



LYMM  
HIGH SCHOOL

#9



NAME:

# Year 9 Knowledge Organisers Summer Term (Half term 5 and 6)





LYMM  
HIGH SCHOOL

# A Knowledge-Rich Curriculum at Lymm High School

## *Why are we using Knowledge Organisers?*

Research around memory suggests that “knowledge is sticky”: the more factual knowledge you know, the easier it is to learn more in future! But there is a catch: If knowledge is studied once, and not revisited or revised, it is not stored in long-term memory.

To strengthen your memory, and ensure information is stored permanently in your long-term memory, it must be revisited frequently. This means that after one lesson, or a single test, the knowledge is not fully embedded or learned unless it is studied again.

This is why your knowledge organiser is an important part of revising the essential information you learn in class!

## *Use of Knowledge Organisers for revision and in class*

As part of their home learning, students should be revising what they have learned recently, but also content they were taught previously. Therefore, as part of our strategy to ensure that knowledge is embedded over time, we have developed knowledge organisers, which contain the ‘bedrock knowledge’ necessary in each subject area. A mastery of this knowledge will ensure that students can progress comfortably to new units of learning, and can be successful in their subjects.

This information will provide the basis of our assessments and exams, and so getting into good revision habits with these resources will ensure students feel as prepared as possible.

Teachers may set specific areas of each knowledge organiser as part of homework tasks on ‘Satchel one’ – formerly ‘Show my Homework’ – however students should be using their knowledge organiser for independent revision regularly.

*For mastery of your subjects, remember:*

***“Don’t practise until you get it right. Practise until you can’t get it wrong!”***

As well as supporting revision at home, this knowledge organiser should be kept in students’ bags, and brought to school each day so that it can also be used and referred to in lessons.

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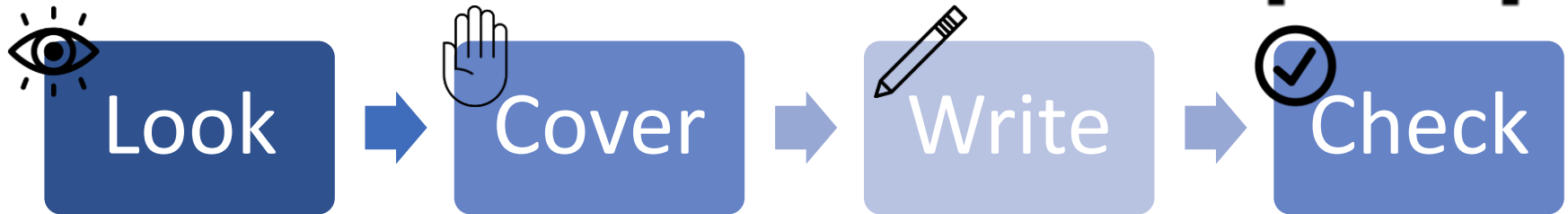
*(Subjects are arranged  
alphabetically)*

3	How to use your Knowledge organiser
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# How to use your knowledge organiser:

Recommended strategies (*don't just read or highlight – get active!*):



- Create **mind maps**
- Create **flash cards**
- Write out **key points on post-it notes** and place somewhere visible so you see and review them regularly
- **Write your own quiz questions** based on your knowledge organiser – leave until the next morning, next day, or next week to see how well you have retained the information
- **Get someone else to test you**
- Use **key vocabulary** from your KO in sentences
- Use the formulae, vocabulary lists, facts, processes etc on your KO to **help you complete homework tasks**
- **Draw diagrams and flow charts** of key information
- **Summarise each section** into your own words – what are the MOST important facts or details in each box?
- **“Just a minute”** – time yourself for 60 seconds. **Can you talk about this topic or explain it to someone else without stopping for a whole minute?**
- **Draw images/symbols** to represent the different concepts and vocabulary
- **Teach someone else** about this topic. Research suggests we retain even more information when we teach a topic than when we learn it or revise it.

# Tier 2 Vocabulary – General academic vocabulary for success across all subjects

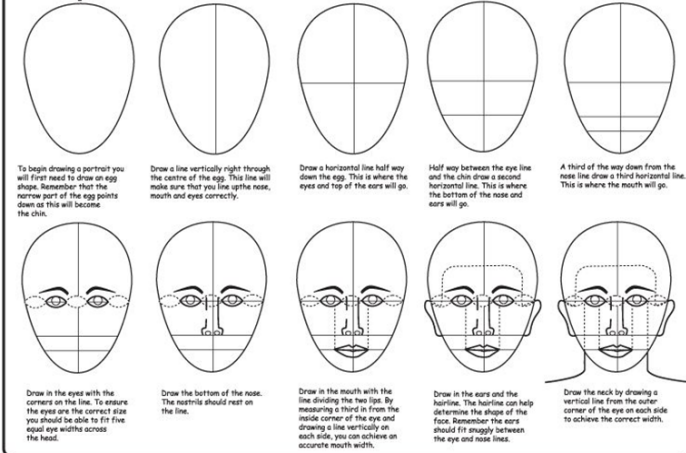


*“The limits of my language are the limits of my world” - Ludwig Wittgenstein*



List 1		List 2		List 3	
<b>alternative (n)</b>	another option	<b>ensure (v)</b>	make sure of something	<b>principles (n)</b>	beliefs
<b>annual (adj)</b>	yearly	<b>ethnicity (n)</b>	race/background/culture	<b>prominent (Adj)</b>	famous/important
<b>apparent (adj)</b>	clearly understood	<b>excluded (v)</b>	left out	<b>promote (v)</b>	advertise/raise someone to a higher role
<b>attributes (n)</b>	qualities	<b>fund (n/v)</b>	a stock of money/to pay for	<b>restricted (adj)</b>	limited/controlled
<b>authority (n)</b>	the person in charge/expert/power	<b>imposter (n)</b>	Someone pretending to be someone or something they are not	<b>significant (adj)</b>	important
<b>commitment (n)</b>	promise	<b>justification (n)</b>	reason	<b>sought (v)</b>	Looked for/wanted
<b>consent (v)</b>	give permission	<b>legislation (n)</b>	laws	<b>summary (n)</b>	A brief statement of the main points
<b>consumer (n)</b>	customer	<b>labour (n)</b>	work	<b>subsequent (adj)</b>	coming after
<b>core (n/adj)</b>	The centre/central	<b>maintenance (n)</b>	repairs/upkeep	<b>technical (adj)</b>	Complicated/related to a particular subject
<b>dimensions (n)</b>	size/measurements	<b>maximum (n)</b>	The most	<b>undertake (v)</b>	take on/begin something
<b>distribution (n)</b>	the spread of something	<b>parameters (n)</b>	boundaries	<b>withstand (v)</b>	bear/survive
<b>despite (prep.)</b>	Even though/in spite of	<b>perceive (v)</b>	Think/believe	<b>valid (adj)</b>	factually correct/acceptable
<b>economic (adj)</b>	to do with wealth and money	<b>principal (adj)</b>	most important	<b>zeitgeist (n)</b>	what’s currently popular

# Proportions of the Face



<b>Tone</b>	A tone is produced either by the mixture of a colour with grey, or by both tinting and shading..
<b>Portrait</b>	A portrait is a representation of a particular person. A self-portrait is a portrait of the artist by the artist
<b>Proportion</b>	Proportion refers to the relative size of parts within a whole. In this case, the whole can be a single object like a person's face.
<b>Scale</b>	Scale refers to the size of an object (a whole) in relationship to another object (another whole).
<b>Features</b>	These are typically eyes, nose, mouth, ears (the senses). These can also be unique features i.e. freckles or a scar.
<b>Characteristics</b>	Traits of a persons i.e. friendly, chatty

**Recording from Observation**  
**Primary source observational drawing:** drawing something real in front of you.  
**Secondary source observational drawing:** drawing something from a picture.

Scan here to view drawing a portrait..



**What makes a successful artist research page?**  
 You must include:

- Artists name (title)
- Imagery of the artists work
- Annotation and your own opinion (facts about the artist as well as analysing the artists work)
- Your own drawings or 'mini studies' of the artists work.
- Consider presentation of your page. Try to make your page reflect the artists style (through use of colour or even media you choose to use).

**Portrait Photography**  
 You need to consider:  
 Background  
 Pose  
 Lighting  
 Aperture  
 Focus

**Brno Del Zou**

- Brno Del Zou is a French artist born in 1963.
- He creates 'photo sculptures' of faces.
- He uses photographs taken from different angles and various poses. Brno Del Zou then builds up many layers of photographs to create a distorted portrait.
- Modern day Picasso



Click on this QR code to visit **The Student Art Guide** to see examples of GCSE sketchbook pages.

<b>Art movement</b>	An art movement is a tendency or style in art with a specific common philosophy or goal, followed by a group of artists during a specific period of time
<b>Self portrait</b>	A self-portrait is a representation of an artist that is drawn, painted, photographed, or sculpted by that artist.
<b>Technique</b>	A way of carrying out a particular task, especially the execution or performance of an artistic work or a scientific procedure
<b>Impasto</b>	The process or technique of laying on paint or pigment thickly so that it stands out from a surface.
<b>Mark making</b>	Describes the different lines, dots, marks, patterns, and textures we create in an artwork. It can be loose and gestural or controlled and neat.

**Thomas Saliot**

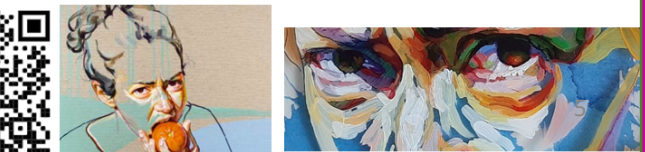
- Born 1968 in Paris
- All his work is oil on canvas.
- He constantly listens to Audio books while painting.

*"I always liked the sound of Pop art and i think that is where i belong, a mildly modernized version."*



**Cristina Troufa**

- Cristina Troufa is a Portuguese artist born (February 6th, 1974) and based in Porto, Portugal.
- She uses her own image in autobiographical paintings

