

$$Circle\ area = \pi \times r^2$$
$$= \pi \times 5^2$$
$$= 78.54\ m^2$$

$$Shaded\ area = 100 - 78.54 = 21.46m^2$$

Year 8

Tip

If you don't have a calculator you can leave your answer in terms of π.

Formula

$Circle\ Area = \pi \times r^2$

$Circumference = \pi \times d$

Questions

1) Find to 1dp the area and circumference of a circle with:

a) Radius = 5cm b) Diameter = 12mm c) Radius = 9m

2) Find the area & perimeter of a semi-circle with diameter of 15cm.

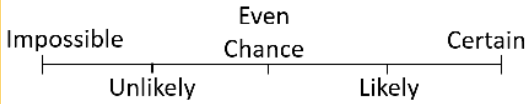
ANSWERS: 1) a) A = 78.5cm², C = 31.4cm b) A = 113.1mm², C = 37.7mm
c) A = 254.5m², C = 56.5m 2) A = 88.4cm², P = 38.6cm

Maths Knowledge Organiser

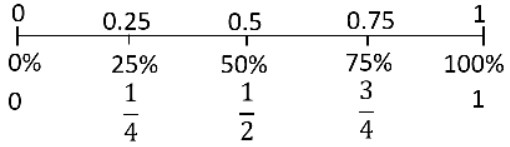
CALCULATING PROBABILITY

Key Concept

Chance



Probability



Probabilities can be written as:

- Fractions
- Decimals
- Percentages

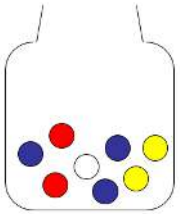
Key Words

Probability: The chance of something happening as a numerical value.

Sample Space: A list of all possible outcomes. E.g. For rolling a dice the sample space would be (1, 2, 3, 4, 5, 6)

Mutually Exclusive: Two or more events that cannot happen at the same time

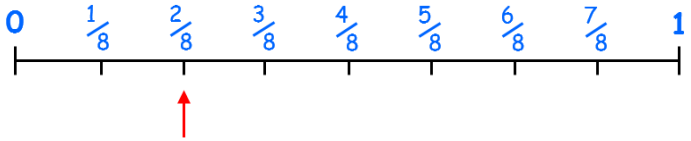
Examples



1) What is the probability that a bead chosen will be **yellow**.
Show the answer on a number line.

$$Probability = \frac{Number\ of\ favourable\ outcomes}{Total\ number\ of\ outcomes}$$

$$P(Yellow) = \frac{2}{8}$$



Year 8

Tip
Probabilities always add up to 1.

Questions
In a bag of skittles there are 12 red, 9 yellow, 6 blue and 3 purple left.
Find: a) P(Red) b) P(Yellow) c) P(Red or purple) d) P(Green)

ANSWERS: 1) a) $\frac{12}{30} = \frac{2}{5}$ b) $\frac{9}{30} = \frac{3}{10}$ c) $\frac{15}{30} = \frac{1}{2}$ d) 0

Maths Knowledge Organiser

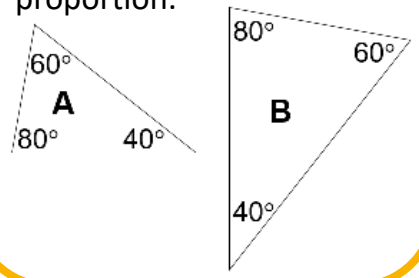
ENLARGEMENT

Key Concept

Properties of similar shapes:

- The corresponding angles will be the same if shapes are similar.

- Corresponding edges must remain in proportion.



Year 8

Key Words

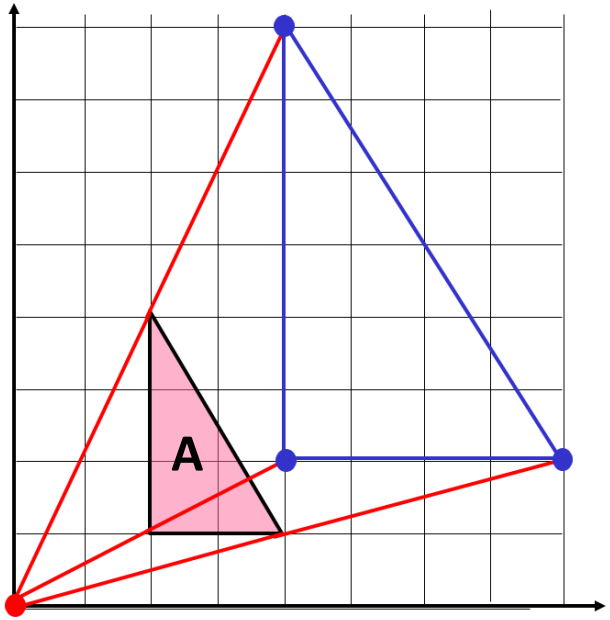
Transformation: This means something about the shape has 'changed'.
Enlargement: A change in size, either bigger or smaller.
Congruent: These shapes are the same shape and same size but can be in any orientation.
Similar: Two shapes are mathematically similar if one is an enlargement of the other.

Tip

To find the centre of enlargement connect the corresponding vertices.

Examples

Enlarge shape A, scale factor 2, centre (0, 0).



Scale factor 2 - Double the distance between each vertex and the centre of enlargement.

Questions

1) A triangle has lengths 3cm, 4cm and 5cm. What will they be if enlarged scale factor 3.
2) Rectangle A measures 3cm by 5cm, B measures 15cm by 25cm. What is the scale factor of enlargement?

ANSWERS: 1) 9cm, 12cm and 15cm 2) 5.

MFL Knowledge Organiser SUMMER 1 la comida

Tenses

PRESENT	-ar verbs	-er verbs	-ir verbs
I	-o	-o	-o
you	-as	-es	-es
he/she/it	-a	-e	-e
we	-amos	-emos	-imos
you (pl)	-áis	-éis	-ís
they	-an	-en	-en

Son= they are
Hay - there is
Es - is
Tiene - has

A

FUTURE Saying what you are going to do B

Voy		INFINITIVE
vas		*Ir*
va	a	*Tocar*
vamos		*jugar*
vais		*nadar*
van		*leer*
		Ver

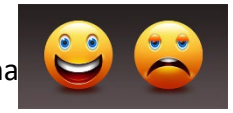
PAST preterit	AR	ER/ IR
I (yo)	é	í
You (tú)	aste	iste
He/she (él / ella)	ó	ió
We (nosotros)	amos	imos
You (pl) vosotros	asteis	isteis
They (ellos/ellas)	aron	ieron

C

Opinions & Pronouns D

Lo que más me gusta es… =the thing I most like is
Creo que../pienso que= I think that

Me chifla
Me impresiona
Me fascina
Me interesa



Me enfada (angers)
Me repugna
Me irrita
Me aburre

Connectives E

También / además	also/furthermore
Por otro lado	on the other hand
que	which
Donde	where
Porque / dado que	because/ given that
Aunque	although
Así que / por eso	there fore /so

Complexity F

Suelo + infinitive = I tend to ..
Suelo comer = I tend to eat….

Tengo que + Infinitive = I have got to
Tengo que adelgazar = I have to slim

Adjectives G

Rico (a)	delicious
Delicioso (a)	delicious
Nutritivo (a)	Nutritious
dulce	sweet
Grasiento (a)	Greasy/fatty
picante	spicy
sabroso	tasty
asqueroso	disgusting
soso	bland
Buena para la salud	Good for health
Malo(a) para la dieta	Bad for diet
Sano / saludable	healthy
malsano	unhealthy

H

Quantifiers

Bastante = quite
un poco/poquito= a bit
Demasiado=*too*
realmente= *really*
Tan= *so (es tan picante =it is so spicy)*

La Comida TOPIC VOCABULARY TRANSLATED

de primer plato	**for first course**
de segundo plato	**for second course**
de postre	**for dessert**
El Almuerzo	**lunch**

I

J

la comida rápida	fast food
la comida india	Indian food
la comida china	Chinese food
la comida italiana	Italian food
la comida vegetariana	vegetarian food

Verduras	vegetables
sopa	soup
huevos	eggs
carne	meat
pescado	fish
pollo	chicken
las chuletas	(pork) chops
las gambas	prawns
las sardinas	sardines
los perritos calientes	hot dogs

Helado de vainilla/fresa/chocolate	ice cream
el flan	creme caramel
Churros con chocolate	

K

aceitunas	**olives**
gambas	**prawns**
patatas bravas	**fried potatoes spicy sauce**
calamares	**squid**
tortilla Española	**Spanish omelette**
jamón serrano	**cured ham**
chorizo	**chorizo**

L

un agua con gas	**fizzy water**
un agua sin gas	**still water**
una cerveza	**a beer**
Vino blanco	**white wine**
Vino tinto	**red wine**
Sangría/tinto de verano	

Los verbos

M

Comer	- to eat
Beber	- to drink
tomar	- to have (food/drink)
Desayunar	- *to have (for)* breakfast
Almorzar * almuerzo	- to have (for) lunch
Merendar	- *to have (for)* a snack
Cenar	- *to have (for)* tea(dinner)
Engordar (se)	- to get fat
Adelgazar	- to slim
Perder peso	– to lose weight

N

¿Con qué frecuencia? How often?

siempre	always
todos los días	every day
normalmente	normally
con frecuencia	frequently
a menudo	often
de vez en cuando	from time to time
a veces	sometimes
rara vez	rarely
casi nunca	almost never
nunca	never

O

Los números		**Numbers**	
cero	zero		
diez	ten	cien	one hundred
quince	fifteen	ciento diez	one hundred & ten
veinte	twenty	doscientos	two hundred
veinticinco	twenty five	trescientos	three hundred
treinta	thirty	Cuatrocientos	four hundred
treinta y cinco	thirty five	quinientos	five hundred
cuarenta	forty	seiscientos	six hundred
cincuenta	fifty	setecientos	seven hundred
sesenta	sixty	ochocientos	eight hundred
setenta	seventy	novecientos	nine hundred
ochenta	eighty	Mil	a thousand
noventa	ninety		

MFL Knowledge Organiser SUMMER 2 la comida

Tenses

Fueron= they were
Hubo - there was/were
fue- was
tuvó - had

SEE SUMMER 1 FOR 3 tenses.

A

Regular verbs – PRETERITE tense endings – SEE SUMMER 1

IRREGULAR VERBS PRETERITE B

	Querer – to want	tener – to have	Ser/ir – to be to go
I	**Quise**	**Tuve**	**Fui**
you	**Quisiste**	**Tuviste**	**Fuiste**
he/she/it	**Quiso**	**Tuvo**	**Fue**
we	**Quisimos**	**Tuvimos**	**Fuimos**
you (pl)	**Quisisteis**	**Tuvisteis**	**Fuisteis**
they	**Quisieron**	**tuvieron**	**Fueron**

IRREGULAR VERBS PRETERITE C

	Decir – to say	Hacer – to do/make
I	**Dije**	**Hice**
you	**Dijiste**	**Hiciste**
he/she/it	**Dijo**	**Hizo**
we	**Dijimos**	**Hicimos**
you (pl)	**Dijisteis**	**Hicisteis**
they	**Dijieron**	**Hicieron**

Opinions & Pronouns D

Mi madre dice que

Lo que más me gusta es

Lo que no me gusta nada es

Pensamos/creemos que

Pienso/creo que

Lo encuentro – I find it

Pronoun changes
Me – me
Te – you
Le – he/she
Nos – we
Os – you all
Les – they
e.g. le molesta – it annoys HER

For connectives see Summer 1 E

A veces / muchas veces – sometimes / many times
(casi) siempre – (almost) always
A menudo – often
De vez en cuando – from time to time
Raramente – rarely
Constantemente – constantly
Frecuentamente – frequently
A diario - daily

Complexity F

Suelo + infinitive = I tend to ..
Suelo comer = I tend to eat....
Querer = inf = to want to
Quiero comer más...= I want to eat more

Tengo que + Infinitive = I have got to
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Adjectives G

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Malo(a) para la dieta	Bad for diet
Sano / saludable	healthy
malsano	unhealthy

Comparatives and superlatives H

La más deliciosa es la fruta = ***the most delicious*** *is*
Lo menos asqueroso es el atún – ***the least disgusting*** *is tuna*
Comer fruta **es más sana qu**e comer comida rápida = ***is more healthy than***
Comer patatas fritas **SON menos sanAS qu**e comer verduras = *eating chips* ***are less healthy than***

TOPIC VOCABULARY TRANSLATED – en el mercado

I

¿Tienes hambre?	Are you hungry?
(Sí) Tengo hambre.	(Yes) I'm hungry.
¿Tienes sed?	Are you thirsty?
(Sí) Tengo sed.	(Yes) I'm thirsty

J

¿Qué desea?	What would you like?
¿Cuánto/a cuesta …?	How much does … cost?
cuarto kilo de …	a quarter of a kilo of …
medio kilo de …	half a kilo of …
un kilo de …	a kilo of …
un kilo y medio de …	a kilo and a half of …
dos kilos de …	two kilos of …
¿Algo más?	Anything else?
Cuesta (2) euros.	It costs (2) euros
(No) Nada más, gracias.	(No) Nothing else, thank you.

K

Las cantidades	Quantities
una botella de limonada	a bottle of lemonade
200 gramos de queso	200 grams of cheese
500 gramos de jamón	500 grams of ham
una barra de pan	a loaf of bread
un cartón de leche	a carton of milk
un paquete de galletas	a packet of biscuits
una caja de pasteles	a box of cakes
una lata de sardinas	a tin of sardines

M

¿Qué fiesta celebras en tu casa?	What festival do you celebrate at home?
Celebro …	I celebrate
Diwali	Diwali
el Día de Navidad	Christmas Day
la Nochebuena	Christmas Eve
la Nochevieja	New Year's Eve
¿Mandas tarjetas?	Do you send cards?
Sí/No mando tarjetas.	Yes, I (do not_ send cards.
Mandas tarjetas.	You send cards.
¿Recibes regalos?	Do you receive gifts?
Sí/No recibo regalos.	Yes I (don't) receive gifts.

L

Fruta y verduras	Fruit & veg
plátanos	bananas
naranjas	oranges
peras	pears
uvas	grapes
tomates	tomatoes
patatas	potatoes
lechugas	lettuces
cebollas	onions

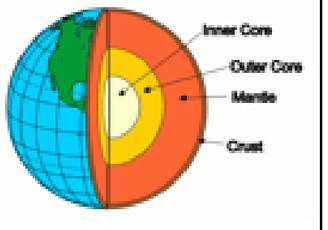
Science Knowledge Organiser

8H Rocks

1. Rocks and their Uses

Geologist	A scientist who studies rocks and the Earth.
Rocks	Naturally occurring substances made up of different grains.
Grains	Made from one or more chemical compounds.
Minerals	The chemical compounds in rocks- rocks are mixtures of different minerals.
Texture	The combination of sizes and shapes of grains in a rock.
Interlocking Crystals	The grains all fit together with no gaps. They are hard and do not wear away easily.
Rounded Grains	Some rocks have rounded grains with gaps in between. They are not strong and can be worn away more easily.
Porous	Rounded grain rocks can absorb water because it gets into the gaps.
Permeable	Water can run through.
Cement	A building material made from limestone.
Gravel	A mixture of cement, sand and gravel.

2. Igneous and Metamorphic

The Structure of the Earth	
Igneous Rocks	Formed when molten rock cools down *e.g. basalt, granite*

Magma	Molten rock
Lava	Magma that reaches the Earth's surface.
Small Crystals	Formed when molten rock cools down fast due to less time for particles to become ordered.
Large Crystals	Formed when molten rock cools down slowly due to more time for a large grid pattern to form.
Extrusive	Igneous rocks formed from cooling lava above the surface.
Intrusive	Igneous rocks formed underground.
Metamorphic Rocks	Formed by pressure and heat changing other rocks. *e.g. Schist, gneiss (both formed from granite) slate (from mudstone) and marble (from limestone)*
Metamorphic Rock Texture	Always made from interlocking crystals which may form coloured bands.

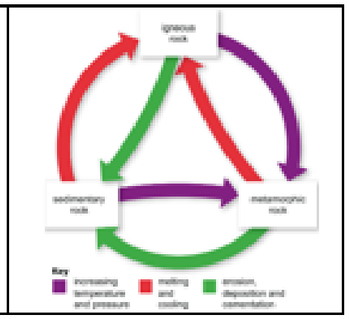
3. Weathering and Erosion

Weathering	When rocks are broken up by physical, chemical or biological processes.
Chemical Weathering	When rocks are broken up by chemical reactions. *e.g. gases in air making rainwater slightly acidic which then reacts with minerals in rock wearing them away.*
Biological Weathering	When rocks are broken up by living organisms. *e.g. growing plants splitting rocks apart with their roots.*

Physical Weathering	When rocks are broken up by physical processes. *e.g. changes in temperature causing expansion and contraction over time, cracking rocks.*
Expanding	Rocks get bigger when they are heated.
Contracting	Rocks get smaller when they are cooled.
Freeze-Thaw Action	Water gets into cracks in rocks, freezes, expands and then forces the crack to get bigger.
Erosion	The movement of loose and weathered rock.
Abrasion	When rock fragments bump into each other and are worn away.
Sediment	Bits of rock and sand in streams or rivers.
Glacier	Rivers of ice that move slowly but can transport large pieces of rock.

4. Sedimentary Rocks

Sedimentary Rocks	Formed when layers of sediment build up over time followed by compaction then cementation. *e.g. sandstone, mudstone*
Compaction	Pressure forces water out from the gaps between grains squashing the grains closer together.
Cementation	Dissolved minerals between the gaps act as a glue and 'cement' the grains together.
Sedimentary Rock Texture	They are always made from rounded grains. Properties depend on the type of sediment that forms them.

The Rock Cycle	

5. Materials in the Earth

Native State	Metals found as pure elements in rocks.
Ores	Rocks that contain enough of a metal / metal compound to be worth mining.
Extracting Ores	Ores are obtained by mining, then crushed and chemical reactions used to obtain the metal.
Mining Problems	Damages the environment by destroying habitats and causes pollution.
Rare Metals	Hard to obtain which makes them expensive.
Recycling	Using a material again.
Recycling Advantages	Cuts down on pollution from mining and landfill sites, allows supplies to last longer and requires less energy.

Work through memorising the information – highlight each definition once you know it. When you have completed your highlighting completed the gap fill and activities on the second sheet to support your retrieval practice.

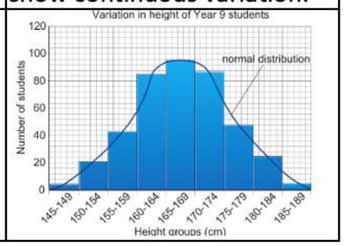
Science Knowledge Organiser

9A Genetics and Evolution

1. Environmental Variation

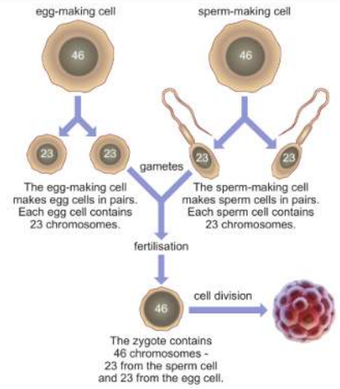
Environment	An organisms surroundings - affected by physical environmental factors and living organisms.
Characteristics	The features of an organism.
Variation	The differences between characteristics of organisms.
Environmental Variation	Variation caused by an organism's environment *e.g. hairstyle*
Continuous Variation	Variation that can have any value between two points *e.g. height, mass*
Discontinuous Variation	Variation that can only have a value from a limited set of values *e.g. eye colour*
Classification	Sorting organisms into groups.
Species	The smallest group an organism is classified into. Members of the same species can reproduce together and produce fertile offspring.

2. Inherited Variation

Inherit	Offspring / children get a mixture of characteristics from their parents.
Inherited Variation	The variation in characteristics inherited from parents *e.g. blood group*
Genetic Information	The instructions for inherited characteristics stored inside the nuclei of cells.
Gametes	Sex cells (sperm and egg)
Sexual Reproduction	Two gametes fuse together during fertilisation.
Zygote	Fertilised egg cell formed during fertilisation. Contains genetic material from both parents.
Normal Distribution	Bell shape usually given by plotting characteristics that show continuous variation.
Normal Distribution Example	

3. DNA

Watson and Crick	Used data from themselves and other scientists to build the first model of DNA in 1953.
Rosalind Franklin	Took x-ray images of DNA and showed it was a spiral structure.
Chromosomes	DNA is found in structures called chromosomes inside nuclei of cells.
Human DNA	Human cell nuclei contain 46 chromosomes (23 pairs).
Genes	A gene is a section of DNA /a chromosome.
Sex Chromosomes	Determines sex of offspring. Girls have two X chromosomes, boys have an X and a Y.
Cell Division	The splitting of a parent cell to form two daughter cells.

Zygote Formation	

4. Genes and Extinction

Adaptations	Features of an organism to help it survive in its habitat.
Ecosystem	All the physical environmental factors and living organisms in a habitat.
Endangered	When a species is at risk of becoming extinct.
Extinct	When a species no longer exists.
Competition	Organisms fighting over the resources that are available.
Native	A species that has always lived in an area.
Squirrels	Red squirrels are native to the UK and grey squirrels came to the UK in the 1870's. Grey squirrels can store more fat to survive the winter and can digest unripe acorns unlike red squirrels. This has meant grey populations have increased leaving less food for red squirrels.
Biodiversity	The number of different species within an area.
Preserving Biodiversity	Banning hunting, set up nature reserves, start breeding programmes and gene banks.
Gen Banks	Storing parts of organisms (seeds, gametes etc.) to grow if they become extinct.