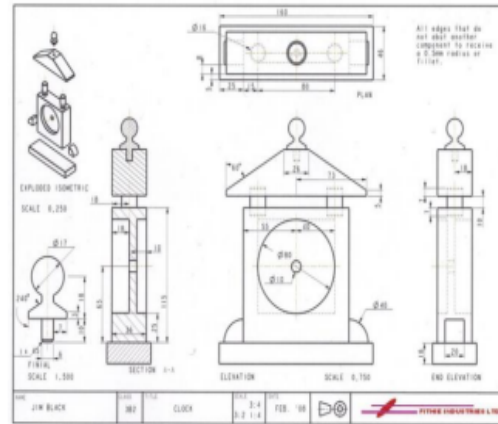


## Orthographic Drawing

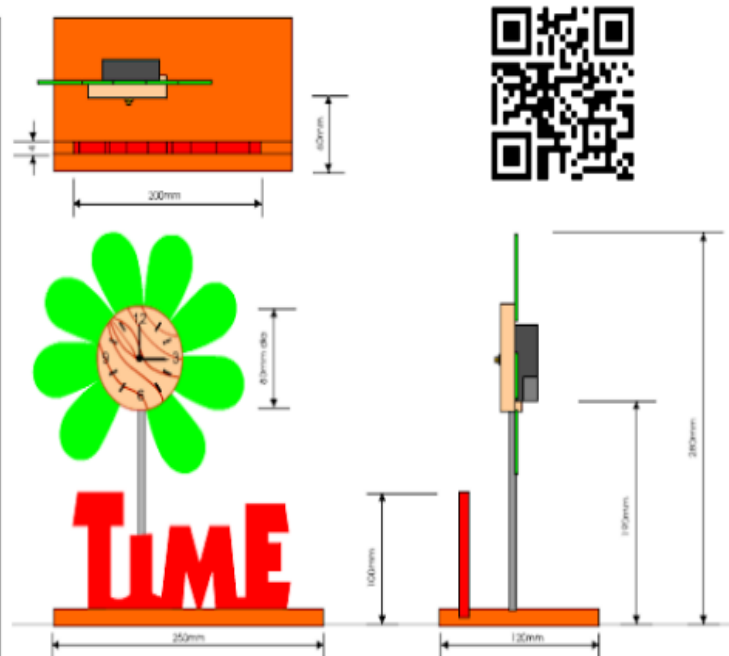
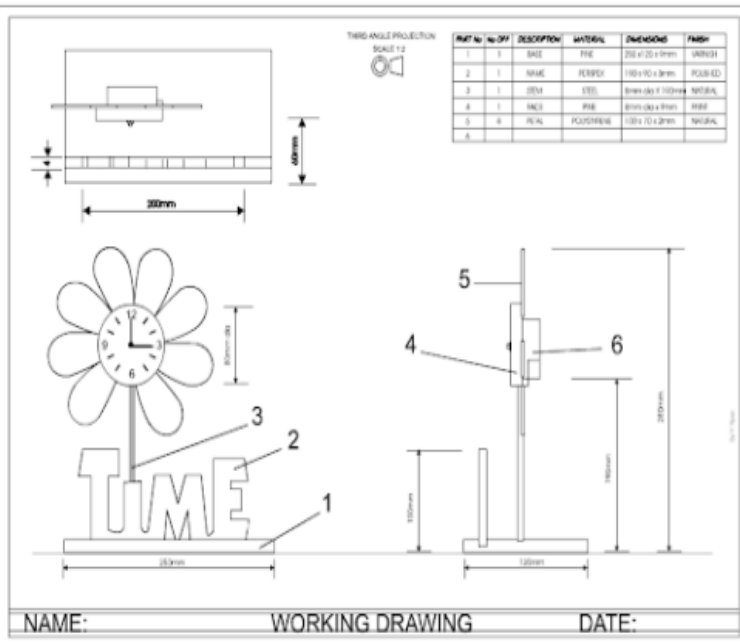
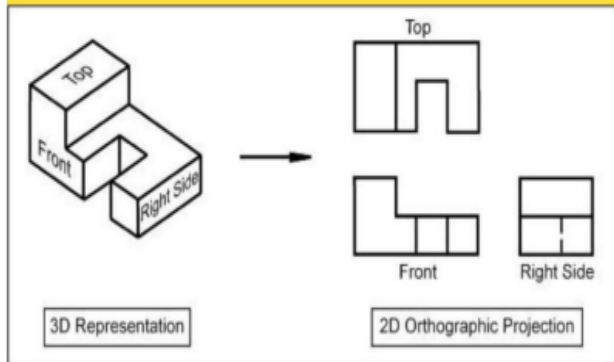
An orthographic drawing represents a three-dimensional object using several two-dimensional views of the object. It is also known as an orthographic projection. For example, you can see in the images below the front, top and side views of a clock.

Take a minute and imagine you are shopping for a chair to go in your living room. You find the perfect one, but it is way too expensive. Fortunately, you have a cousin that builds furniture. Maybe he can build the chair for you! Describing the chair over the phone was more than a challenge. Your cousin suggests you send him pictures of the chair from multiple angles, along with the measurements.

This experience illustrates the process that a furniture designer must go through in order for the manufacturer to create the chair as intended. Three-dimensional drawings can be used to show the overall concept and design, but they are often not clear or detailed enough. Orthographic drawings can help to overcome those challenges.



## ORTHOGRAPHIC PROJECTION.



### CAD/CAM: What is it?

- CAD/CAM has developed the way we manufacture and design products within Design and Technology
- Can you name three products in the classroom that have been manufactured using the CAD/CAM process?
- Why is it relevant for the company who manufactured the products to use CAD/CAM processes for the specific products?

### ICT: it has its purpose too

ICT can also be used in the following ways to aid the design and making process, identify what the activities or terms below mean:

Online Survey, Product Analysis, Research, Communication, Presentation and Analysis.

### CNC: Making made easy

CNC is an important factor in producing an accurately made product within the CAM category:

- What does CNC mean?
- Do you have any CNC machines in your school, if so what are they?
- What projects have you used them for or to create?
- How to do they benefit the making process?

### CAD: Why do we use it?

- What is meant by CAD?
- How can it save time in the drawing process?
- What are the advantages of using CAD in product development?
- How can it enhance communication during the drawing process?
- What problems might introducing CAD software have in the design process?



### CAD/CAM: It has its benefits and its downsides.

CAD/CAM as you know has radically moved designing and making forward, separate the terms below into advantages or disadvantages:

Quicker, Accuracy, Unemployment, Communication, Virtual, Physically seeing, 24/7, Maintenance, Cost, Training, Time Management and Traditional Skills.

Take it further and explain why they are in the category you have placed them in?

### CAM: How it does it help with making?

CAM is now traditionally used to manufacture products:

- How can it improve the quality of a product?
- What effect can it have on the workforce?
- How can it aid making time?
- How is it better for batch making compared to human making skills?

### CAD Software

What type of CAD software have you used form the list below? What have you used them for in your school projects?

- 2D Design
- Pro Desktop
- Solid Works
- Auto Desk
- Google Sketch Up
- Crocodile clips/Circuit Wizard

### 3D Printing: Its even easier to model

Over the past few years, 3D printing has evolved and become more cost effective to use in school:

- How does 3D printing help with the modelling process?
- How does it work?
- Do you have one in school? If so what have you seen it used for?

## Exemplar Outcomes:

Below are exemplar outcomes of laser cut clocks made by previous students to help you understand the level of detail in your design ideas to achieve your target grade. The clocks are made from acrylic and plywood.

Bronze



Silver



Gold



Platinum



## CAD



Computer Aided Design. This allows users to draw, design and model products using specialist software. Designers can create 2D and 3D models and manipulate their designs to test different ideas before manufacture.

## CAM

Computer Aided Manufacture. This uses Computer Numerical Control (CNC) to create CAD designs. The CAM machines, such as laser cutters and 3D printers interpret the coordinates to create the design.



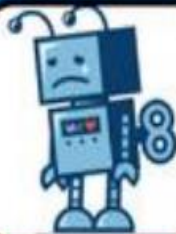
## ADVANTAGES



- Increased efficiency and productivity.
- Fewer errors, improved accuracy.
- Reduced labour costs as fewer people.
- Can perform work that is dangerous for humans.
- Can be cheaper over time than using people.

## DISADVANTAGES

- Expensive to set up and maintain.
- Replaces humans meaning job losses.
- No human judgement if something goes wrong.
- Required highly skilled people to operate them.



## DESIGN THINKING

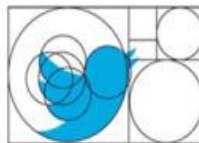
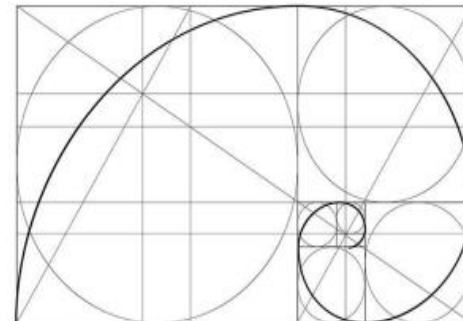


### What is Design Thinking?

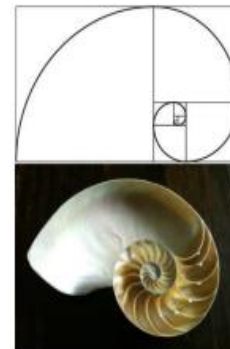
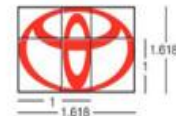
Design thinking is a non-linear, iterative process that teams use to understand users, challenge assumptions, redefine problems and create innovative solutions to prototype and test. Involving five phases—Empathize, Define, Ideate, Prototype and Test—it is most useful to tackle problems that are ill-defined or unknown.



The Golden Ratio is a mathematical ratio that's commonly found in nature. It can be used to create visually-pleasing, organic-looking compositions in your design projects or artwork. Whether you're a graphic designer, illustrator or digital artist, the Golden Ratio, also known as the Golden Mean, The Golden Section, or the Greek letter phi, can be used to bring harmony and structure to your projects.



The concentric circles follow Golden Ratio. Yep, that's a \$221M design ladies & gents!





## 1.1 Technology in Manufacturing

### System



A collection of parts that work together to do something. made up of **Input, Process** and **Output**

### Smart Technology



Machines communicating to carry out tasks without human input. Eg. Stock level checks. Online orders



### Automation



Machines doing tasks without much/any human input

**Adv.** Speed, Cheap, Accurate. **Disadv.** Expensive. Jobs.

### Communication Systems



Smart machines communicate with no human input. Humans communicate with phone, email, video call etc.

### Manufacturing System

#### Input

All materials tools and equipment you start off with

#### Process

What happens to the input  
eg. Measuring, cutting, forming.

#### Output

The result of the system.  
(The finished product)

## 1.2 Production Systems

### CAD



CorelDRAW

#### Computer Aided Design.

Eg. 2D design for graphics/ programming laser cutter. 3D modelling.

### CAM



#### Computer Aided Manufacturing.

Eg. Laser cutting, 3D printing.

### CNC



Computer Numerically Controlled

### Advantages of CAD/CAM

Quicker to produce many.  
Accurate.  
Shared easily.  
Save on shipping and labour costs.

### Disadvantages of CAD/CAM

Expensive to set up and train staff.

## 1.3 Product Sustainability

### Sustainability



The impact of a process or product on the environment.

### Sustainable



A process or material that can be used without causing permanent damage to the environment or using finite

### Finite materials



Will run out and can not be replaced (eg. Metal/oil)

### Non-finite materials



Will not run out, can be replaced (eg. Wood)

### Carbon Footprint



Amount of greenhouse gas released into the atmosphere by making, using, and disposing of a product.

### Global warming



Average earth temperature rising, causing damage to habitats leading to extinction.

### Obsolete



No longer useful. Outdated.

### Planned Obsolescence



When a product is designed to become outdated or useless quickly.

# The Tempest Knowledge Organiser



## PLOT

Act 1	<p><b>Scene 1:</b> Violent, windy storm attacks ship with King Alonso (King of Naples), Ferdinand (his son), Sebastian (his brother), Gonzalo (his counsellor) and Antonio (Duke of Milan) aboard.</p> <p><b>Scene 2:</b> Miranda begs her father to “allay” the storm. He then tells her and the audience the backstory to them becoming stranded on the island. This includes his betrayal and usurpation by his brother Antonio as Prospero neglected his role as Duke of Milan to study magic. Prospero uses magic to make Miranda sleep and we meet Ariel, his spritely slave. We meet Caliban, whose mutual hatred of Prospero highlights their key differences (race, status). Ferdinand and Miranda meet and fall in love instantly.</p>
Act 2	<p><b>Scene 1:</b> On another part of the island, we find the shipwrecked fleet. King Alonso is depressed that he has lost his son and cannot be cheered. Ariel appears (invisible) and puts all to sleep, except for Sebastian and Antonio. Antonio persuades Sebastian to kill his brother (Alonso) so he can have the power of the crown. However, Ariel wakes the King and Gonzalo before regicide can be achieved.</p> <p><b>Scene 2:</b> Stephano (butler) and Trinculo (jester) get Caliban drunk for the first time. Caliban begs Stephano to become his new master.</p>
Act 3	<p><b>Scene 1:</b> Prospero watches as Miranda and Ferdinand discuss their love for one another and agree to get married.</p> <p><b>Scene 2:</b> Stephano enters, drunk and enjoying status of master over Caliban, which Trinculo thinks is ridiculous. Caliban tells them of the “tyrant” Prospero who they need to kill in order to rule the island (taking his books first as this will diminish his power). Ariel is invisible on stage and causes havoc, imitating voices to cause a humorous scene between Stephano and Trinculo.</p> <p><b>Scene 3:</b> Prospero controls magical creatures to create an illusion of a great feast for the royal party. As they prepare to tuck in, Ariel reappears as a harpy and gives his “three men of sin” speech to Alonso, Antonio and Sebastian. Prospero praises Ariel.</p>
Act 4	<p>Prospero frees Ferdinand from his labours and blesses the union with his daughter Miranda. Prospero creates a magical masque in which the spirits of the Gods Iris, Juno and Ceres bless the union. Prospero dramatically interrupts the celebrations, remembering that Caliban, Stephano and Trinculo are on route to kill him. Prospero orders Ariel to distract the conspirators with his fine clothing, which does have the intended effect on Stephano and Trinculo, much to Caliban’s annoyance.</p>
Act 5	<p>Prospero announces that his plans are coming together and orders Ariel to bring forward the royal party. He promises to give up his magic when all is complete. Prospero forgives each in turn and reunites Alonso with his son, Ferdinand. The King is overjoyed and welcomes Miranda to the family. Prospero invites everyone back to his cell for the night before setting off for Naples the next morning.</p>
Epilogue	<p>Prospero speaks directly to the audience, discussing his loss of magical powers and need for the audience’s applause to set him free.</p>