5. Natural Selection

Natural Selection	A change in the environment causes certain characteristics to be 'selected' to pass on to the next generation.
Peppered Moths	Most peppered moths were pale in the 1850's. Then factories started churning out soot, turning trees black. Birds could now easily spot the pale moths to eat them. More black moths survived and reproduced, increasing their numbers. This is an example of natural selection.
Evolution	A change over time in the characteristics of organisms.
New Species	As populations evolve they can become new species.
Darwin's Theory of Evolution	Charles Darwin and Alfred Russel Wallace developed a hypothesis that natural selection causes evolution.

Lesson	Memorised?
1. Environmental Variation	
2. Inherited Variation	
3. DNA	
4. Genes and Extinction	
5. Natural Selection	

Science Knowledge Organiser

9B Plant Growth

1. Reactions in Plants

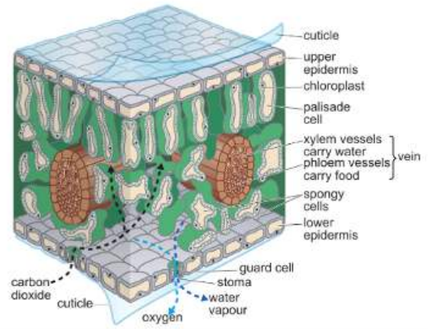
Reactants	The substances that take part in a chemical reaction.
Products	The new substances made in a chemical reaction.
Photosynthesis	A process that plants use to make their own food.
Photosynthesis Word Equation	carbon dioxide + water ⟶ glucose + oxygen
Chloroplasts	Where photosynthesis occurs inside plant cells.
Chlorophyll	A substance inside chloroplasts that captures the light energy needed for photosynthesis.
Limiting Factor	A variable that slows down the rate of photosynthesis.
Aerobic Respiration	The process by which living organisms release energy stored in glucose.
Aerobic Respiration Word Equation	glucose + oxygen → carbon dioxide + water
Phloem	The vessels inside plants that transport glucose.

2. Plant Adaptations

Adaptations	Features that something has to enable it to do a certain job.
Root Adaptations	They are branched and spread out, helping them to get a large volume of water.
Root Hair Cells	Increase the surface area of roots so that more water can be absorbed.
Xylem	The vessels inside plants that transport water.

Uses of Water	- photosynthesis - keeping leaves cool - filling up cells to keep them expanded and firm
Palisade Cells	Cells in a leaf adapted to carry out photosynthesis by having lots of chloroplasts.
Cuticle	A waxy layer on the outside of a leaf that stops them from losing too much water.
Stomata	Small holes in a leaf that open and close to allow gas exchange.
Guard Cells	The cells that open and close the stomata.
Gas Exchange	The swapping of different gases from inside the leaf and the atmosphere.

Structure of a Leaf



3. Plant Products

Lipids	Insoluble substances that include fats and oils.
Uses of Lipids	- Found in the cuticle, making it waterproof - make parts of the cell like cell membranes - energy store found in seeds
Polymer	A substance made up of a long chain of repeating groups of atoms (monomers).
Starch	A polymer formed by linking together glucose molecules.
Uses of Starch	Stored in the chloroplast until photosynthesis stops then broken down into sugars to be transported. It can then be converted to starch and stored in storage organs or used to make cellulose.
Testing for Starch	Iodine solution will turn blue-black is starch is present.
Proteins	Polymer formed by joining long chains of amino acids.
Nitrates	Needed to make amino acids.
Germination	Water and oxygen enter seed allowing molecules to move around. Enzymes released that digest starch into glucose which enters the embryo allowing it to respire and grow.

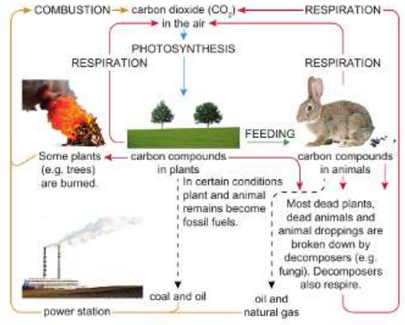
4. Growing Crops

Yield	The amount of useful product you get from a crop.
Increasing Yield	Forests are cut down, hedgerows removed, machines used
Fertilisers	Contain mineral salts that plants need to grow.
Decomposers	Microorganisms that break down manure and release mineral salts.
Pesticides	Kill pests
Insecticides	Kill insect pests
Fungicides	Kill fungi that cause plant disease
Herbicides	Kill weeds (weedkillers) that compete with crops for resources- they are selective so only kill the weeds
Variety	Group of plants bred for a certain characteristic.
Cross-Breeding	Breeding different varieties together to produce offspring with characteristics of both.
Selective Breeding	Choosing organisms to breed based on the characteristics that you want in the offspring.

5. Farming Problems

Fertiliser Problems	Can wash into rivers causing fast growth of algae which blocks out the light causing plants to die. Decomposers break down dead material using up oxygen.
Pesticide Problems	Some do not break down in the environment (they are persistent) so move up the food web.
Varieties Problems	They are identical so a disease will affect them all. Biodiversity is reduced.

The Carbon Cycle



Lesson	Memorised?
1. Reactions in Plants	
2. Plant Adaptations	
3. Plant Products	
4. Growing Crops	
5. Farming Problems	

Science Knowledge Organiser

9E Making Materials

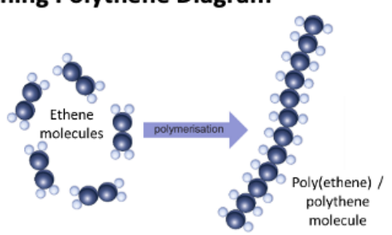
1. About Ceramics

Ceramics	Range of hard, durable, non-metallic materials, generally unaffected by heat. *e.g. glass, china*
Ceramic Properties	• Hard, strong and brittle • High melting point and heat resistant • Good insulators of heat and electricity • Very unreactive
Glass	Hard, rigid, unreactive and can be transparent making it ideal for windows, bottles and jars.
Porcelain	Rigid, strong when compressed and an electrical insulator making it ideal to support electrical cables on pylons.
Ceramics	Heat resistant so used for brakes in high-performance cars
Raw Materials	Clays are used for making pottery and sand for glass.
Using Clay	When heated, chemical reactions occur forming new compounds. When cooled, crystals form and bind together in the ceramic.
Crystal Size	Dependent upon speed of cooling. Slower cooling produces larger crystals.
Lattice Structure	Grid-like structure formed by crystals.
Bonds	Because atoms in a lattice structure are joined by strong bonds it explains why ceramics are so stiff and have high melting points.

2. Polymers

Polymer	Substances that have molecules made of long chains of repeated groups of atoms.
Monomer	Small molecule joined with the identical molecules to form polymers.
Rubber	Polymer from certain trees. Soft and sticky when hot, but hard and brittle when cold.
Vulcanisation	Rubber is heated with sulfur to form cross-links between molecules making it harder and tougher.
Natural Polymer	Polymers found naturally. *e.g. rubber, DNA, proteins*
Synthetic Polymers	Polymers made in laboratories mainly using raw materials from crude oil.
Polymerisation	Reaction that joins together monomers into chains.

Forming Polythene Diagram



Exothermic	Reactions that transfer energy to the surroundings. e.g. polymerisation
Endothermic	Reactions that absorb energy from the surroundings.

3. Composite Materials

Composite Material	Combinations of 2 or more materials with properties of each. *e.g. concrete, paper*
Laminated Glass	Combines layers of glass with a clear polymer
Laminated Glass Properties	Laminated glass is rigid and hardwearing like glass but holds together under impact.
Making Composite Materials	Many are made by mixing fibres into a liquid resin which then sets hard.
GRP (Glass Reinforced Plastic)	Composite of glass fibres in a polyester resin. Used in boatbuilding as it is strong, light and slightly flexible.
Concrete	Composite material made from a mixture of cement, sand, aggregate and water.
Concrete Properties	Strong, hardwearing and easy to mould into shapes.
Aggregate	Crushed rocks
Reinforced Concrete	In building works, steel rods are also added to make it even stronger.
Cement	Mainly calcium oxide which is made by roasting calcium carbonate (limestone) in a thermal decomposition reaction which is endothermic

Thermal Decomposition of Limestone
Calcium carbonate → calcium oxide + carbon dioxide

4. Problems With Materials

Finite	Limited resource that will eventually run out.
Fossil Fuels	Usually used in the manufacture of materials.
Incomplete Combustion	Produces carbon monoxide and soot due to lack of oxygen
Sulfur Dioxide	Caused by sulfur impurities in fuel. Leads to acid rain.
Nitrogen Oxides	Caused by high combustion temperatures. Form acid rain.
Carbon Dioxide	Traps the Sun's energy, increasing the greenhouse effect, leading to global warming.
Carbon Capture Technology	Technology used to remove carbon dioxide from waste gases given off.
Toxic Substances	Pass along the food chain as organisms eat smaller animals.
Non-Biodegradable	Materials that do not break down naturally.

5. Recycling Materials

Recycling	Using the same materials again.
Recycling Benefits	Reduce use of finite resources, save fuel/energy, reduce landfill use.
Recycling Metals	Can be melted down and used again.
Recycling Glass	Can be crushed, melted and moulded into new glass.
Recycling Polymers	Difficult and expensive to separate different polymers so recycling levels are low.
Recycling Paper	Water added, filtered, heated and mixed to form pulp, squeezed and dried to form paper.
Recycling Concrete	Crushed using large machines and used aggregate.

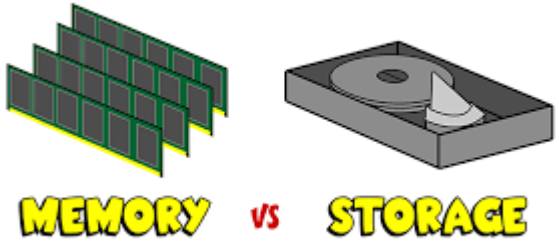
Lesson	Memorised?
1. About Ceramics	
2. Polymers	
3. Composite Materials	
4. Problems With Materials	
5. Recycling Materials	

Computer Science Knowledge Organiser

COMPUTING SYSTEMS

Modern computer systems receive an input, process that data and then produce an output. The data can be sored in memory. They are designed to automate any process by a program. To execute programs that operate on data.

Computing systems need a **processor**, **memory**, and **storage**. Modern systems also rely heavily on **communication** between them.



Communication Computing systems exchange information and form networks **Programs** and **data** are transferred between computing systems, when required.

"AI has by now succeeded in doing essentially everything that requires 'thinking' but has failed to do most of what people and animals do 'without thinking' – that, somehow, is much harder!"
Donald Knuth, author of *The Art of Computer Programming, in **1981***
Programming computers to learn from experience

The processor (CPU)the component that **executes** program instructions.