## Characters

Alonso – King of Naples	Stephano – a drunken butler
Sebastian – Alonso’s brother	Caliban – a savage and deformed slave of Prospero’s; a native of the island
Ferdinand – Alonso’s son	Prospero – the rightful Duke of Milan
Antonio – Prospero’s brother. Antonio stole Prospero’s title as Duke of Milan.	Miranda – Prospero’s daughter
Gonzalo – the old counsellor to the King of Naples	Ariel – an airy spirit; a slave of Prospero’s who earns his freedom
Trinculo – a jester	Spirits in the service of Prospero

## The Gold

<p><b>The innate evil of man</b></p>	<p>The concept that mankind and <b>humanity naturally holds an evil within it</b>. Part of our evolution as a society is how the ‘beast’ is tamed and humanity attains mastery over its base instincts. However, <b>Aristotle argued that morality is learnt</b>; that we are born with a blank slate or ‘<b>tabula rasa</b>’ and it is life experience that informs our moral compass. The duality of human nature.</p>
<p><b>The sublime</b></p>	<p>The <b>sublime</b> in literature refers to use of language and description that <b>excites thoughts and emotions beyond ordinary experience</b>. Greatness beyond all possibility of calculation, measurement, or imitation, often inspired by nature.</p>
<p><b>Punishment as consequence for sin</b></p>	<p><b>An exploration of the consequences of sin</b> (crime and punishment). <b>Death as punishment for sin and subverting the Natural Order</b>. <b>Biblical teaching</b> emphasises the importance of <b>confession</b> and absolution. There is the belief that if we do not repent for our sins, we will suffer damnation. What does it mean to seek retribution?</p>
<p><b>Binary opposition of innocence vs experience</b></p>	<p><b>Binary opposition of innocence vs experience</b> – <b>Childhood innocence</b> as the face of suffering that transforms the older. Experiences in the world (childhood suffering) lead to sins, suffering, cynicism and regret.</p>



### Historical and Social Context



**James I** – The first King of England and Scotland, he styled himself as the ‘king of Great Britain’. He was a strong advocate of royal absolutism – meaning the king received their power directly from God. This belief brought him into heavy opposition with Parliament and had dire consequences for his successors. The play was possibly written to celebrate the marriage of his daughter in 1611. James believed in, and despised, the supernatural.

**The role of women in a patriarchal society**- Jacobean England was a society controlled by men. Women were seen as the weaker sex and were expected to be ruled over by men. Women needed to be meek and mild, and most importantly, obedient to their fathers and later their husbands.

**Jacobean Travel** - The play draws on travel literature of the era as travel to the Americas became more common and frequent. Most notably the play draws on the accounts of a tempest off the Bermudas that separated and nearly wrecked a fleet of colonial ships sailing from Plymouth to Virginia.

**Cultural attitudes** - Shakespeare seems to have drawn on Michel de Montaigne’s essay “Of the Cannibals,” (1580) which explored how a Brazilian tribe apparently ate the bodies of their dead enemies out of honour. The name of Prospero’s slave, Caliban, seems to be an anagram or derivative of “Cannibal.”

### Key Themes



**Social Status and Colonialism**



Jacobean society relied heavily on the feudal system, which placed wealthy Kings and noblemen above women and the working class. Being a black, deformed character from a foreign land would have made Caliban a member of the underclass, deserving no more respect than a beetle. The ignorance of Jacobean society meant there was little chance of moving up in social status, which is why Stephano is so excited to have a servant in Caliban. Colonisation made this possible, as men of varying classes went on explorations to New Worlds that they could take over and rule, imposing their own European cultures on natives.

**Supernatural and Magic**



Prospero’s thirst for knowledge about magic is what lost him his position as Duke of Milan. His cloak, books and staff symbolise his knowledge and power and are ultimately destroyed at the denouement of the play to symbolise his reintegration to civilised society. Prospero uses his knowledge to control the magical sprite Ariel to commit a number of magical acts in the name of justice, from starting the tempest to becoming a harpy. King James I would have been particularly interested, having written a book about the power of the supernatural in ‘Daemonologie’.

**Justice, Fate, Destiny, and Religion**



The play is focused around the key storyline of the protagonist seeking justice for being usurped by his own brother in Milan. However, Prospero is hypocritical as he finds no injustice in usurping Ariel and Caliban and enslaving them on the island. Prospero uses magic and manipulation to encourage the audience to sympathise with him and ultimately manages to achieve justice without any bloodshed by the denouement of the play. At this point, he embraces the Christian value of forgiveness before reasserting his place as Duke of Milan.

### Key Term Definition

Dramatic Irony	A literary technique by which the full significance of a character's words or actions is clear to the audience or reader although unknown to the character.
Foreshadowing	A literary device in which a writer gives an advance hint of what is to come later in the story/play.
Comedy	A play characterized by its humorous or satirical tone and its depiction of amusing people or incidents, in which the characters ultimately triumph over adversity.
Tragedy	A play dealing with tragic events and having an unhappy ending, especially one concerning the downfall of the main character.
Foreboding	The feeling that something bad is going to happen: The gloomy weather gave me a sense of foreboding.
Pathetic fallacy	The attribution of human emotion and conduct to things found in nature that are not human. It is a kind of personification.
Usurp	To take a position of power or importance illegally or by force, such as overthrowing a king.
Colonialism	The policy or practice of acquiring full or partial political control over another country, occupying it with settlers, and exploiting it economically.
Tragicomedy	A play or novel containing/combining elements of both comedy and tragedy.

### Dramatic devices

**Dramatic Irony** – The audience knowing something that a characters doesn’t.  
**Soliloquy** – One person speaking their thoughts aloud on stage but directed at themselves.  
**Foreshadowing** – Giving a hint or allusion to a future significant event.

### Genres








<p><b>Comedy</b></p> <ul style="list-style-type: none"> <li>• Confusion</li> <li>• Jesters</li> <li>• Weddings</li> </ul>	<p><b>Tragedy</b></p> <ul style="list-style-type: none"> <li>• Catastrophe</li> <li>• Catharsis</li> <li>• Revenge</li> <li>• Tragic arc of the Lords</li> </ul>
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# Poetry – The Impact of Conflict



**Critical concept: Devolution** is the literary opposite of evolution. The concept that man can mentally, or emotionally, regress from progress in some circumstances. We see this **devolution** and return to an animalistic state when confronted with war, savagery and lack of order.

Poetry TOOLS		How we analyse and approach poetry	
			
Title		What does the title suggest? What can we infer from it? What are our associations and expectations?	
Overview		What is the surface meaning of the poem? What's the deeper or metaphorical meaning?	
Organisation		How has the writer used structure for effect? Opening – shift of tone – ending – impact of rhyme	
Language		How has the writer used and crafted language? Use of imagery – meaning of metaphors – choice of adverbs/nouns/adjectives/verbs – impact on the reader	
Speaker		Who is the speaker? What is the significance of this? What does it encourage the reader to consider?	

## Golden ideas

<b>The human condition</b> 	The <b>human condition</b> is all of the characteristics and key events that compose the essentials of human existence, including birth, growth, emotion, aspiration, conflict, and mortality. In literature it considers <b>the meaning of life and morality.</b>
<b>The innate evil of man</b> 	The concept that mankind and <b>humanity naturally holds an evil within it.</b> Part of our evolution as a society is how the 'beast' is tamed and humanity attains mastery over its base instincts. However, <b>Aristotle argued that morality is learnt;</b> that we are born with a blank slate or ' <b>tabula rasa</b> ' and it is life experience that informs our moral compass. The duality of human nature.
<b>Binary opposition of innocence vs experience</b> 	<b>Binary opposition of innocence vs experience</b> – <b>Childhood innocence</b> as the face of suffering that transforms the older. Experiences in the world (childhood suffering) lead to sins, suffering, cynicism and regret.

Structural Features	Definition
Stanza	An separated section of text in a poem
Opening	The first mood/ image of the poem.
Cyclical	When end of the poem repeats an idea/ character/ setting from the opening.
Stanza	A 'paragraph' in a poem.
Enjambment	A sentence or phrase that runs onto the next line.
Rhyme	Correspondence of sound between words or the endings of words, particularly used at the ends of lines
Anaphora	The repetition of a word or phrase at the beginning of successive lines.
Volta	A turning point in a poem.
Juxtaposition	Two ideas/ images placed together for contrasting effect.
Change of mood/ tone	When the writer alters the overall feeling of the poem.
Refrain	A phrase, line or group of lines which is repeated throughout a poem.
Ending	The final mood/image of the poem.

Language Techniques	Definition	Example
<b>Oxymoron</b>	When a phrase is put together by two ideas which contradict one another.	'If in some smothering dreams'
<b>Personification</b>	Describing an inanimate object as having human feelings.	'the sun surfacing defiantly'
<b>Metaphor</b>	A descriptive technique that names a person, thing or action as something else.	'Sirens ripped open the warm silk of sleep'
<b>Simile</b>	A descriptive technique that compares one thing with another, usually using 'as' or 'like'.	'Bent double, like old beggars under sacks'
<b>Alliteration</b>	The occurrence of the same letter or sound at the beginning of adjacent or closely connected words	'For silver-swallow swords'
<b>Superlative</b>	An adjective/ adverb that indicates the most of something.	'Sweetest Love! I do not go For weariness of thee.'
<b>Intensifier</b>	A word, especially an adverb or adjective, that has little meaning itself but is used to add emphasis to another adjective, verb, or adverb.	'My friend, you would not tell with <u>such high zest</u> '
<b>Minimiser</b>	A word that is used to make another adjective, verb or adverb sound lesser.	'To children ardent for <u>some</u> desperate glory'
<b>Imperative</b>	A sentence that is a command.	'Let faxes butter-curl on dusty shelves.'
<b>Exclamatory</b>	A sentence that expresses a heightened emotion. They end with an exclamation mark.	'Gas! GAS! Quick, boys!'
<b>Listing</b>	When the writer includes several words/ phrases/ ideas, one after the other.	'And then I must scrub, and bake, and sweep.'
<b>Repetition</b>	When a word/ phrase is noticeably repeated throughout a sentence/ paragraph/ whole text.	'Rage, rage against the dying of the light.'
<b>Imagery</b>	A technique in which the author appeals to the senses i.e. seeing, hearing, touching.	'My thoughts hissed and spat on my scalp. My bride's breath soured, stank in the grey bags of my lungs.'
<b>Polysemic reading</b>	A word or phrase open to two interpretations.	It's not as if I'm holding out for frankincense or myrrh, just <u>change</u> .

Form
<p><b>Blank Verse:</b> A poem that uses a specific <b>metre</b> but doesn't have a set <b>rhyming scheme</b></p> <p><b>Dramatic monologue:</b> A character speaking <b>their thoughts</b> aloud.</p> <p><b>Elegy:</b> A <b>funeral</b> song or poem</p> <p><b>Epic:</b> A long, often book-length poem. <b>Narrative</b> in verse that retells a <b>heroic journey</b> or story</p> <p><b>Free Verse:</b> An open form of poetry without rhyme, rhythm or set patterns.</p> <p><b>Sonnet:</b> A poem of <b>14 lines</b>, usually ending in a <b>rhyming couplet</b></p> <p><b>Lyric:</b> A form of poetry usually set to <b>music</b></p>
<p><b>Further reading and viewing:</b></p> <p>War Horse - Michael Morpurgo  The Hunger Games – Suzanne Collins  I Am David – Anne Holme  Salt to the Sea – Ruta Sepetys  The Crucible – Arthur Miller  Dunkirk - 2017  Battle of Britain - 1969  Hacksaw Ridge - 2016</p>



Wilfred Owen,  
WW1 English poet.  
Killed in action  
November 1918



Simon Armitage,  
modern poet laureate.  
Considers the impact of  
conflict on mental and  
emotional health



Siegfried Sassoon,  
English poet  
commended for  
bravery in WW1 on  
the Western Front



William Blake. Largely  
unrecognised during his  
life, now considered a  
seminal figure in the  
history of the poetry of  
the Romantic Age.