An instruction may:

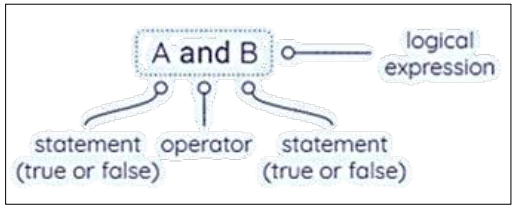
- Perform arithmetic or logic operations on data
- Perform input/output of data
- Control program flow

The **storage** (secondary memory) is the set of components that **stores** programs and data.
Storage is **persistent**: it retains its contents when the power is off.

Main memory is referred to as RAM. The main component that **stores** the programs and data **currently in use**.

Memory is **volatile**: its contents are lost when the power is off.

Logical operations operate on statements that are **true** or **false**. There are three basic logical operations. AND OR NOT



Logical expressions — **logic circuits** can be represented using diagrams

Logical operations — logic gates can be represented using symbols

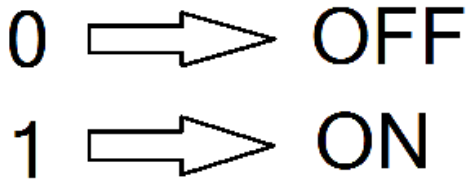
FREE or OPEN software is where creators of a program can choose to provide access to its **source code**. This means that anyone can 'see inside' the program to understand how it works, check for errors, suggest improvements, and 'remix' it. Whilst still acknowledging the source.

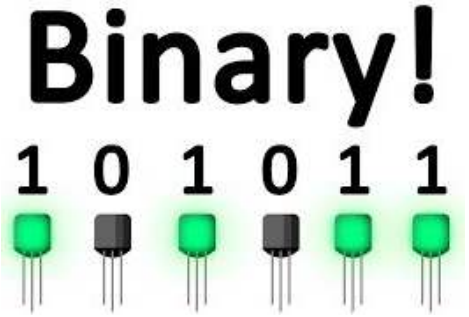
Computer Science Knowledge Organiser

Binary

Key Words	
Bit (b)	The smallest unit of data. 0 or 1.
Nibble (N)	4 bits
Byte (B)	8 bits (note the difference between b and B)
Kilobyte (KB)	1000 bytes. Note KB is different from Kb.
Megabyte (MB)	1000 KB
Gigabyte (GB)	1000 MB
Terabyte (TB)	1000 GB
Petabyte (PB)	1000 MB
Binary number	A number system that contains two symbols, 0 and 1. Also known as base 2
Base 2 number system	A number system where there are only 2 digits to select from.
data	Units of information. In computing there can be different data types, including integers, characters and Boolean. Data is often acted on by instructions.
Denary (also known as decimal)	The number system you use. It contains 10 unique digits 0 to 9. Also known as decimal or base 10
Multiplier (also known as place value)	The value of the place, or position, of a digit in a number

Multipliers	128	64	32	16	8	4	2	1
Example binary number	0	0	0	1	0	1	1	1





Representing information with sequences of symbols, is necessary for storing, exchanging and processing information. Information in computers must be represented in a form convenient for processing.

Humans have invented lots of different ways to code information using different sounds, symbols or even lights!

Computers represent all data, including numbers, letters, symbols, images, videos and sounds using binary numbers. All binary numbers are made up of the digits) and 1.

0s and 1s are called binary digits, or bits. All characters are represented using sequences of bits.

Computers only use the two symbols 0 and 1 because all computers are built out of electrical switched which can only be on (1) or off (0).

Multipliers or weights are the amount each digit in a sequence is worth e.g the number 30 contains three 10s and zero 1s . 10 and 1 are the multipliers or weights. Binary numbers use different multipliers or weights

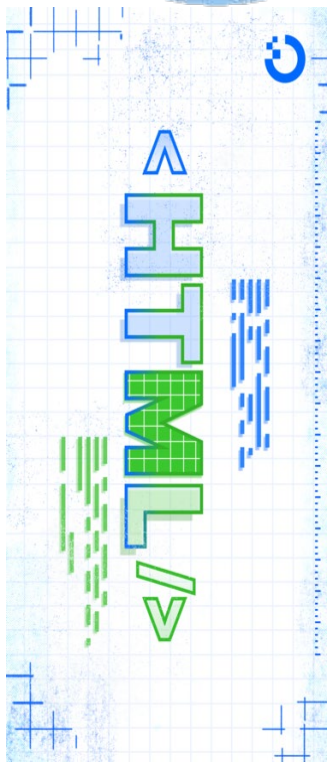
To convert from binary to decimal (also known as denary) multiply each binary digit with its multiplier, then add up the products to work out the decimal number. For example in the binary number above 1 x 16 =16 4 x1 = 4 1x2 = 2 and 1x1 = 1 and 16 + 4 + 2 + 1 = 23

Computer Science Knowledge Organiser

HTML

Key Words	
World Wide Web	Collection of webpages connected together by hyperlinks, using the Internet (Usually shortened to WWW)
Internet	A global network of computers all connected together
Webpage	A hypertext document connected to the world wide web
Website	A collection of webpages with information on a particular subject
Web browser	The software which displays a webpage or website on a computer
Uniform Resource Locator (URL)	An address that identifies a particular file or webpage on the internet
HTML	Hyper Text Mark-up Language – describes and defines the content of a webpage
Web script	A type of computer programming language used to add dynamic features to a webpages
Multimedia	Content that uses a combination of different types of media – for example, text, audio, images
Hyperlink	A link from a hypertext document to another location, activated by clicking on a highlighted word or image
Hotspot	An area on a computer screen which can be clicked to activate a function, especially an image or piece of text acting as a hyperlink
Navigation	The elements of a website that allows the user to move around the website. This is usually in the form of a menu or hyperlinked text or buttons
JPG	The main file type used for mages on the world wide web – uses lossy compression
PNG	Another type of image file used on the world wide web – supports transparency and uses lossless compression

Definitions: What does it do?	
<html>	Root of a HTML document
<body>	Contents of the page
<head>	Information about a page
<title>	Table title/defines title
<h1>,<h2>,<h3>	Headings
<p>	Paragraph
<img>	Image
<a>	Anchor (used in hyperlinks with href)
,	Order/unordered list
	List item
<table>	Creates and defines table
<tr>	Table row
<td>	Table data
	Bold
 	Linebreak
	Divider
<!-- -->	Comment




```
<!DOCTYPE html>
<html>
<head>
<title>My First Webpage</title>
</head>
<body>
<h1>My First Heading</h1>
<p>My first paragraph.</p>
</body>
</html>
```

Computer Science Knowledge Organiser

PYTHON PROGRAMMING

Python is a **text** based **programming language**. That can be used to create programs, games, applications and much more!

A **program** is a set of precise instructions, expressed in a **programming language**. **Translating** the programming language is necessary for a machine to be able to **execute** the instructions.

To execute a Python program, you need a **Python interpreter**.

This is a program that translates and executes your Python program.

A list is where values can be stored. This is a comma-separated list of values (items) in square brackets.

```
flavours = ["strawberry", "chocolate", "mint",
"cherry","raspberry"]
```

This is an data structure organised in a structure, each item has its own index indicating its position in the list.
NOTE: List item numbering starts from 0—zero based system

When this code is executed
print (flavours[2])
Mint will be output as it is looking in the list flavours and selecting index position 2 to output

Arithmetic operators + addition, - divide, * multiplication, / division, // integer division
% remainder of integer division, ** exponentiation (to the power of)

Keywords	
Variable	Stores a value/data – Can be changed during the program
Float (FLOAT)	Decimal point
Integer (INT)	Whole number
Boolean (BOOL)	True or False
String (STR)	Letters, numbers, symbols inside speech marks
Data types	The different data that can be stored in a variable
Sequence	A set of instructions or rules that an algorithm uses have to be in the right order.
Syntax Error	A syntax error is a mistake in your Python program that prevents it from running (executing). Syntax errors are like spelling/grammar errors or logic error

Use an structure , a (**while**) when the program needs to **repeat** actions, while a **condition** is satisfied.

for loops are convenient for **iterating** over any sequence of elements

Walk through the program keeping track of what is happening to lists and variables as the loops are executed.

Computer Science Knowledge Organiser

MOBILE APP DEVELOPMENT

Key Words	
abstraction	Identify the important aspects to start with
algorithm	Precise sequence of instructions
Application (app)	Software designed to run on a mobile device
Computational thinking	Solving problems with or without a computer
debugging	Looking at where a program might have errors or can be improved
blocks	Scratch bricks that we can use to code algorithms
decomposition	Breaking down a problem into smaller parts
execute	A computer precisely runs through the instructions
GUI	Graphical User Interface
iteration	Doing the same thing more than once
selection	Making choices
sequence	Running instructions in order
variable	Data being stored by the computer

Sequence, **selection** and **iteration** are all processes. In order for computers to perform tasks there is more that is needed. For example a computer will take an **input** (this might be automatic or via human input) which the computer will then **process** and the **output** will be visible on the computer monitor.

A mobile application, most commonly called an app, is a type of application software designed to run on a
mobile device, such as a smartphone or tablet computer.

App Lab is a block or text based programming language. This allows creation and sharing of apps.

The point of an app is to connect and interact with users.
App creators tend to have an idea, a problem or a task that they want to develop user an app. These can be huge or relatively small ideas.
Decomposing the problem helps us make the task less daunting and more achievable. This involves breaking down the task into smaller more manageable parts to start with.

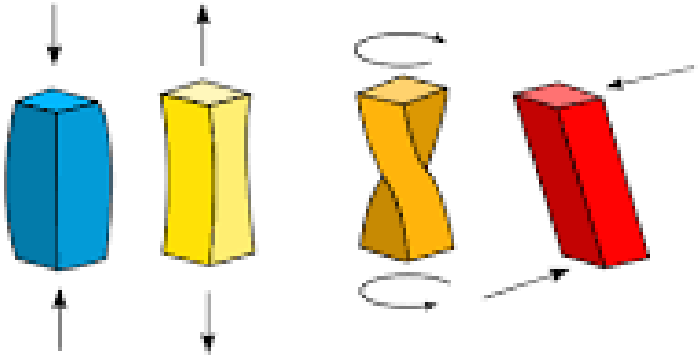
Most computers have an environment with tiles, icons and/or menus. These allow users to interact.
This type of interface is called the **graphical user interface (GUI)** because the user interacts with images through a mouse, keyboard or touchscreen. The GUI needs careful design consideration so that the user experience is a positive one so they want to continue to use it.

Making sure the app is successful and actually does what it was intended to do is important.
Setting **success criteria** should be determined at the start of the project and can be revisited frequently.
The success criteria should be clear and easy to follow.

Evaluating and **debugging** allow for judging the quality of the app and enables errors to be corrected and improvements to be made.

Mechanical Properties

Tensile Strength	Material's resistance to the tension caused by pulling force.
Compressive Strength	Material's resistance to a crushing or squeezing force.
Shear Strength	Material's resistance to two parallel forces acting in opposite directions.
Torsional Strength	Material's resistance to a twisting force.