Isobel Thrilling, modern  
poet. Examines conflict  
through the perspective  
of children



Imtiaz Dharker, a  
Pakistan-born British  
poet who moved to  
Scotland. She explores  
the ideas of culture and  
identity.

# Topic: Factors affecting food choice

**Religious Beliefs** - A number of religions are associated with vegetarianism.

**Nutritional Concerns** - Many believe that a vegetarian diet is healthier than one that includes meat, and many studies have confirmed the benefits of vegetarianism.

**Food Safety** - Many food safety scares have been publicized over the past few decades, and the majority of these have involved meat.

**Animal Rights Concerns** - Animal rights is a primary concern of many vegetarians.

**Unwanted Food Additives** - Factory farms often dose their poultry and livestock with antibiotics and hormones.

**Environmental Concerns** - The production of meat and animal products often has adverse effects on the environment.

**Concern for Labourers** - Labour conditions in the meat industry often meet with scrutiny. Human rights are often disregarded, and worker safety often fails by the wayside.

**Economic Concerns** - Some believe that supporting the meat industry promotes world hunger. The amount of land required to raise one head of cattle, for example, could produce enough grain or vegetables to feed many times the number of people that the animal would.

**Medical Conditions** - People with certain medical conditions may benefit from a vegetarian diet. Prescription of such a diet is particularly common from doctors of alternative medicine.

**Disease Scares** - The Avian flu, hoof and mouth disease, and mad cow disease are examples of some of the disease scares that have been associated with the consumption of meat.

## Religious special diets

Many religions include guidance on what is appropriate to eat in order to demonstrate faith. Below is a summary of what the main world religions advocate in terms of what their followers should or should not be consuming.

### Religious-based Diets




Religion	Kosher	Halal	Restricted/Avoided	Not with meat	Other
Judaism	X	X	X	X	X
Buddhism	X	X	some	✓	✓
Hinduism	X	X	Restricted/Avoided	?	X
Islam	Halal	X	Halal	X	X
Rastafarianism	X	X	no fish, meat, etc.	X	X
Seventh Day Adventist	X	X	X	?	X
Sikh	In some sects Halal or Kosher				X

In addition to this some religions advocate fasting at certain times of the year.

For example, fasting is obligatory for every Muslim one month in the year, during Ramadhan. Each day, the fast begins at sun-rise and ends at sunset. During this time Muslims are asked to remember those who are less fortunate than themselves as well as bringing them closer to God. This also helps to give the digestive system a break. In contrast, when Catholics fast they restrict their meals to once a day. They may also abstain from one or more types of food such as during the period of Lent.

### Religious-based Diets



Religion	Restrictions	Other
Protestants	Few Restrictions	
Roman Catholicism	Restricted on certain days	
Eastern Orthodox	Restrictions	Restrictions
Jainism	X	X X X X X X
Mormonism		X
Bahá'í	some are vegetarians	X

## Ethical special diets

Below is a summary of the different types of vegetarian diets people choose to follow and some of the main reasons why people choose a form of vegetarian diet.

Type of vegetarian	Animal foods excluded	Animal foods included
Lacto-ovo vegetarian	Meat, fish/seafood, poultry	Dairy, eggs
Lacto vegetarian	Meat, fish/seafood, poultry, eggs	Dairy
Ovo vegetarian	Meat, fish/seafood, poultry, dairy	Eggs
Pesco/pesca vegetarian	Meat, poultry	Fish/seafood, eggs, dairy
Pollo vegetarian	Meat, fish/seafood	Poultry, eggs, dairy
Semi vegetarian (Flexitarian)	Meat, fish/seafood, and poultry most of the time	Dairy, eggs; on occasion meat, fish/seafood, poultry
Vegan	Meat, fish/seafood, poultry, eggs, dairy, honey, etc.	None
Fruitarian	Meat, fish/seafood, poultry, eggs, dairy	None; typically unprocessed and uncooked foods only

## Medical special diets

Some people have to avoid certain foods due to allergies, intolerances or medical conditions they have. Medical conditions are not directly caused by one food but a healthy diet can improve the condition.

**Anaemia:** a deficiency of red cells in the blood, resulting in paleness and fatigue. Need to include foods rich in iron and vitamin C which the body needs to utilise iron.

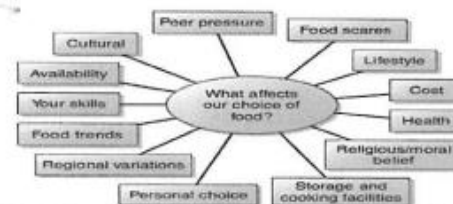
**Crohn's disease:** a long-term condition; causes inflammation of the lining of the digestive system. Foods to avoid: alcohol and carbonated beverages; butter, margarine, oils; coffee, tea, chocolate; fatty foods and dairy products.

**Diabetes:** A condition where the body can't produce insulin which processes sugar. Foods to avoid include: sugar, pasta, white bread.

**Gout:** a disease in which defective metabolism of uric acid causes arthritis and episodes of acute pain. Foods to avoid include: red meat and offal, shellfish, sugary beverages, excessive alcohol.

**High cholesterol:** cholesterol is a fatty substance found in your blood. If you have too much cholesterol in your blood, it can increase your risk of heart disease. Foods to avoid: processed vegetable oils, crisps and other packaged foods, sugary treats.

**Irritable bowel syndrome:** a common disorder that affects the large intestine. Symptoms include cramping, abdominal pain, bloating, gas, and diarrhoea or constipation. Foods to avoid: too much fibre, chocolate, alcohol, caffeine or fructose, carbonated drinks, fried and fatty foods.



### Peer Pressure

Peers are friends or people who influence your behaviour and choices directly or indirectly.

### Food scores

The response to a food incident (real or perceived) that causes a sudden disruption to the food supply chain and to food consumption patterns.

### Lifestyle

How active someone is on a daily basis affects their nutrient requirements.

### Food trends

Food trends are widespread changes in food preferences.

### Your skills

Some dishes require a range of techniques to prepare and cook; some people may avoid certain foods at home because they believe they cannot make it themselves.

### Availability

This can refer to seasonal foods. It can also refer to meat which is at its best at certain times of year.

## Food allergies

90% food related allergic reactions are caused by these 8 foods;

- Peanuts
- Tree nuts
- Milk
- Egg
- Fish
- Shellfish
- Soy
- Wheat



## Food intolerances

### Common food allergens

- Dairy products, including milk, cheese and yoghurt.
- Chocolate.
- Eggs, particularly egg white.
- Flavour enhancers such as MSG (monosodium glutamate)
- Food additives.
- Strawberries, citrus fruits and tomatoes.
- Wine, particularly red wine.



## Topic: Food waste

In a country we generate a large amount of food waste. According to the 'Love Food Hate Waste' website we throw away 7 million tonnes of food and drink from our homes every year in the UK, and more than half of this is food and drink we could have eaten.

The main types of foods that are thrown away as waste include fresh vegetables and salad, fresh fruit, bread, cakes, prepared foods such as pasta and rice, as well as meat, seafood, and takeaways. On many occasions whole, unopened packs of these items are disposed of.

There are many reasons why we waste so much food. These include:

- The food has gone past its date for using.
- The food has an unpleasant smell, look or taste.
- The food has gone mouldy.
- Too much food was cooked leaving waste.
- Food has been left on the plate – this could be due to large portion size, dislike of food, or not feeling hungry.

### Effect on the environment

To try to reduce the impact on the environment that food wastage can have, many areas of the UK have, as part of their recycling schemes, introduced food-waste bins. Households are encouraged to place waste or leftover foods into the bin; the waste is then turned into compost or used to help generate energy.

When food is thrown away through the normal rubbish disposal system, it is taken to a landfill site where it will rot and as a result produces methane, a greenhouse gas which is much more harmful than carbon dioxide.

### Financial implications of waste

When we waste food, not only are we throwing away food that could have been eaten, we are also throwing away money. 'Love Food Hate Waste' states that wasting food costs the average household £470 a year, rising to £700 for a family with children (the equivalent of around £60 a month).

Costs are also incurred by local authorities as they have to employ people to remove household waste and take it to landfill sites.

### Ways to reduce food waste

#### Composting

- Vegetable peelings
- Fruit peelings and waste

- Teabags
- Light cardboard
- Eggshells

#### Leftovers

- Eaten the next day

#### Recycling

- Leftover cake to make a trifle
- Leftover meat in a shepherd's pie
- Leftover chicken in a curry

- Leftover potato in fish cakes
- Stale bread to make bread crumbs

#### Only buying what you need

- Smaller size loaves of bread
- Fridge packs for beans

- Not purchasing
- Buy One Get One Free offers

#### Labelling

- Clearer Use By and Best Before Dates

- Storage advice

#### Packaging

- Re-closable packs
- Portion size guidelines on packaging

- Modified atmosphere packaging for salad

#### Cook the right amount of food

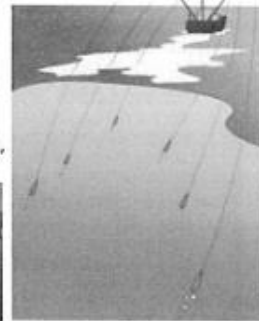
- Use a recipe and weigh and measure accurately.

- Plan your portion sizes

## Topic: How food is caught

Many different types of fish are caught for food. Some of these include:


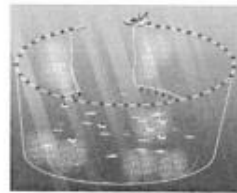



- Oily fish – mackerel, herring, salmon, trout tuna
- White fish – cod, plaice, haddock, sole, halibut, sea bass
- Shellfish – lobster, crab, prawns, mussels, scallops



**Hook-and-line** is a general term used for a range of fishing methods that employ short fishing lines with hooks in one form or another (as opposed to long-lines).

It includes hand-lines, hand-reels, powered reels, rod/pole-and-line, drop lines, and troll lines, all using bait or lures in various ways to attract target species.

Hand-lines use lines and baited hooks from a stationary or moving boat. Because hauling is slow, mechanised systems have been developed to allow more lines to be worked by a smaller crew. Hook and line fishing is more selective than other types of fishing in terms of species and size, and provides high quality fish. The method can be used on spawning fish as they normally only bite after completion of spawning. Lines are set for a relatively short time so that any unwanted species can often be returned live to the sea.

Method	Photo	Description	Used to catch	Advantages	Disadvantages
Trawling ; • pelagic • otter • beam • pair		Uses nets to catch the fish	<ul style="list-style-type: none"> <li>• Anchovies</li> <li>• Tuna</li> <li>• Mackerel</li> <li>• Cod</li> <li>• Halibut</li> </ul>	You can catch vast amounts of fish in one go.	The nets catch all kinds of fish, even the ones that they may not be trying to catch.
Purse-seining		Drawing a huge net around a school of fish	<ul style="list-style-type: none"> <li>• Tuna</li> <li>• Herring</li> <li>• Mackerel</li> </ul>	This method can be highly specific, with little bycatch, when targeting adult schools of one species.	Some tuna purse seine fishers set their nets on floating debris or on man-made 'fish aggregating devices' (FADs). These attract a range of fish. When nets are set on these FADs, the resulting bycatch of juvenile tuna and other marine life is high.
Dredging		Towing metal cages across the shellfish beds	<ul style="list-style-type: none"> <li>• Scallops</li> <li>• Oysters</li> <li>• Clams</li> <li>• Crabs</li> </ul>	It is fast and efficient. You are able to keep up with demand. So fishermen can also make more money.	The dredges stir up and disturb all the bottom dwelling fishes' habitat. In other words, all the living plants that grow on the lakes floor would be damaged.
Farmed fish		There are many species of fish that are raised in fish farms, due to the reduced amount of wild fish available	<ul style="list-style-type: none"> <li>• Salmon</li> <li>• Trout</li> <li>• Cod</li> <li>• Sea bass</li> </ul>	Cost effective for both the farmer and the customer.	Fish are reared in large numbers in rivers or in tanks, enclosures, lakes or at sea in sea cages, which can be overcrowded due to the amount of fish they contain
Lobster and crab		The pots are placed on the seabed using ropes. Dead fish are used as bait, which encourages crabs and lobsters to enter the pot where they are trapped and collected.	<ul style="list-style-type: none"> <li>• Shellfish</li> </ul>	It is regarded as being more	Buoy lines are known to entangle marine mammals. A few fisheries have problems with seals getting their heads stuck in traps and drowning, but there are measures available to prevent this.

## Topic: How food is grown

### Main crops grown in the UK:

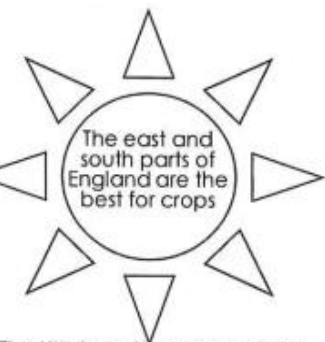
Wheat  
Barley  
Oats  
Potatoes  
Sugar beet  
Vegetables (carrots, cabbage runner beans etc)  
Oilseed rape  
Fruits (apples, pears, plums, damsons, strawberries, raspberries blackberries etc)

### When growing crops such as wheat and barley, a number of points must be considered by the farmer.





General weather conditions for the area  
Which crops will grow well together?  
The nutrients the crops will need  
The resources the farmer has, including natural resources (land air sunlight), tools and equipment as well as manpower.

### The process of growing crops includes stages such as:

Preparing the soil  
Sowing seeds or plant seedlings  
Watering  
Controlling crop pests, fertilising, as well as weed control  
harvesting



The UK doesn't produce all the food that is required to feed everybody due to population size and the climate, so some food is imported from other countries.  
E.g. some fruits and vegetables (exotic fruits) that are available in the supermarkets.

	Examples grown in the UK	Where it is grown	Additional information
<b>Vegetables</b>	 <p>Artichoke, asparagus, aubergine, beetroot, brussels sprouts, cabbage, carrots, new potatoes, turnips, watercress.</p>	Many of the staple vegetables we eat are grown in fields on large farms.	Some farms specialise in producing large quantities of one vegetable (e.g. carrots) but provide a number of different varieties providing supplies for many supermarkets and shops
<b>Soft fruits</b>	 <p>Strawberries, raspberries, blackberries, gooseberries, blackcurrants, blueberries, red currants.</p>	Most fruits are grown in polytunnels, a large polythene tunnel that is designed to protect the fruit from poor conditions. This will also guarantee a better quality product and reduce the need for pesticides.	Soft fruits are popular during the summer months – in season. Many fruits are grown by privately owned family-run farms Using this method of growing the fruits and other foods such as lettuces, cucumbers and peppers means the growing time for crops is extended.
<b>Stone fruits</b>	 <p>Peaches, apricots, plums, nectarines, cherries, damsons, greengages.</p>	Many stoned fruits are grown in the UK. Kent, Worcestershire and Herefordshire are popular areas for growing fruit trees due to the correct combination of soil and sunlight.	Stone fruit will continue to ripen after it is picked. If you're not going to eat it within a few days, keep it chilled in the top of the fridge for up to five days otherwise keep it in a fruit bowl. For maximum flavour, eat stone fruit at room temperature.
<b>Hard fruits</b>	 <p>Apples, pears, medlar and quinces</p>	Many hard fruits and stoned fruits are grown in the UK. They can be produced on a small, large or commercial scale.	Hard fruit such as apples can come in many different varieties and colours. Many apples are grown in orchards that are designed to make the most of the space available and maximise production.

## Topic: How food is reared

Many animals reared on a large scale in factory farms to provide food to be sold in shops and supermarkets.  
Some animals are reared on smaller scale, in family-owned farms or one-animal specialist farms  
It is estimated that each year approximately one million animals are killed to provide food.

Some examples of animals reared for food include:

- Cows and calves
- Deer
- Chicken
- Pigs
- Turkeys
- Sheep and lambs
- Ducks
- Geese
- Deer



### Which British beef is in season when?

<p><b>Spring</b> Beef steaks Chicken Sausages Spring lamb</p>	<p><b>Summer</b> Beef steaks Burgers Chicken Ham Lamb Pork spare ribs Saltmarsh lamb Sausages Venison</p>
<p><b>Autumn</b> Chicken Grouse Ham Pork Sausages Venison</p>	<p><b>Winter</b> Chicken Gammon Goose Partridge Pheasant Sausages Turkey Venison Wild duck</p>

### What is reared food?

Reared food means an animal has been brought up for the purpose of providing food in one way or another.  
This could be through their meat or providing food sources such as eggs, milk or honey.



# Topic: Organic farming

## Pastoral farming

- The aim is to maximise the number of animals that can be reared.
- Focuses on profit and efficiency rather than animal welfare
- Conditions can often be described as basic or poor
- Animals have minimal space to move in, they are not allowed to roam around and are fattened up quickly: this can be through the use of drugs
- Many animals are reared in factory style farms and kept to produce foods. E.g. dairy cows will produce milk to be sold in supermarkets as well as producing milk to be used in the manufacturing of other dairy foods such as cheese.
- The cows live in large sheds, have limited space and limited or no access to sunshine or pasture.

## Arable and horticultural farming

- Intensive farming is a method used by many farmers to increase food production.
- In intensive farming, fertilisers and pesticides are used to grow high-yield crops such as wheat.

## Intensive farming

Action	Treatment	Explanation	Side effect
Remove competing plants from the crop growing area	Herbicide spray	Allows more energy to be transferred to the crop	Reduces biodiversity. May have harmful effect on health.
Remove animals that feed on the crop	Pesticide spray	Prevents energy being transferred from the crop to consumers	Reduces biodiversity. May poison helpful organisms.
Keep animals indoors	'Battery' farming	Reduces energy transferred to environment so more energy available for growth	Increased risk of disease. Lower quality product. Ethical concerns.

## The effects of insecticides

Insecticides like **DDT** don't break down quickly. It's been responsible for a large reduction in bird numbers since intensive farming became widespread. DDT **accumulates** in food chains - as consumers eat large numbers of prey containing the insecticide. High levels of DDT have been found in birds of prey.

## Pastoral farming

- The welfare of animals is always put first
- There are organic standards to meet;
- Animals are to be free-range and must have access to fields
- The living conditions have to meet high welfare standards and the animals must have a certain amount of space
- The diet has to be as natural as possible
- The animals must only be given drugs to treat an illness
- The animals cannot be given hormones which make them grow more quickly

## Arable and horticultural farming

- Food is produced and grown as naturally as it can be under strict standards.
- There is a strong emphasis on farmers ensuring the protection of wildlife and the environment.
- Artificial and chemical fertilisers are not used
- Farmers use organic matter to help develop a healthier, fertile soil, and encourage wildlife to help to control pests and disease
- Crop rotation is encouraged. A farmer will plant a crop in a field one year and the next year animals are allowed to graze on the same field, adding manure to the soil and improving the fertility. The next year the field could be left empty (fallow) allowing the soil to recover.


## Organic farming techniques

Technique	Replaces	Advantage	Disadvantage
<b>Manure</b>	Fertiliser	Recycles waste, improves soil structure	Difficult to apply and cannot control mineral content
<b>Crop rotation</b>	Single crop	Reduces disease and damage to soil composition	Less productivity. Less efficient to grow different crops.
<b>Weeding</b>	Herbicides	Less environmental damage, or health risk	Labour intensive
<b>Nitrogen-fixing plants</b>	Nitrogen fertilisers	Cheaper, longer lasting	Reduces area available for growing crops if part of a crop rotation

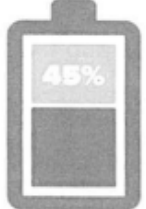
## Alternatives to pesticides

Biological control is an alternative to using pesticides. By releasing a natural predator into the crop growing area, the number of pests can be reduced. This can have unforeseen consequences as the numbers of different organisms in the food web are changed. There have been examples of the predator becoming a more serious pest than the original problem.


Here's how **organic farming** can benefit our planet and wellbeing:




**Fresh Air**  
Switching to the use of organic farming practices across the US could help **eliminate carbon dioxide** from the air equivalent to at least **a third of the cars** in our world.<sup>1</sup>



**Energy Savings**  
Organic practices could help **reduce the energy** used in farming up to **45%**.<sup>4</sup>



**Nature's Ally**  
In a world where nearly **40% of the farming land** is suffering significant degradation, organic farming can help **protect soils and conserve wildlife**.<sup>1</sup>



## Topic: Primary production

One of the first or primary stages of processing foods is to grow or rear a food so that it can be changed or transformed into a suitable state to either be eaten or used in the production of other products.

A **primary food** is not edible in its original state; it has to be changed or have some form of preparation before it can be eaten. An example would be a raw potato.

Sometimes, the **primary processing** can be quite basic, for example peeling vegetables or washing salad leaves.

Other examples of primary foods could include:

- wheat
- maize
- soya beans
- sugar beet
- milk

Wheat is an example of a primary food. It is processed into flour, which is a secondary source of food. The stages of processing for wheat are shown in figure 9.6.

## Topic: Secondary production

Secondary processing is when you change or convert the primary food into an ingredient which can then be used to make a food product.

Secondary processing can provide an opportunity to create a wide variety of foods. Flour processed from wheat is a secondary product; it has been changed or converted into an ingredient that can be used to make many different food products. An example product would be bread.

To end up as a finished final food product there would be many different stages of processing involved.

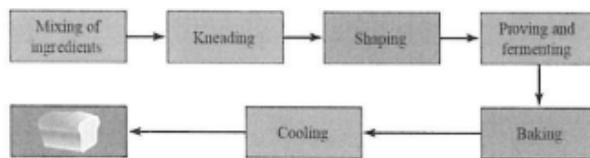


Figure 9.8 The process of making bread

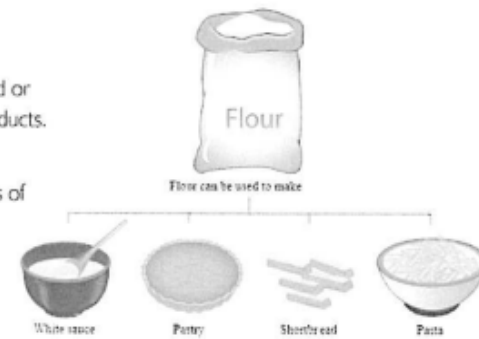


Figure 9.9 Flour can be used to make these products

There are many other examples of primary foods that are processed into secondary foods and then used to produce other products. Two examples of these are included in the table below.

## Cleaning and sorting of raw foods

Primary stages of processing and production also include the cleaning and sorting of the raw materials. This may be carried out to remove any unwanted debris, to clean off mud or dirt, or to remove any damaged goods. Figure 9.7 identifies stages of this process for potatoes.



Figure 9.5 Primary processed carrots

**KEY POINTS: PRIMARY STAGES OF PROCESSING AND PRODUCTION**

- Examples of primary foods include potatoes, wheat, maize, sugar beet and milk.
- Primary processing involves changing or transforming primary foods that are grown or reared into a suitable state to either be eaten or used in the production of other products.
- Once grown or reared, primary foods are transported from their point of origin (e.g. the field, farm or allotment) to a processing plant or factory.
- Primary stages of processing and production also include the cleaning and sorting of raw materials.