Compression Tension Torsion Shear

Strength	The ability of a material to resist a force applied.
Hardness	The resistance of a material to scratching and wear.
Toughness	The ability of a material to not break when a force is suddenly applied.
Malleability	The ease with which the shape of a material can be changed without the material breaking.

Physical Properties

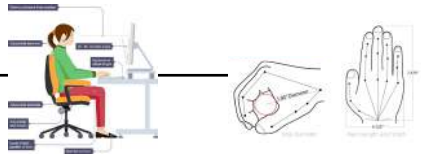
Density	The mass of a material per unit volume.
Electrical Conductivity	The ability of electricity to pass through a material.
Absorbency	The ability of a material to draw in moisture.

Design Specification – Key Questions

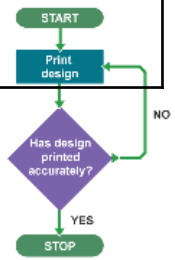
A	**Aesthetics**	What shape should the product be? What colour should be product be? What texture should the surface have?
C	**Cost**	What should the cost of the product be?
C	**Consumer**	Who is the client or the user of the product? What features of other similar products should it have? Does the client have any specific needs or wants for the product?
E	**Environment**	Should the product be made from recycled materials? How should the product be packaged? How will the product be disposed of when it is no longer needed?
S	**Safety**	What safety risks have to be considered? What safety standards must the product meet?
S	**Size**	How long, wide and tall should the product be? How much should the product weigh?
F	**Function**	What will the product be used for? How will it work? How should it be tested?
M	**Materials and Manufacturing**	What materials should the product be made from? Are there any limits on the sizes of the available materials? How many products need to be made? Which processes should be used to make the product?

Ergonomics and Anthropometrics

Anthropometrics is the practice of taking measurements of the human body and provides categorised data that can be used by designers. Anthropometrics help designers collect useful data, eg head circumferences when designing a safety helmet. In this example, as there is a large variation in size, the designer would need to build some adjustment into the safety helmet design.



Ergonomics can incorporate the use of **anthropometric data** when designing products to improve the user experience. If a designer doesn't use anthropometric data during the design process, it can lead to a poor user experience that causes discomfort, pain and potential injury. **Ergonomics** is a consideration that leads to a product being designed in a way to make it easy to use. Size, weight, shape, position of buttons and controls are all aspects that contribute to it being ergonomically designed.



How can we reduce our impact on the environment?

Use **renewable** materials rather than non-renewable means these can be replenished.
If non-renewable materials are used such as plastic (oil) **carbon emissions** are given off resulting in global warming.
Choosing **biodegradable** materials means they will break down naturally when the product comes to the end of its life. Non-biodegradable materials that have not been recycled will end up in the landfill or the sea damaging animals and habitats.
Apply the **6Rs** to ensure minimal impact on the planet.

Microcontrollers are programmable components that acts like a small computer within a single integrated circuit.

Peripheral Interface Controller **PIC** is a commonly used microcontroller

Flowchart program is a set of instructions laid out using flowchart symbols that tells a microcontroller what to do.

Advantages And Disadvantages Of Using Plastics

- Plastics are made from a **non-renewable** resources which cannot be replaced.
- Plastics are **non-biodegradable** and will not decay if disposed of in landfills or the the sea causing damage to animals and habitats.
- Not all plastics can be recycled.

+ Plastics are **strong** and **durable.**
+ Plastics come in a range of sizes and colours.
+ Plastics can be easily shaped.
+ Plastics are **insulators** and are **waterproof.**

The **Green Dot** does not necessarily mean that the packaging is recyclable, will be recycled or has been recycled.

The **Mobius Loop**. This indicates that an object is capable of being recycled, not that the object has been recycled or will be accepted in all recycling collection systems.

Age warning logo
This indicates the product is not suitable for under 3 year olds.

Design & Technology Knowledge Organiser

3

Tools and Equipment	Name	• Use • Safety point
	Coping Saw	To cut wood **Safety Rules when using it** Work should be clamped in a **vice**
	Half Round File	Smoothing wood or Styrofoam **Safety** Work should be clamped in a vice
	Vice	Used to hold work in place **Safety** Allows work to be safely clamped while being cut or smoothed
	Pillar Drill	Used to drill holes in wood or plastic **Safety** You must wear goggles, an apron, tie your hair back, have the guard down and worked clamped securely




Computer Aided Design
Computer Aided Manufacture

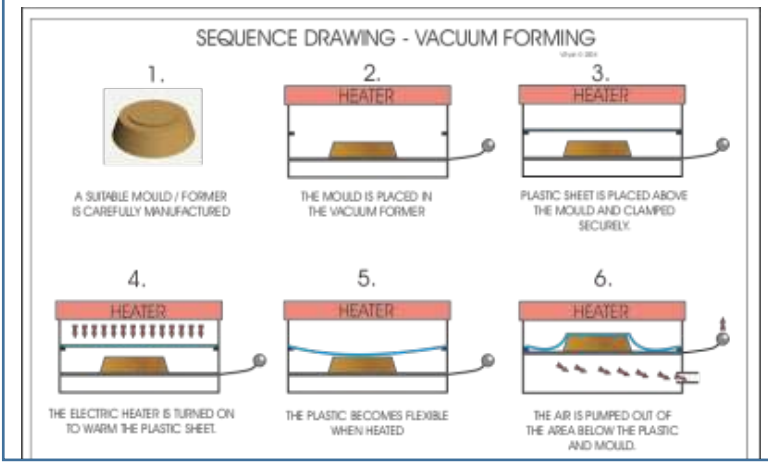
CAD	This is using computer software to draw and model a product. **Examples:** 2D Design, Photoshop, Macromedia Fireworks and Sketch Up **Advantages:** • Designs can be shared electronically • Accurate • Designs can be easily edited **Disadvantages:** • Software and training can be expensive • Security issues
CAM	This is using computer software to control machine tools to make products. **Examples:** Laser Cutter, 3D printer **Advantages:** • Faster • Complicated shapes are easily produced • Exact copied are easily made • Machines can run 24/7 **Disadvantages:** • High initial set up costs as CAM machines are expensive

Most polymers are synthetic. This means they are man-made. They are usually made from crude oil which can be obtained by drilling underground or under sea level. Crude oil is a non-renewable resource- this means that it is not replaced as it is used.

Thermoplastic polymers can be reshaped when heated. They can also be recycled.

Thermosetting polymers cannot change shape when reheated and cannot be recycled. They have extra links between the individual chains of polymer. These links stop the chains being able to move, meaning that thermosetting polymers are typically stronger and more rigid than thermoplastics polymers.

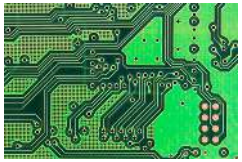
Vacuum Forming is a process that uses heat and air pressure to shape a thermoplastic. It can be used to manufacture **blister packaging.**





Thermoplastic Polymers

Type	Properties	Uses
HDPE *High Density Polyethylene*	Strong and stiff	Pipes, buckets, bowls
PET *Polyethylene Terephthalate*	High strength and good toughness. Heat resistant	Drinks bottles and food packaging
HIPS *High Impact Polystyrene*	Reasonable strength and good toughness	Packaging
Acrylic	Can be transparent Hard wearing and tough	Plastic windows, bath tubs


Thermosetting Polymers

Type	Properties	Uses
Epoxy Resin	High strength, stiff and brittle Excellent temperature resistance	Printed circuit boards, cast electrical insulators
Melamine Formaldehyde	Strong, stiff and hard Resistant to many chemicals and stains	Laminate coverings for kitchen worktops
Urea Formaldehyde	Good strength, rigid and hard Warm to the touch	Plugs and plug sockets

Metal sources

Ores are naturally occurring rocks that contain metal or metal compounds in sufficient amounts to make it worthwhile extracting them.

Iron ore is used to make iron and steel. Copper is easily extracted, but ores rich in copper are becoming more difficult to find.

Metals are grouped into the following categories or classifications:

- **ferrous** - contain iron, rust easily and are magnetic, eg iron and steel
- **non-ferrous** - do not contain iron, do not rust and are not magnetic, eg copper and aluminium
- **alloys** - a mixture of more than one metal, eg bronze or brass.

Environmental impact

When considering the ecological and social implications of using metal, its non-renewable nature is the main concern. Metal cannot be grown and is a finite resource - there is only a certain amount within the Earth's crust.

Steel is made in huge and exceedingly hot cauldrons. Its production uses a lot of energy and contributes approximately 5 per cent of the world's greenhouse gas emissions.

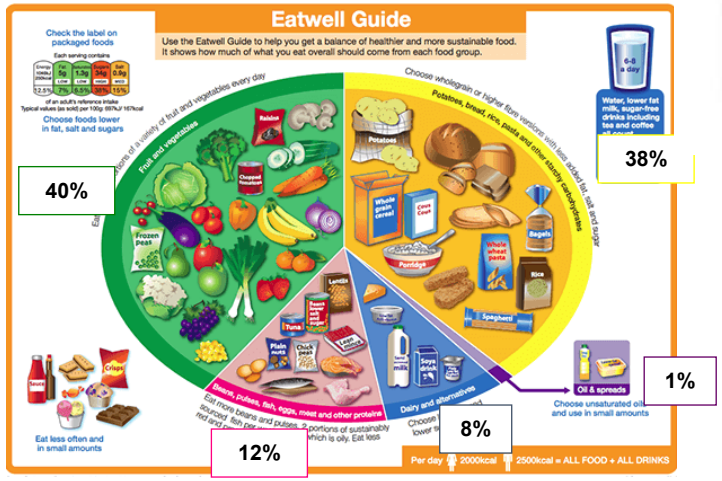
Ferrous metals

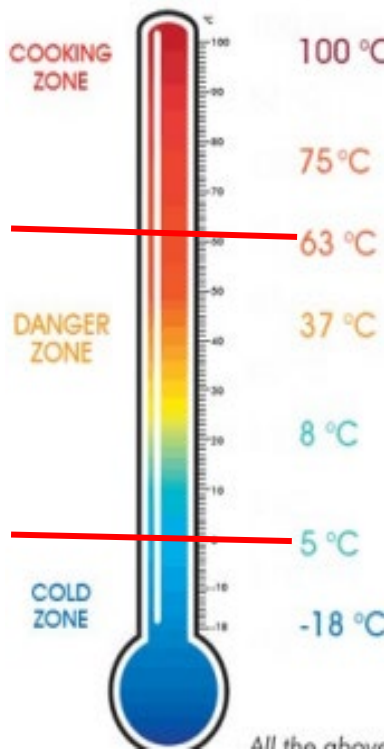
	Strength and weaknesses (properties).	Uses
Cast iron	Cheap to produce, easy to cast, is rigid, has high compressive strength, machines and absorbs vibrations well, has low tensile strength, it is brittle and cannot be forged	Pans, brake discs, large castings
High-carbon steel (tool steel)	Hard but brittle, less malleable than mild steel, good electrical and thermal conductivity	Taps and tools, eg screwdrivers and chisels
Low-carbon steel (mild steel)	Ductile and tough, easy to form, braze and weld, good electrical and thermal conductivity but poor resistance to corrosion	Nuts, bolts, screws, bike frames and car bodies

Non Ferrous metals

	Strength and weaknesses (properties).	Uses
Aluminium	Light in weight and malleable but strong, a good conductor of heat and corrosion resistant	Drink cans, saucepans, bike frames
Copper	An excellent electrical conductor of heat and electricity, extremely malleable and can be polished, oxidises to a green colour	Plumbing fittings and electrical wires, professional chef's saucepans
Silver	A precious metal that is soft and malleable when heated, highly resistant to corrosion and an excellent electrical conductor of heat	Jewellery

Food Technology Knowledge Organiser





Danger zone: because microorganisms multiply quickly at this temperature 5◦C to 63◦C

Fridge :0◦C to 4◦C

Freezer:
-18◦C to -23◦C

Microorganisms are dormant below 5◦C.