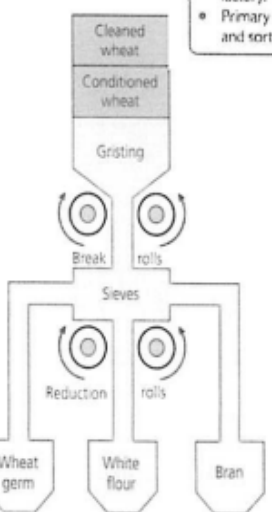


Figure 9.6 The stages of processing wheat

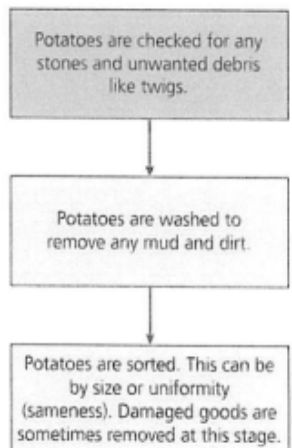


Figure 9.7 Potatoes being sorted

Primary Food	Secondary process	The products after secondary processing
<b>Milk</b> Taken from the cow during the milking process	<b>Cheese</b> Made by separating the curds which is then pressed to remove water	<b>Pizza</b> Cheese is grated and sprinkled onto the pizza before baking <b>Lasagne</b> Cheese is grated and stirred into béchamel sauce.
<b>Fruit</b> Picked from trees/bushes/plants. Cleaned and could be sliced or cored.	<b>Jam</b> The fruit is boiled with sugar then sieved to remove seeds and skin	<b>Swiss roll</b> Jam is spread onto a whisked sponge then rolled up. <b>Bake well tart</b> Jam is spread on the pastry before the frangipani mixture is poured over the top and baked.

# Year 9 French Knowledge Organiser (HT5)

## Unit 4: Moi dans le monde

### Point de départ – Describing a photo

Qu'est-ce qu'on mange? *What do you eat?*

Les élèves mangent ...	<i>The pupils eat ...</i>
du pain	<i>bread</i>
du poulet	<i>chicken</i>
du riz	<i>rice</i>
du yaourt	<i>yoghurt</i>
de la salade	<i>salad</i>
de la viande	<i>meat</i>
des haricots	<i>beans</i>
des légumes	<i>vegetables</i>
des pommes de terre	<i>potatoes</i>
un fruit	<i>a piece of fruit</i>
un petit gâteau	<i>a biscuit</i>

Ils/Elles boivent ...	<i>They drink ...</i>
du lait / de l'eau.	<i>milk/ water.</i>

C'est ...	<i>It is ...</i>
équilibré.	<i>balanced.</i>
sain.	<i>healthy.</i>
savoureux.	<i>tasty.</i>
simple.	<i>simple.</i>
varié.	<i>varied.</i>

Sur la photo, il y a trois enfants et un(e) adulte.	<i>In the photo, there are 3 children and an adult.</i>
Ils sont à la plage.	<i>They're at the beach.</i>
Ils ramassent des déchets.	<i>They're collecting rubbish.</i>
ils portent ...	<i>they are wearing ...</i>
ils cherchent ...	<i>they are looking for ...</i>

### Unit 1 – What you eat

Est-ce que tu manges de la viande?	Do you eat meat?
Je mange ...	I eat ...
de la viande.	meat.
du poisson.	fish.
des céréales.	cereals / grains.
des fruits de mer.	seafood.
des produits laitiers.	milk products.
des produits d'origine animale.	animal products.

Je ne porte jamais ...	I never wear ...
de vêtements en cuir.	leather clothes.
Je ne refuse rien!	I refuse nothing!
Je suis pour le végétarisme.	I am in favour of vegetarianism.
Je suis contre le véganisme.	I am against veganism.

L'empreinte carbone de la viande est très grande.	The carbon footprint of meat is very big.
Il faut protéger l'environnement.	We must protect the environment.
Le régime végétarien est plus sain que le régime ordinaire.	A vegetarian diet is healthier than an ordinary diet.

On doit respecter les animaux.	We must respect animals.
Il est difficile de faire des repas variés quand on ne mange pas de viande.	It's difficult to make varied meals when you don't eat meat.
La viande, c'est très savoureux.	Meat is very tasty.
La viande apporte beaucoup de vitamines importantes.	Meat provides lots of important vitamins.

### Unit 2 – Protect the animals!

Qu'est-ce qu'il faut faire pour protéger les animaux?	What must we do to protect animals?
Il faut ...	We must...
ramasser les déchets.	pick up litter.
recycler.	recycle.
manger moins de viande.	eat less meat.
utiliser moins de plastique.	use less plastic.
consommer moins d'énergie.	consume less energy.
aller ... à pied ou à vélo.	go ... by foot or by bike.

Il ne faut jamais ...	We must never...
acheter des souvenirs d'origine animale.	buy souvenirs made from animal products.
consommer des espèces de poisson menacées.	eat endangered fish species.
laisser des sacs en plastique sur la plage.	leave plastic bags on the beach.

### Arguing!

Est-ce que tu es pour ou contre ...?	<i>Are you for or against?</i>
Je suis pour / contre ...	<i>I am for / against ...</i>
À mon avis, ...	<i>In my opinion, ...</i>
Pour moi, ...	<i>For me, ...</i>
Je trouve que ...	<i>I find / think that ...</i>
Je pense que ...	<i>I think that ...</i>
Tu es d'accord?	<i>Do you agree?</i>
Je suis d'accord.	<i>I agree.</i>
Je ne suis pas d'accord.	<i>I disagree.</i>
Tu as raison!	<i>You're right!</i>
Tu as tort!	<i>You're wrong!</i>
Tu rigoles!	<i>You must be joking!</i>
par contre, ...	<i>on the other hand, ...</i>
cependant, ...	<i>however, ...</i>
d'un côté, ...	<i>on one hand, ...</i>
mais d'un autre côté, ...	<i>but on the other hand,</i>

# Year 9 French Knowledge Organiser (HT6)

## Unit 5: Le monde francophone and cultural topic

### Module 5: Unit 3 - Mission anti-plastique!

Il/Elle est né(e) ...	He/She was born...
Il/Elle a voyagé .	He/She travelled by lorry.
Il/Elle est rentré(e)	He/She went home.
Il/Elle est allé(e)	He/She went to school.
Il/Elle est entré(e) ...	He/She entered ...
Il/Elle a retrouvé ...	He/She met up with ...
Il/Elle est devenu(e) ...	He/She became ...

Qu'est-ce que tu fais pour réduire le plastique?	What do you do to reduce plastic?
On peut recycler le plastique	We can recycle plastic
refuser les sacs en plastique	refuse plastic bags
organiser des campagnes anti-plastique	organise anti-plastic campaigns
acheter des produits recyclés	to buy recycled products
utiliser une bouteille réutilisable / un sac réutilisable	to use a reusable bottle / reusable bag

La semaine dernière, j'ai organisé ...	Last week, I organised ...
Quand j'étais plus jeune, j'utilisais ...	When I was younger, I used to use ...
À l'école primaire, je ne faisais rien.	At primary school, I didn't do anything / did nothing.

### Module 5: Unit 4 – What would you like to do?

Qu'est-ce que tu voudrais faire pour changer le monde? What would you like to do to change the world?

Je voudrais / J'aimerais... acheter moins de vêtements.	I would like ... to buy fewer clothes.
manger moins de viande.	to eat less meat.
consommer plus de produits bio.	to consume more organic products.
refuser le plastique à usage unique.	to refuse single-use plastic.
faire du travail bénévole.	to do voluntary work.
devenir membre d'un groupe écologique.	to become a member of a green group.

### Unit 1 – Where would you visit?

Quel pays voudrais-tu visiter? Which countries would you visit?

Je voudrais visiter ...	I would like to visit ...
Je veux visiter ...	I want to visit ...
parce que j'adore ...	because I love ...
le surf.	surfing.
la plongée avec masque et tuba.	snorkelling.
la plage.	the beach.
les poissons exotiques.	exotic fish.
les fruits de mer.	seafood.

Il y a ...	There is/are ...
un musée (d'art).	a museum (of art).
un monument.	a monument.
des champs.	fields.
On va aller ...	We are going to go ...
au parc national.	to the national park.
à la montagne.	to the mountains.
à la mer.	to the sea.
aux grottes.	to the caves.
aux temples.	to the temples.

### Unit 2 – What we are going to see

On va voir des choses extraordinaires! We are going to see extraordinary things.

C'est ...	It's ...
un pont ...	a(n) ... bridge.
une montagne ...	a(n) ... mountain.
une tour ...	a(n) ... tower.
une île ...	a(n) ... island.
une église ...	a(n) ... church.
impressionnant(e).	impressive
mystérieux/mystérieuse	mysterious
célèbre.	famous
magnifique.	magnificent
magique.	magical
romantique.	romantic

C'est un amphithéâtre magnifique. It is a magnificent amphitheatre.  
Ce sont des arènes magnifiques. They are magnificent arenas.

C'est plus ... que ... It's more ... than ...  
C'est moins ... que ... It's less ... than ...

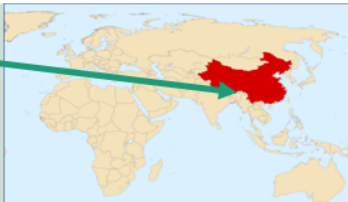
grand(e) / petit(e)	big / small
haut(e) / mauvais(e)	high / bad
bon(ne)	good
beau/belle	beautiful
nouveau/nouvelle	new
vieux/vieille	old



# Asian Giant - China

## Location of China

South East Asia  
East of India  
South of Mongolia  
Yellow Sea to the East  
Himalayas to the South West  
Gobi Desert  
Kun Lun Mountain range



## How is China developing?

China has the **worlds fastest growing economy**. This economic growth is being powered by massive fossil fuel consumption and a large workforce. The **government is spending money on improving Quality of Life** in China and there is a growing, wealthy middle class. There are still large areas of the country which are poor; these tend to be in the rural areas.

### Development Indicators - Trend

Development Indicators - Trend		
GNI per capita	\$15 500	Growing
HDI	<b>0.74</b>	Growing
Infant mortality	9 (per 1000 live births)	Falling
<b>Literacy rate</b>	<b>96.4%</b>	<b>Growing</b>
<b>Life expectancy</b>	<b>76 years</b>	<b>Increasing</b>

China is classed as a **NEE Country – Newly Emerging Economy**.

## Population

China was the first country in the world to record a population in excess of 1 billion; it **is now over 1.4 billion**. This was largely due to past governments encouraging large families. In the 1960s the growth spiralled out of control and the country experienced widespread famine. **In 1979 the government introduced the controversial One Child Policy.**

- Couples had to be married to have a child
- Couples had to apply to the government to have a child
- Those who had one child received benefits and free health care
- Forced abortions were given if pregnant with 2<sup>nd</sup> child.

It led to a number of unplanned side effects:

- Baby boys were favoured over girls; this led to a gender imbalance.
- The poorest became reliant upon the benefits
- Babies being abandoned or dumped in orphanages.

+ The policy was so successful that the government is now actively encouraging larger families. There are concerns that some areas will be underpopulated and industry will suffer in the future and they will struggle to fund the elderly population

The policy was formally phased out in 2015.

## What is China like?

China has gone through massive economic, social and cultural change since it opened its trading borders in 1978. China is also the world's **largest exporter and second-largest importer of goods**. They are now an **economic super power**. The government has invested heavily in transport systems in order to allow trade to take place easily and quickly. This wealth is filtering down to the population and today only 10% of the **Chinese population lives below the poverty line of US\$1 per day**, down from 64% in 1978.

This economic growth has seen an huge rise in urbanisation and rural to urban migration.

Mandarin is the most widely spoken of 292 Chinese dialects.

China's climate is dominated by dry seasons and wet monsoons, which lead to temperature differences between winter and summer.

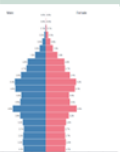
## TNCs in China – Apple and Foxconn

### Why are TNCs located in China?

There are a number of reasons why so many TNCs are choosing to locate factories in China (secondary Industry).

1. Low Wages – reduced costs and increased profits.
2. Cheap land – cheaper to buy land here than in HICs.
3. Resources – lots of energy resources means reliable power.
4. Big population – means plenty of workers for factories.
5. Little Health and safety – factories can be up and running quickly.
6. Roads – products can be transported and exported easily and quickly.
7. Flat land- suitable and cheaper for construction.
8. Cities specialise
9. Special Economic Zones – financial incentives offered by the government in certain areas of the country.