Above 63◦C they are killed.
Reheat foods :75◦C

Key Words

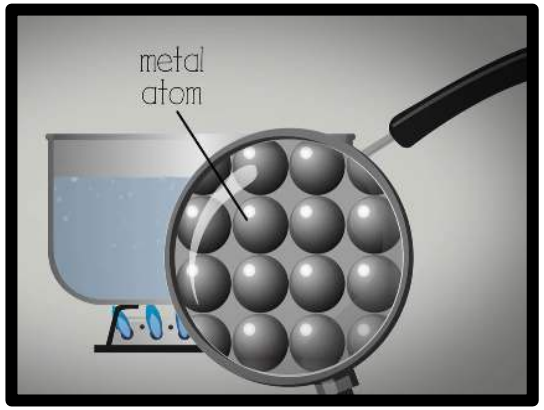
Microorganisms- Mould, Yeast. Bacteria
Fermentation-Yeast+FATTOM= Carbon dioxide and Alcohol
Pathogens: Bad bacteria
Salmonella-raw meat, poultry, eggs, unpasteurized milk
Listeria- Soft cheeses, ready meals, pates , deli meats
Campylobacter-raw meats, unpasteurised milk and contaminated water

Food Technology Knowledge Organiser

Functional and chemical properties of ingredients in cake and bread making

Cupcakes	
Self raising flour	Make the cake rise, Structure, dextrinises –add colour
Caster sugar	Sweetness, aeration
Margarine	Makes the cake moist, aeration
Egg	Binds mixture

Bread	
Strong flour	Structure, Gluten stretches helps bread rise and sets shape
Yeast	Produce CO2 when all conditions provided so makes bread rise.
Water	Binds ingredients, provides moisture for yeast.



Why food is cooked:

1. To make it safe to eat
2. To improve the shelf life
3. To develop flavour
4. To improve texture
5. To give variety

Methods of heat transfer

Convection - when the environment (air, water or oil) is heated up.
e.g. - baking a cake
- boiling an egg

Conduction - when heat is transferred directly.
e.g. - frying an egg

Radiation - when heat radiates
e.g. - toast

Effect of cooking on protein

Protein denaturation:
the process of altering a protein's molecular characteristics or properties

Proteins: Coagulation
The process of turning a liquid into a solid

Example: Egg

Food Technology Knowledge Organiser

Fruit & vegetables

- 5 portions a day.
- 1 portion is a handful or 80g.
- Eat a balance of fruit and vegetables.
- Fruit and vegetables should make up at least 1/3 of each meal.
- It doesn't matter how you eat them: fresh, frozen, tinned, dried or in a juice format.

Starchy foods:

- Choose wholegrain or high fibre verisons.
- Each meal should be bsed on at least 1/3of starchy carbohydrates.
- Starchy carbohydrates include: pasta, rice, potatoes, bread, breakfast cereals.

Water

Don't forget to drink water to prevent dehydration.

Sugar

Eat sugary / sweet foods in small quantities and less often.

Protein-rich, non-dairy foods / Dairy and alternatives

1/3 of your meals should be made up from any combination of the following:

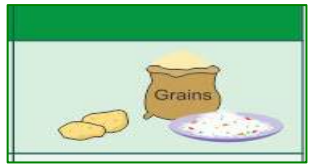
- dairy foods
- animal protein foods
- peas and beans
- dairy and meat alternatives.

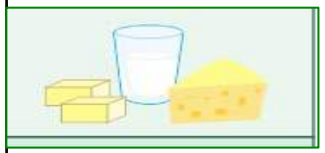
Oils and spreads

Although important we should eat these sparingly and use low fat options.

Food Technology Knowledge Organiser

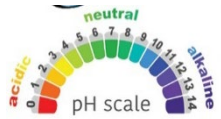
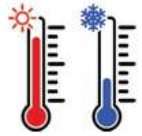
Nutrient	Functions	Sources
Protein	Growth – known as the body's building blocks.	Animal products – meat, fish, dairy; plants – lentils, nuts, seeds
Carbohydrates	Source of energy. Divided into: simple carbohydrates – sugars and complex carbohydrates – starches and dietary fibre. Starches provide slow releasing energy and add bulk	complex – bread, pasta, rice, potatoes (chose wholemeal versions for fibre and potato with the skin
Fats	Source of energy. Four types: monounsaturated, polyunsaturated (omega 3 and 6), saturated and trans fats. Fats are stored under the skin and are essential for health. Too much fat can cause health problems	Monounsaturated – olive oil, avocados; polyunsaturated – oily fish, nuts, sunflower oil, soya beans; saturated – full-fat dairy, fatty meats; and trans fats – many snack foods
Vitamin	Essential for many processes, eg bone growth, metabolic rate, immune system, vision, nervous system. Need small amounts only.	A – dairy, oily fish, yellow fruit; B – vegetables, wholegrain cereals; C – citrus fruit, broccoli, sprouts; D – oily fish, eggs, fortified cereals
Minerals- Calcium	Essential for many processes, eg bone growth/strength, nervous system, red blood cells, immune system. Need small amounts only	Calcium – milk, canned fish, broccoli; iron – watercress, brown rice, meat; zinc – shellfish, cheese, wheatgerm; potassium – fruit, pulses, white meat





Food Technology Knowledge Organiser

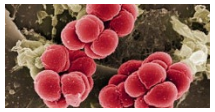
Conditions for Microorganism growth **(FATTOM)**

 **F**	**F**ood-Food provides energy and nutrients for bacteria to grow. High risk foods particularly protein foods such as chicken and dairy products are rich in nutrients and moisture and so promote bacterial growth.
 **A**	**A**cid-Most bacteria reproduce best at a neutral pH level of 7. Acidic foods with a pH below 7, or alkaline foods with a pH above 7, may stop or slow down the rate of bacterial growth.
 **T**	**T**ime- If provided with the optimum conditions for growth, bacteria can multiply to millions over a small period of time via binary fission. This is when a bacterium divides in two every 20 minutes.
 **T**	**T**emperature-Bacteria need warmth to grow. The temperature a food is stored, prepared and cooked at is crucial. If this is not followed correctly then the food will not be safe to eat. The optimum temperature range for bacterial growth is between 5-63°C. This is known as the **danger zone** as it is dangerous for some foods to be in this temperature range for prolonged periods of time**.**
 **O**	**Ox**ygen-Microorganisms that that require oxygen to grow are called aerobic such as most yeast.
 **M**	**M**oisture-Bacteria need moisture in order to grow. This is why they grow on foods with high moisture content such as chicken. Foods that are dehydrated or freeze-dried can be stored for much longer as the moisture has been removed.

Yeast, Mould, Bacteria (Bad bacteria are known as Pathogens

Some Pathogens that causes Food Poisoning:

*Campylobacter-Raw or undercooked meat, particularly raw poultry
Unpasteurised milk
Untreated water.



*E. coli-Raw or undercooked meat and poultry or related products (eg gravy)
Raw seafood products
Unpasteurised milk or products made from it (eg cheese)
Contaminated water
*Listeria-Unpasteurised milk or products made from it
Soft cheeses (eg camembert, brie)
Ready-to-eat foods (eg pre-packed sandwiches, pâté, deli meats)
Unwashed vegetables contaminated with soil
*Staphylococcus aureus-humans carry this in their nose and throat and can be transmitted by coughing or sneezing. Ready-to-eat foods that are hand-made (eg sandwiches)
Cooked meats, Unpasteurised milk and related products.
*Salmonella-raw or undercooked poultry and meat, eggs and unpasteurised milk

Super Learning Day Knowledge Organiser 8

Be Safe

First Aid: Allergies

1. **Call 999/112**
   - tell them you think someone is having an allergic reaction

2. **Ask the casualty if they have an injection with them**
   - people with allergies often carry an injection of adrenaline (auto-injector) with them; if so help them use it
   - help the casualty to sit in a position which helps their breathing

3. **Keep checking their breathing and keep them calm**
   - look at their breathing and listen for any changes
   - reassure them that help is on the way
   - a second injection can be given after 5 minutes if no improvement
   - if they become pale and weak, lie them down with legs raised

4. **Stay with them**
   - **Remember:** your casualty could become unresponsive. Be prepared to start CPR

Be Respected

Contraception

Relate Relationships
0300 100 1234
www.relate.org.uk
Brook 0808 802 1234
www.askbrook.org.uk

A condom works by covering a man's penis with a very thin sheet of latex. The sperm can't get inside the others body to prevent pregnancy and STIs.
Combined oral contraceptive pill It contains artificial versions of female hormones oestrogen and progesterone, which are produced naturally in the ovaries.
If sperm reaches an egg pregnancy can happen. Contraception tries to stop this happening usually by keeping the egg and sperm apart or by stopping the release of an egg (ovulation).

Careers

Employability Skills

These are the skills that will make you attractive to employers – they are the skills employers are looking for

Employability skills:

- communication
- team work
- leadership
- persuasion
- problem solving
- time management

These skills are transferrable across most jobs and are skills that you can develop inside and outside school before you even get a job

Be Healthy

What should everyone know about smoking?

The great majority of the harm from smoking comes from inhaling tobacco smoke which contains **thousands of chemicals**, a significant number of which are **toxic**. Nicotine is the **addictive** substance in cigarettes.

It is **illegal** to sell **e-cigarette** products to anyone under 18 or for adults to buy them on behalf of under-18s
E-cigarettes are **not completely risk free**, but based on current evidence they carry a **small fraction of the risk of cigarettes**

If you, or anyone you know needs support in this area, speak to a trusted adult, a teacher, tutor or head of year. You can also get support with a local stop smoking service; details can be found here:

https://www.nhs.uk/smokefree/help-and-advice/local-support-services-helplines

Be An Active Citizen

How can we avoid getting scammed?

Strategies that scam artists use to access private information:

- Sense of urgency
- Alert that account is in trouble
- Link in email or attachment:
- Too good to be true
- Generic greeting

How to **guard against phishing** and identity theft:

Golden rule = 'if it looks too good to be true, it probably is.'
Be vigilant and always question the motives of the person who is engaging with you, whether it's a Facebook event, a sponsored post, or an unsolicited message

Super Learning Day Knowledge Organiser 8

Be Safe

First Aid: Asthma

1. **Reassure the casualty**
   - Sit them up
   - If it's the casualty's first ever asthma attack then call 999/112 immediately

2. **Assist them with a dose of their reliever inhaler (usually blue)**
   - Using a spacer if they have one every 30 to 60 seconds, up to a maximum of 10 puffs
   - Encourage the casualty to breathe slowly and deeply
   - Maximum 10 puffs
   - Encourage them to find a sitting position they feel comfortable with

3. **If attack does not ease after they have had 10 puffs of inhaler, or if their condition does not improve then call 999/112 for an ambulance**

4. **If the ambulance has not arrived within 15 mins, repeat step 2**
   - If the casualty improves and you do not need to call 999/112, advise the patient to get a same day appointment to see their GP or asthma nurse

Be Respected

Family

Nuclear Family – term for the 'traditional' family structure, which consists of a mother, a father and their children.

Extended Family – these are families where the adult or adults who are taking the role of parent are actually a different relative, for example grandparents, aunts, uncles, etc.

Single Parent Family – where one adult provides the care for the family. People raise children in single parent families for lots of different reasons, including: relationship breakdown; divorce; death of a partner; a partner having to work in another country

Step Family – these are families where at least one of the parents has a child from a previous relationship. Step families are sometimes referred to as blended families.

Same Sex Family – the parents are in a homosexual relationship (both parents are the same sex).

Foster Family – these are families where the children are being looked after by foster parents for a particular length of time.

Adopted Family – these are families where the parent or parents are not biologically related to their children.

childline
ONLINE, ON THE PHONE, ANYTIME
childline.org.uk | 0800 1111

Careers

Equality and Discrimination

Equality - in the workplace this means equal job opportunities and fairness for employees and job applicants. Employers must not treat people unfairly because of reasons protected by discrimination law:

7 types of discrimination: age, gender, sexuality, race, religion, pregnancy and maternity, disability.

Be Healthy

How do we maintain physical health?

A healthier diet and exercise can have a very positive impact on mental health, increased energy levels and focus, reduced likelihood of suffering from some illnesses/diseases or developing these later in life.

Different people will make different decisions about diet and exercise for a variety of reasons and experimenting with different food and exercise choices can be a good way to find out what works for individuals.

Some people might face barriers when trying to make 'healthier' choices or maintain good physical health but these can be overcome

Further guidance:

Speak to form tutor, head of year, school nurse or other member of staff in school

Speak to another trusted adult or health professional outside of school

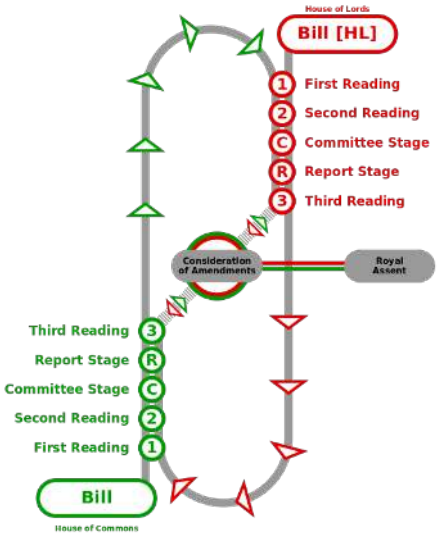
Contact Childline www.childline.org.uk 0800 1111

Visit NHS Live Well: www.nhs.uk/live-well

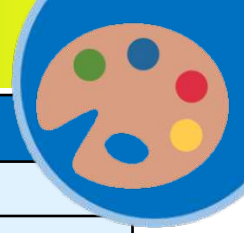
Be An Active Citizen

How are laws made in the UK?

- ❑ Bill
- ❑ House of Commons
- ❑ House of Lords
- ❑ Monarch
- ❑ Act of Parliament

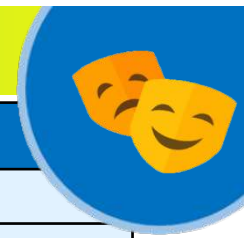


Art – Tier 2 and Tier 3 language



SUMMER: Art	Type	Keyword	Definition
	Tier 2 language	Apocalypse	An event involving destruction or damage on a catastrophic scale.
		Texture	The way in which marks are applied to a piece to display how something might feel.
		Tone (paint)	A tone is where an artist adds grey to a colour.
		Tint	A tint is where an artist adds white to a colour.
		Shade	A shade is where an artist adds black to a colour to darken it down
	Tier 3 language	Mark Making	The different lines, dots, marks, patterns, and textures we create in an artwork.
		Cross-hatching	When the hatching lines are placed at an angle to one another, it is called cross-hatching.
		Hatching	An artistic technique used to create tonal or shading effects by drawing closely spaced parallel lines.
		Scumbling	A shading technique achieved by overlapping lots of little circles.
		Mixed Media	A term used to describe artworks composed from a combination of different media or materials.

Drama – Tier 2 and Tier 3 language



SUMMER: Drama	Type	Keyword	Definition
	Tier 2 language	Stereotype	
		Script	A book with dialogue that an actor reads from
		Tone	The way an actor speaks to show the emotion of their character e.g. an angry tone
		Pitch	High or low e.g. a high pitch can represent a child like character
		Projection	Speaking loud enough for the audience to hear you
	Tier 3 language	Characterisation	Using vocal and physical skills to create a character
		Marking the Moment	Highlighting the most important part of a scene
		Stage Configuration	The way a stage is set out. This determines where the audience sits
		Gait	The way a character walks
		Tableau	A still image

Design and Technology – Tier 2 and Tier 3 language

	Type	Keyword	Definition
SUMMER: DT	Tier 2 language	Polymers	Plastics are a type of polymer composed of chains of polymers which can be partially organic or fully synthetic.
		Conductivity	The ability of electricity to pass through a material.
		Absorbency	The ability of a material to draw in moisture
		Malleability	The ease with which the shape of a material can be changed without the material breaking.
		Density	The mass of a material per unit volume.
	Tier 3 language	Ergonomics	The consideration that leads to a product being designed in a way to make it easy to use.
		Anthropometrics	The practice of taking measurements of the human body and provides categorised data that can be used by designers.
		Microcontrollers	Microcontrollers are programmable components that acts like a small computer within a single integrated circuit.
		Thermoplastic	A type plastic that can be reshaped when heated. They can also be recycled.
		Thermosetting	A type of plastic that cannot change shape when reheated and cannot be recycled.

Computer Science – Tier 2 and Tier 3 language

	Type	Keyword	Definition
SUMMER: Computer Science	Tier 2 language	Communication	Computing systems exchange information and form networks. Modern systems rely heavily on communication.
		Storage	Stores programs and files long term, even when they are not in use. Devices such as hard drives, USB memory sticks or SD cards
		Memory	A device or system that is used to store information for immediate use.
		Input/output	Input device sends information to a computer system for processing, and an output device reproduces or displays the results of that processing.
		Process	A set of instructions currently being processed by the computer processor.
	Tier 3 language	Logical expressions	Logic circuits can be represented using diagrams.
		Logical Operations	Operate on statements that are true or false. Logic gates can be represented using symbols.
		Volatile	Used to store computer programs and data that CPU needs in real time and is erased once computer is switched off
		Non-Volatile	Retains data even if there is a break in the power supply.
		Logic gates	A collection of powered and unpowered circuits and transistors. Includes AND, OR, NOT gates.

English - Tier 2 and Tier 3 language

SUMMER 1: ENGLISH

Type	Keyword	Definition
Tier 2 language	Rhyme	When words sound the same as others, often in alternate lines in a poem.
	Pace	The speed at which something is supposed to occur (or be read, in poetry).
	Intentions	The purpose or reason for doing something.
	Symbolic	Something that is designed to represent (or symbolise) something else.
	Evidence	To provide proof.
Tier 3 language	Metaphor	Comparing something by saying it is something else (e.g. the man was a mountain).
	Stanza	The name given to a group of lines in a poem (like a poem's paragraph!).
	Enjambment	When a sentence in a poem carries on to the next line without and punctuation (so should be read with fluidity).
	Caesura	The term used to name the use of punctuation ***within*** a line in poetry (to create a pause mid-line).
	QTA	The way we write our analytical paragraphs, with quote, technique and analysis.

SUMMER 2: ENGLISH

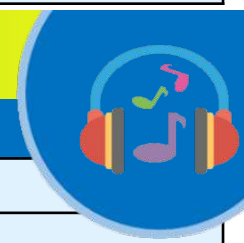
Type	Keyword	Definition
Tier 2 language	Profound	To say something or think in a deep or thoughtful manner.
	Logical	To be reasonable or practical in the way you think or act.
	Engage	To engross or involve an audience, so that you capture their attention.
	Persuade	To successfully encourage someone to think/do/feel something – to influence them in some way.
	Non Verbal Cues	The sharing of messages/feelings through the use of body language, eye contact, gestures etc. (not using words).
Tier 3 language	Imperatives	Words which express the urgency or certainty of something (e.g. you ***must*** or you ***have to***…).
	Colloquial Vocabulary	Informal or slang language, such as 'gonna' or 'nah' instead of 'going to' or 'no'.
	Rhetorical Questions	Questions that are designed to make a reader/audience think. They are questions that do not require or invite an answer.
	Personal Pronouns	Words such as 'you' or 'us' or 'we'.
	Anaphora	The repetition of the same phrase, used at the beginning of successive phrases, such as '***I will not*** fail. ***I will not*** stop. ***I will not*** give up!'