What are they?	Positives	Negatives
TNCs are also known as Multi National Companies. They are companies that operate in a number of different countries. They often locate their factories in NEE/LIC countries and have their headquarters in HICs. They have helped to increase <b>globalisation</b> . spoken.	<ul style="list-style-type: none"> <li>• Employment is provided for local people.</li> <li>• Roads and infrastructure are built by the TNCs.</li> <li>• Increased taxes for the government can be spent on improving education/health/ sanitation.</li> <li>• Other local businesses benefit as people have more money to spend.</li> </ul>	<ul style="list-style-type: none"> <li>• Very long working hours.</li> <li>• Wages are low.</li> <li>• There is no job security.</li> <li>• Health and safety regulations are not as stringent as in HICs</li> <li>• Most of the profit goes back to HICs.</li> <li>• Suicide rates amongst workers are very high.</li> <li>• Poor quality of live amongst workers.</li> </ul>



Population pyramids show the structure of the population in a country in any one year. A narrow base means low birth rates. A wide top means people are surviving to old age like in China. They worried they won't be able to adequately support their elderly population now.

## Environmental Issues

**Air pollution** – In 2010 over 250 000 people died due to air pollution. 1/3 of global lung cancer cases were recorded in China in 2012. Acid rain triggered by combustion of fossil fuels (which releases sulphur dioxide and nitrous oxides) has devastated forests and ecosystems throughout China.

**Water pollution** - Coastal pollution is widespread, leading to declines in habitat quality and increasing harmful algal blooms. This algae is poisonous to all life, and it uses all the oxygen in the water so fish die. Tests on tap water have found Benzene present at 200 micrograms of per litre of water. The national safety standard is 10 micrograms

## Powering Chinas' future Economic Growth

### The 3 Gorges Dam

Rising from the waters of the **Yangtze River**, the Three Gorges Dam stands more than 40 storeys high. The dam stretches for over 2km (1.25 miles), took tens of thousands of **workers over a decade to build** and cost more than \$40bn (£25bn)

### Why was it needed?

If China is **to sustain its economic growth into the future** then they need a reliable source of energy. They government knows that they need to **reduce the amount of fossil fuels they currently consume (namely coal).**

### Benefits

**Reduced risk of flooding**.  
Water stored behind the dam is available for irrigation.  
**Hydroelectric Power (HEP) is generated** by turbines in the dam. It's the worlds largest capacity HEP station.  
The electric produced means China saves 31 million tonnes of coal each year, reducing their greenhouse gas emissions.

### Negatives

Good farmland has been lost  
Over 1.3million people were forced to move their homes  
Archaeological sites were lost. These is an **increased risk of landslides** in some places.  
The project was very expensive. **US\$22.5 billion**  
Downstream areas been more at risk from flooding.

**Panda Solar Farm** - 248 acres in size, located in northern China . One of two built in the shape of a giant panda! There are plans to build another 98 around the country. **China will become the worlds largest producer of solar energy**. Construction created 1000s of jobs and reliable renewable energy.

**Investment in Africa** – China has invested billions of dollars throughout Africa, funding more than 1000 projects in Nigeria, South Africa and Zambia. **They have become Africa's most important trading partner.**

Positives	Negatives
New transport links enables better trade links and public transport Jobs created in new mines Quality of Life increases for locals who now access improved facilities such schools/healthcare	Valuable natural resources are exported out of Africa Dangerous working conditions in copper mines Lots of jobs go to Chinese workers



# ONE MAN'S TRASH IS ANOTHER MAN'S TREASURE

## Global production of waste

Globally **waste** generation rates are rising. Currently **worldwide municipal solid waste** generation stands at over 2 billion metric tonnes and is expected to have increased to 3.4 billion metric tons by 2050. This is due factors such as population growth, urbanisation, and economic growth, as well as **consumer shopping habits**. As humans produce more and more waste, it is increasingly becoming a major issue worldwide and something which **countries need to manage**. However, **less than 20% of waste is recycled each year**, with huge quantities still sent to **landfill** sites. Waste is also often disposed of at hazardous open dump sites, especially in developing nations. **Richer countries produce more waste than poorer countries**, but typically have better waste management to help deal with these issues.

## How does Waste affect the land?

Ghana is located in West Africa and is situated on the coast of the Gulf of Guinea. **Lots of Europe's E-waste ends up in Ghana. This trade is illegal.**

### Social Impacts:

- The working environment is **hazardous**.
- The toxins released from **burning waste can cause breathing problems and even cancer**.
- People suffer from **burns, back problems and infected wounds**.

### Environmental Impacts:

- Scrap metal is **burned which releases toxic substances into atmosphere creating air pollution**.
- The ground also gets **polluted**.

### Economic impacts:

- Both the **people of Ghana and the Ghanaian economy can make money** from sorting through and selling on parts of the E-waste for re-use.

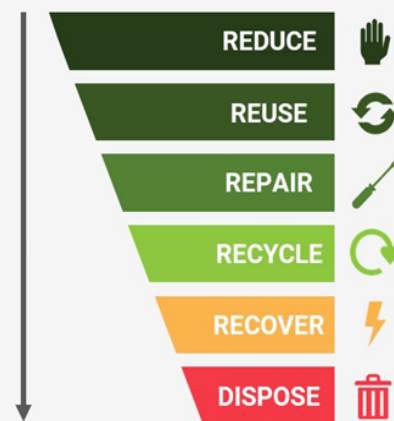
**E-waste is only likely to increase in the future** as more and more people want the most up to date forms of electronics. Also, people in the developing world are getting richer and can afford to buy electrical items, so the market is expanding.

# Environmental issues: Waste

## Key term definitions

<b>Waste</b>	<b>Unwanted or unusable material</b> , substances, or by-products.
<b>Municipal Solid Waste (MSW)</b>	Includes <b>household waste</b> and waste similar in nature and composition to household waste consisting of everyday items that are discarded by the public.
<b>Waste stream</b>	the complete <b>flow of waste from</b> its domestic or industrial source through to recovery, recycling or final disposal.
<b>Landfill</b>	The <b>disposal of refuse and other waste material by burying it and covering it over with soil</b> .
<b>Incineration</b>	Incineration is a waste treatment process that involves the <b>combustion of organic substances contained in waste materials</b> . It can reduce the volume of waste by up to 90% leaving only ash that still needs to be disposed of.
<b>E waste</b>	<b>Electronic products that are unwanted, not working, and nearing or at the end of their "useful life."</b> E.g. Computers, televisions.
<b>Marine debris</b>	is litter that ends up in oceans, seas, and other large bodies of water.
<b>Microplastics</b>	extremely small pieces of plastic debris in the environment
<b>Waste hierarchy</b>	<b>Ranks waste management options according to what is best for the environment.</b> (see diagram below)

## Most favoured option



## Least favoured option

## How does Waste affect the oceans?

Plastic is made from fossil fuels and has only existed for around 100 years, however it can exist for 100's of years before breaking down. About 8 million tons of plastic end up in the ocean every year, and plastic makes up 80% of all marine debris. Most plastic which ends up in the oceans come from land, especially via rivers. This waste can then be moved around the planet by **ocean currents**. Marine species ingest or are entangled by plastic debris, which causes severe injuries and death.

The Great Pacific Garbage Patch is a collection of marine debris in the North Pacific Ocean. The amount of debris in the Great Pacific Garbage Patch is not biodegradable and is **mainly mad up of tiny bits of plastic, called micro plastics**. The Great Pacific Garbage Patch is so far from any country's coastline that **no country will take responsibility or provide the money to clean it up**.

### Ways to reduce plastic:

- Use re-usable drinks bottles/cups rather than single use plastic ones
- Avoid takeaways and make meals at home
- Use re-usable cutlery and straws.
- Store leftovers in glass jars
- Buy products in cartons or glass jars.

## Waste in the UK

The **UK produces approximately 225 million tonnes of waste each year**. 12% of this is created by households. UK residents throw away 15-20% of the food they buy, costing families £800 per year. **England's recycling rates are 45%** and typically London is the worst at recycling.

**Lots of the UK's waste gets shipped abroad**. Previously most waste went to China, but they put a ban on this in 2018, so Malaysia is now the largest export destination of the UK's waste.

## Waste disposal in the UK

<b>Landfill</b>	Approx. 45% of UK's waste ends up in landfill. There are more than 500 landfill sites across the UK many of which will be full in the next few years. + It's an easy way of disposing of waste - Can cause ground, water and air pollution
<b>Incineration</b>	Waste is burned and the heat created can be used to heat water and create electricity. + Deals with a lot of waste and can create electricity. - Costly and does release some toxins to locally area.
<b>Recycling</b>	Converting waste into re-usable materials. Recycling rates in the UK are increasing. + Reduces the needs for new products to be made from scratch. - Relies on individual households to sort own waste into categories – can be confusing.
<b>Composting</b>	Organic waste e.g. food or garden waste can be composted and treated to produce soil conditioner. + Easy to do and reduces carbon emissions - Can take time, takes up space and can create smells.

# Year 9 German Knowledge Organiser (HT5)

## Unit 4: Klassenreisen machen Spaß!

**In der Jugendherberge**  
die Hausordnung

Man muss vor 22:00 Uhr

Man muss das Bett  
machen.

Man muss das Zimmer

Man muss vor acht Uhr  
aufstehen.

Man muss abwaschen.

Man darf nicht rauchen.

Man darf nicht im Zimmer  
essen.

Man darf keine laute  
Musik hören.

**Der Tagesablauf**

Ich stehe auf.

Ich wasche mich.

Ich dusche mich.

Ich ziehe mich an.

Ich frühstücke.

Ich gehe aus.

Ich komme zurück.

Ich esse zu Abend.

Ich gehe ins Bett.

**In the youth hostel**

rules of the house

You have to go to bed before  
ten o'clock.

ins Bett gehen.

You have to make the bed.

You have to keep the room  
clean.

sauber halten.

You have to get up before eight  
o'clock.

You have to wash up.

You must not smoke.

You must not eat in the room.

You are not allowed to listen to  
loud music.

**Daily routine**

I get up.

I get washed.

I have a shower.

I get dressed.

I have breakfast.

I go out.

I come back.

I have dinner/the evening  
meal.

I go to bed.



**Wie komme ich zum/zur ...?**

Geh/Geht/Gehen Sie ...!

(nach) links

(nach) rechts

geradeaus

Nimm/Nehmt/Nehmen  
Sie ...!

die erste Straße links

die zweite Straße rechts

Geh an der Ampel links!

Geh an der Kreuzung  
rechts!

der Bahnhof

der Park

die Bushaltestelle

die Kirche

das Schwimmbad

das Hallenbad

das Museum

der Markt

der Lehrer

die Lehrerin

das Souvenirgeschäft

die Imbissstube

das Eiscafé

vor dem/der ...

**How do I get to the ...?**

Go ...!

(to the) left

(to the) right

straight on

Take ...!

the first street on the left

the second street on the  
right

Go left at the lights.

Go right at the crossroads.

station

park

bus stop

church

swimming pool

indoor swimming pool

museum

market(place)

teacher (male)

teacher (female)

souvenir shop

snack bar

ice cream parlour

in front of the ...