Food technology – Tier 2 and Tier 3 language

SUMMER: Food Tech

Type	Keyword	Definition
Tier 2 language	Microorganism	A microscopic organism, especially a bacterium, virus, or fungus.
	Pathogens	Microorganism (eg bacteria, virus) that can cause disease
	Bacteria	A group of single-celled organisms with a cell wall but no organelles (structure in a cell with a specific function
	Nausea	A feeling of sickness with an inclination to vomit.
	Deterioration	The process of becoming progressively worse
Tier 3 language	Salmonella	A bacteria that occurs mainly in the gut, especially linked to poultry and eggs causing food poisoning.
	Campylobacter	This foodborne illness starts after someone eats or drinks something that has Campylobacter bacteria the bacteria linked to meat and poultry.
	The enzyme Rennet	Rennet, an enzyme found in a calf's stomach, is added to milk, causing the milk protein casein to coagulate into a semisolid substance called curd used for making cheese.
	Fermentation of yeast	The process by which yeast produces carbon dioxide and alcohol when it has all the right conditions.
	Critical temperature zone	Temperature range of 5-63°C in which harmful microorganisms can grow and which must be avoided as much as possible during food-storage

Music – Tier 2 and Tier 3 language



SUMMER: Music

Type	Keyword	Definition
Tier 2 language	**Improvisation**	To make the music up as you go along
	Structure (Twelve Bar Blues)	The way the music is put together. The twelve bar blues has a very specific chord sequence that you need to know
	Lyrics	The words to a song
	New Orleans	Considered to be the home of Blues music
	Introduction	The section of music at the very beginning – usually before the solo voice or instrument enters
Tier 3 language	**Extended chords**	Chords are usually a collection of THREE notes held together. Extended chords add extra notes e.g. 7ths to give a 'blues' feel
	String Bass/ Double Bass	A large string instrument used to play the bass line in Blues and Jazz music
	Saxophone	A WOODWIND instrument, comes in a variety of sizes which determines the pitch – soprano (highest) - alto – tenor and baritone (lowest)
	Big Band	A collection of instruments (like an orchestra) which includes clarinets, saxophones, brass, piano, drum kit and string bass. Sometimes flutes are added too.
	Chord Sequence	A specific collection of harmonies

Geography - Tier 2 and Tier 3 language

SUMMER 1: GEOGRAPHY: Globalisation	Type	Keyword	Definition
	Tier 2 language	Interdependence	The ability for countries/companies to rely on each other for products or materials
		Import	Something that is bought into the country for money
		Export	Something that is sold into the country for money
		Raw-material	Something that is natural and in its unprocessed form. E.g. wood before it is made into paper or furniture or diamonds/gold nuggets before they are made into jewellery
		Manufacturing	The process of turning the raw materials into the final product e.g. a paper mill will turn wood in to paper. Car factory will assemble car parts into a car.
		Sustainability	Something that meets the needs of the present people, without damaging the environment for the future generations
	Tier 3 language	Globalisation	The process of the world becoming more interconnected e.g. via people moving, communication, imports and exports.
		Infrastructure	The structures needed for society to function e.g. roads, cables for phones, pipes, buildings
		Biodiversity	The mix and amount of plants and animals living in an area. The rainforest has a high biodiversity.
		Trans-national company	A company that works over many different countries e.g. A head quarters in the UK, call centre in India, factory in China, shops in USA

SUMMER 2: GEOGRAPHY: Human Disaster	Type	Keyword	Definition
	Tier 2 language	Disaster	A catastrophic event
		Human-made	Something that is caused by people, it is not natural
		Oil (oil rig and oil spill)	A raw material (see above) that is pumped up from under ground. (Oil is then used to make other products like petrol and plastics)
		Global warming	The process of the earth getting warmer as heat is trapped in the atmosphere by greenhouse gases (see below)
		Climate change	The process of the world's climate (average weather) changing owing to global warming. E.g. the UK is experiencing drier summers than normal
	Tier 3 language	Pesticides	A chemical used to kill insects (pests) on plants
		Greenhouse gases	Gasses trap heat into the earth's atmosphere
		Methane	A greenhouse gas that is produced from landfill sites and agriculture. It is seven times worse that carbon dioxide (it traps in 7x more heat into the earth!)
		Delta	a wetland area, where the land meets the sea, its made as the river has deposited material (rocks, soil) there over many years.
		Atolls	a ring-shaped coral reef. An atoll surrounds a body of water called a lagoon.

History - Tier 2 and Tier 3 language

SUMMER 1: HISTORY	Type	Keyword	Definition
	Tier 2 language	Tactic	An action carefully planned to achieve a specific end.
		Trench	Type of excavation in the ground that is generally deeper than it is wide.
		Priority	A thing that is regarded as more important than others.
		Powerful	Having great strength or power.
		Technology	Science or knowledge put into practical use.
	Tier 3 language	Artillery	Large guns used in warfare on land.
		Shell	Projectile whose payload contains an explosive filling.
		Sniper	A military rifle marksman who usually shoots from a great distance.
		Bombardment	The act of dropping bombs from the air.
		Grenade	A grenade is an explosive weapon typically thrown by hand.

SUMMER 2: HISTORY	Type	Keyword	Definition
	Tier 2 language	Migrate	Move from one place to another
		Expulsion	Removing somebody from a place.
		Refugee	A person who has been forced to leave their country due to certain conditions.
		Population	All the inhabitants of a particular place.
		Nation	A large body of people who share common history, culture, or language inhabiting a particular country.
	Tier 3 language	Heptarchy	The name for the seven Anglo-Saxon kingdoms that made up England during this point in time.
		Raid	A rapid surprise attack.
		Nazism	A form of fascism, which goes against liberal democracy and the parliamentary system.
		Windrush generation	A term used to describe West Indies migrants who arrived to the UK between 1948-73.
		Gurkha	Nepalese soldiers who were recruited into the British Army.

Maths - Tier 2 and Tier 3 language

SUMMER 1: MATHS

Type	Keyword	Definition
Tier 2 language	integer	A whole number
	Transformation	A change, in maths we are referring to shapes
	image	The reflection of an object
	approximate	Close to or near. In maths, this is an estimate
	calculate	Work out the answer to. It doesn't always mean that you need to use a calculator
Tier 3 language	root	The reverse of a power e.g. square root of 16 is 4
	translation	The movement of a shape
	Significant figures	A way of rounding numbers for estimating where the first significant figure is the first non-zero digit
	vector	Used to describe movement and tells you how many squares to move horizontally and vertically
	Standard form	A way of writing small or large numbers using powers of 10

SUMMER 2: MATHS

Type	Keyword	Definition
Tier 2 language	gradient	Slope or steepness
	intercept	The point where two objects, in maths it is lines, cross
	quadrant	Split into four, in maths the x and y axis split the grid into quadrants
	perpendicular	At a right angle to
	simplify	Write something in its easiest form. E.g. 6/10 can be simplified to 3/5s
Tier 3 language	multiplier	A quantity by which a given number is to be multiplied
	reciprocal	is the value that when multiplied by another gives the answer of 1. e.g. 1/8 is the reciprocal of 8
	Improper fraction	A fraction where the numerator is bigger than the denominator
	Cross cancel	A method used to simplify fractions when multiplying them
	Linear graph	A graph that is a straight line. This could be horizontal, vertical or diagonal.

MFL - Tier 2 and Tier 3 language

SPRING : MFL

Type	Keyword	Definition
Tier 2 language	Present Tense	a tense expressing an action that is currently going on or habitually performed
	Conjugation	the variation of the form of a verb in a language to show the tense, number, and person doing the action.
	Adjectival agreement	the adjective 'agrees' with the noun it's describing in gender and number.
	Intensifier / quantifier	to give force or emphasis, for example *really* in *my feet are really cold*.
	Metacognition	awareness and understanding of one's own thought processes.
Tier 3 language	SHET (Sp)	**S**on – (they) are **H**ay - (there is/ there are) **E**s ((it) is **T**iene) (it) has)
	IESAO (Fr)	**i**l y a - there is **E**st -is **S**ont -(They) are **A** - (he/she/it) has **O**nt – (they) have
	WWWWW	**W**ho **W**hat **W**here **W**hen **W**hy
	AVOW	**A**djective **V**erb **O**rder of **W**ords
	TOPCAT	**T**enses **O**pinions **P**ronoun phrases **C**onnectives **A**djectives **T**ranslate

SUMMER: MFL

Type	Keyword	Definition
Tier 2 language	Future tense	a tense expressing an action that has not yet happened or a state that does not yet exist.
	conjugation	the variation of the form of a verb in a language to show the tense, number, and person doing the action.
	Adjectival agreement	the adjective 'agrees' with the noun it's describing in gender and number.
	Subject pronoun / direct pronoun	a **subject pronoun** is a personal pronoun that is used as the subject of a verb. **Direct object pronouns** stand in for nouns when it is clear who or what is being talked about, and save having to repeat the noun.
	adverb	An adverb is a word or an expression that modifies a verb, adjective, another adverb, determiner, clause, preposition, or sentence
Tier 3 language	SHET (Sp)	**S**on – (they) are **H**ay - (there is/ there are) **E**s ((it) is **T**iene) (it) has)
	IESAO (Fr)	**i**l y a - there is **E**st -is **S**ont -(They) are **A** - (he/she/it) has **O**nt – (they) have
	WWWWW	**W**ho **W**hat **W**here **W**hen **W**hy
	AVOW	**A**djective **V**erb **O**rder of **W**ords
	PALM	**P**eople **A**ction **L**ocation **M**ood

Religion and Ethics - Tier 2 and Tier 3 language

SUMMER 1: RE

Type	Keyword	Definition
Tier 2 language	Faith	Trust or belief in someone or something
	Persecute	To hurt someone or a group of people because of their beliefs or identity
	Ornate	Richly and highly decorated
	Widespread	Something which has grown in popularity
	Community	A group of people united by shared values
Tier 3 language	Conversion/Convert	To change from one religion to another
	Mission	'To go out' to non-religious communities to teach them and try and convert them
	Epistles	Letters written by St. Paul to convert communities to Christianity
	Altar	The table and main focus in a church where the bread and wine is blessed in Christian worship
	Font	The basin of water made of concrete found in the entrance of a church. The water is used for Baptism

SUMMER 2: RE

Type	Keyword	Definition
Tier 2 language	Compassion	To feel the need to help someone who is in a challenging situation because you feel sympathy and sadness for them
	Empathy	To have an understanding of what it is like to be in someone else's position
	Prostrate	To bow down in front of something to show you are beneath it
	Offerings	Donations to share and give to others.
	Responsibility	A duty to do something which helps others or the community
Tier 3 language	Langar	The shared meal distributed to everyone including the poor at the Sikh Gurdwara (temple)
	Gurdwara	Sikh holy building
	Sewa	Sikh belief in serving God and serving others
	Sangat	Sikh community which gather in the holy building
	Diwan	Sikh worship

Science - Tier 2 and Tier 3 language

SUMMER 1: SCIENCE	Type	Keyword	Definition
	Tier 2 language	Environment	An organisms surroundings - affected by physical environmental factors and living organisms.
		Endangered	When a species is at risk of becoming extinct.
		Competition	Organisms fighting over the resources that are available.
		Yield	The amount of useful product you get from a crop.
		Products	The new substances made in a chemical reaction.
	Tier 3 language	Zygote	Fertilised egg cell formed during fertilisation. Contains genetic material from both parents.
		Gametes	Sex cells (sperm and egg)
		Photosynthesis	A process that plants use to make their own food.
		Xylem	The vessels inside plants that transport water.
		Phloem	The vessels inside plants that transport glucose.

SUMMER 2: SCIENCE	Type	Keyword	Definition
	Tier 2 language	Flammable	A substance that catches fire easily.
		Recycling	Using the same materials again.
		Finite	Limited resource that will eventually run out.
		Energy	Cannot be created or destroyed only transferred and stored.
		Ore	Rock that contains enough of a metal/metal compound to be worth mining.
	Tier 3 language	Exothermic	Reactions that transfer energy to the surroundings. e.g. polymerisation and combustion.
		Endothermic	Reactions that absorb energy from the surroundings. e.g. an ice pack
		Hydrocarbon	Compound containing only hydrogen and carbon. *e.g. methane (CH_4)*
		Oxidation	Reaction in which a substance gains oxygen.
		Displacement Reaction	Reaction where a more reactive metal displaces (takes the place of) a less reactive one.