**Auf einem Fest**

der Umzug(·-e)

der Festwagen(-)

die Band(s)

das Kostüm(e)

der Hut(·-e)

die Fahne(n)

die Kirmes(sen)

das  
Fahrgeschäft(e)

der Imbiss(e)

bunt

traditionell

der Trick(s)

das Handy(s)

die Haare (pl)

die Schuhe (pl)

**At a festival**

procession, parade

float (in a parade)

band, group

costume, outfit

hat

flag

funfair

ride (at funfair)

snack

colourful

traditional

trick

mobile phone

hair

shoes

# Year 9 German Knowledge Organiser (HT5)

## Unit 4: Klassenreisen machen Spaß!

Entschuldigung/Bitte, ... *Excuse me/Please, ...*

Danke (sehr/schön)./ *Thank you very much.*

Vielen Dank

Bitte (sehr/schön). *You're welcome.*

Nichts zu danken. *Don't mention it.*

### Oft benutzte Wörter *High-frequency words*

weil *because*  
 sein/seine *his*  
 ihr/ihre *her*  
 zu *to*  
 sehr *very*  
 ziemlich *quite, fairly*  
 ein bisschen *a bit*  
 nicht *not*  
 haben *to have*  
 sein *to be*  
 in *in*  
 an *at, by, on (wall)*  
 auf *on (top of)*  
 neben *near, next to*  
 heute *today*  
 morgen *tomorrow*  
 vor *before*  
 nach *after*

und *and*  
 (und) auch *(and) also*  
 aber *but*  
 sehr *very*  
 ziemlich *quite*  
 nicht *not*  
 Was denkst du? *What do you think?*  
 Ich denke, ... *I think ...*  
 Ich auch! *Me too!*  
 Ich nicht! *Not me!*  
 Was? Du spinnst! *What? You're joking!*

### Die Monate

Januar

Februar

März

April

Mai

Juni

Juli

August

September

Oktober

November

Dezember

### The months

January

February

March

April

May

June

July

August

September

October

November

December



### Um wie viel Uhr?

um ... Uhr

um fünf/zehn/zwanzig nach ...

um fünfundzwanzig vor ...

um Viertel nach ...

um Viertel vor ...

um halb acht

### At what time?

at ... o'clock

at five/ten/twenty past ...

at twenty-five to ...

at quarter past ...

at quarter to ...

at half past seven



Y9 Unit 3.1: What's significant about WW2?		What was the main cause of WW2? (steps to war)
<b>How did fascism lead to WW2?</b>		<b>S</b> <b>Saar Plebiscite 1935:</b> In 1935 the inhabitants of the Saar voted to return to Germany. The Saar plebiscite is cited by many historians as the first step to war. <b>It demonstrated that Germans were NOT just being forced into supporting the Nazis.</b> The result gave a massive boost to Hitler's prestige and provided him with <b>authority to advance his demands for unity with Austrian and the Sudeten Germans.</b>
In the 1920s, increasing numbers of people in Europe became drawn towards a new political idea known as Fascism. <b>Fascism emerged largely due to unhappiness with democratic governments</b> , such as Germany's Weimar Republic. Having experienced the chaos of WW1, many people were more willing to accept governments who used force to impose order and discipline. Hitler, <b>inspired by Mussolini in Italy</b> used the economic chaos in Germany gain to popularity by promising to restore Germany. <b>Hitler used fascist ideals to gain support. For example, nationalism and lebensraum.</b> He then enforced a brutal, fascist police state with himself as Fuhrer.		
<b>Why did Britain try to appease Hitler?</b>		<b>C</b> <b>Conscription and re-armament 1933-1935:</b> Conscription was specifically forbidden by the Treaty of Versailles. <b>Rearmament had been going on secretly since 1933. In March 1935 Hitler reintroduced conscription.</b> Between 1932-9, the number of soldiers grew from 100,000 to a million, and the number of airplanes grew from 36 to 8250. No country questioned the breach of the Treaty of Versailles. It made Hitler <b>very popular in Germany – it reduced unemployment, it made Germany strong.</b>
Britain initially pursued a policy of appeasement, seeking to give Hitler some of what he wanted in order to preserve peace.		<b>R</b> <b>Remilitarisation of Rhineland 1936:</b> Hitler invaded the Rhineland on 7 March 1936, there was no resistance - <b>Britain was not keen to provoke Germany.</b> Hitler openly broke the Treaty of Versailles.-Hitler's position strengthened and it increased his confidence. <b>It was the start of a feeling that he would always get away with it</b> (Britain & France would always back down). It encouraged Hitler to try to reunite with Austria - Anschluss.
<b>Arguments 'for' appeasement</b>	<b>Arguments 'against' appeasement</b>	<b>A</b> <b>Anschluss with Austria 1938</b> Hitler invaded Austria (11 March 1938). <b>This broke the Treaty of Versailles</b> , but Britain and France did nothing. Hitler was Austrian and many people welcomed the Anschluss. Over <b>99% voted in favour of union with Germany.</b> The result was influenced by Nazi pressure. There was a feeling that the Treaty of Versailles had been harsh on Germany and Britain should not defend it. <b>It was the first time Hitler had tried aggression outside Germany, Hitler's confidence grew.</b>
<ul style="list-style-type: none"> <li>- Many people agreed the Treaty of Versailles had been unfair to Germany.</li> <li>- Stalin and the USSR was a greater threat – Hitler might stop him.</li> <li>- Britain wasn't ready for another war – it gave chance to prepare.</li> </ul>	<ul style="list-style-type: none"> <li>- Appeasement gave Hitler an advantage. Germany was strong they had taken resources of Austria &amp; Czechoslovakia.</li> <li>- It allowed Hitler to break international law.</li> <li>- Britain looked weak</li> </ul>	<b>M</b> <b>Munich agreement September 1938:</b> In 1938, Hitler tried to take over the Sudetenland. At Munich, on 29 September 1938, <b>Britain and France gave Hitler the Sudetenland. Hitler had gained the Sudetenland without fighting.</b> Czechoslovakia was now defenceless. Britain and France had again shown their weakness, <b>Hitler decided that Britain and France were afraid of him and would not stop him whatever he did.</b>
<b>How do historians judge significance?</b>		<b>C</b> <b>Czechoslovakia March 1939:</b> Hitler's troops marched into the rest of Czechoslovakia. <b>This broke the Munich agreement.</b> There were no German speaking people there and no demand from the people to join Germany. <b>Hitler had proved to Chamberlain that he could not be trusted.</b>
<b>Remembered:</b> The event/development was important to a large group of people		<b>U</b> <b>USSR/NAZI PACT – Nazi-Soviet Pact August 1939:</b> In August 1939, <b>Hitler made a secret treaty with Russia.</b> Both countries agreed not to attack each other. Germany was to attack Poland from the west, the USSR to attack from the east. <b>Hitler felt free to attack Poland. He thought Britain would back down as it had at Munich,</b> especially as Danzig was German & the Polish Corridor separated Germany from East Prussia.
<b>Resulting in change:</b> It had consequences for the future. Did it cause other events?		<b>P</b> <b>Poland September 1939:</b> The <b>German army invaded Poland on 1 September 1939.</b> Chamberlain tried to get them to withdraw and hold a peace conference. This failed, <sup>25</sup> and on <b>3 September 1939 Britain declared war on Germany.</b>
<b>Revealing:</b> It reveals some other aspect of the past or further details about another event or individual.		
<b>Remarkable:</b> The event/development was/is remarked upon – unusual/unexpected		

## Y9 Unit 4: The Holocaust

<p><b>The history of Jewish persecution in Europe</b></p> 	<p>1096-1881: Unfortunately, <b>anti-Semitism</b> has been common in Europe for hundreds of years. As far back as 1096, we see records of Jewish people being massacred by crusading Christians, while <b>rumours about Jews practising magic and working with the devil</b> are common throughout European history. In late Medieval times Jews were barred from certain jobs and some would lend money to others to get by, this unfortunately led to a <b>stereotype of Jews as moneylenders</b>. Many people resented being in debt and wrongly blamed their debts on Jews. Whilst untrue, rumours of Jews carrying out ritual murders (<i>blood libel</i>) were common. <b>Some of Europe's most famous and important 20<sup>th</sup> century figures were Jewish</b>, including physicist Albert Einstein, psychologist Sigmund Freud and the writer, Franz Kafka. Despite this, <b>the early 20<sup>th</sup> century saw a growth in political antisemitism</b> as politicians took advantage of anti Jewish prejudices to win votes. Much of this <b>prejudice was based on false rumours that Jews were involved in a secret conspiracy to take over the world</b>, rumours that were based on a forged book called "The Protocols of the Elders of Zion." Forged in Russia and published in 1905, the book claimed to contain the details of a meeting of Jewish leaders who were discussing their planned take over of the world. The Nazis used antisemitism to gain power in Germany and carry out the Holocaust. The Holocaust, or Shoah in Hebrew, refers to <b>the mass murder from 1941-1945, of at least 6 million Jews, Slavs, homosexuals, disabled people</b> and other groups considered inferior by the Nazi regime that held power in Germany from 1933-1945.</p>
<p><b>How and why was the holocaust able to happen?</b></p> 	<p>As a result of German expansion in WW2, Germany found themselves with many more Jews under their control than before. Reinhard Heydrich, Reich Security officer, ordered that these Jews be moved to <b>ghettos</b>. These ghettos were overcrowded (Warsaw ghetto had at least 400,000 Jews living over 1.3 square miles) and were rife with disease and starvation. In 1941, the Nazis invaded the Soviet Union. They believed the Slavic people who lived in the areas East of Germany were an inferior race and orders were given for the German army to kill any Slavs or Communists they saw. <b>Nazi killing squads called Einsatzgruppen were set up, they killed more than a million Jews</b>, usually by firing squad, this is sometimes called the <b>"Holocaust by bullets."</b> In Summer 1941, a Nazi called Herbert Lange was asked to find an efficient way to kill Jews. He drove some Jews from a village called Chelmno to a nearby mansion and told them to get showered. Lange locked the doors and gassed them. Lange's use of gas led to the creation of <b>the first Nazi death camp</b> (Chelmno). Following the Wannsee Conference in 1941, death camps were built. <b>Mass murder using gas chambers were the Nazis "final solution"</b>. Germany was suffering economically and many Germans were desperate for someone to blame for the loss of WW1 and the Jews were a convenient scapegoat. <b>The Nazis controlled public opinion through propaganda, controlling education, trying to convince people of the 'science' behind their ideals (eugenics), creating reward programmes such as "strength through joy" and their feared police and security forces; the Gestapo and the SS.</b> It is also true, that many Germans believed the Nazis lies because they had antisemitic views.</p>
<p><b>Life for Jews in Nazi Germany</b></p> 	<p>Even before the outbreak of WW2, Hitler and the Nazis encouraged hatred of Jews in Germany. Anti-Jewish propaganda was published, portraying Jews as greedy, mysterious, untrustworthy and not part of the German race. <b>Several laws were passed which limited the rights of Jewish people.</b> They were banned from joining sports clubs, working in certain professions (lawyers and teachers) and Jewish children were barred from attending German schools. In 1935 <b>the Nuremberg race laws were passed</b> which banned Jews from being German citizens, they had no protection under the law. One of the most shocking incidents was <b>Kristallnacht</b> which took place on 9<sup>th</sup> November 1938. Following the murder of a German diplomat in Paris, the Nazis stormtroopers (The SA) along with some ordinary Germans, <b>attacked and destroyed 7,000 Jewish businesses in Berlin.</b> Synagogues were burned and <b>between 91-250 Jews died as a result.</b> The Nazis made the Jews pay for any damages and began arresting Jews without cause, many historians consider Kristallnacht to be the beginning of the Holocaust in Europe.</p>
<p><b>The Police State – Consent VS Coercion</b></p> 	<p>The Nazis established a controlling police state. Central to this were <b>the Gestapo, the Nazi secret police. Their job was to spy on the German people</b>, gathering information in secret from friends and neighbours. The Gestapo could arrest and send people to concentration camps without trial or explanation. Equally feared, were <b>the SS or Schutzstaffel</b>, Hitler's ruthless security force led by Heinrich Himmler. They would attack Jews and other groups and intimidate political opponents. In 1933 approximately 200,000 political opponents were sent to Nazi concentration camps. The Nazis also won support by creating jobs and reducing unemployment, <b>many Germans felt the future was bright under the Nazis.</b> There were groups who openly opposed the Nazis. One of these was <b>the Edelweiss pirates</b>, a group of youth who sang anti-Nazi songs and made fun of Hitler Youth. By the 1940s they were being sent to concentration camps, some were executed. Another important group – <b>The White Rose Group</b>, a group of University students and a professor. <b>They published thousands of pamphlets exposing the Nazi regime as a "dictatorship of evil"</b> and labelling its leaders as "criminals." The leaders of the White Rose Group were given up to the Gestapo in 1943 and were executed.</p>
<p><b>Concentration Camps</b></p> 	<p><b>The Nazis began building concentration camps</b> early in the 1930s to hold political opponents. Prisoners in the camps were given <b>basic food and shelter and forced to work in squalid conditions.</b> Dissenters or would be escapees could be executed and guards had a reputation for brutality. By 1941, the Nazis had begun building extermination camps or death camps. Jews would be rounded up from ghettos, concentration or labour camps and sent to the death camps. Prisoners were undressed and sent straight to gas chambers where they were murdered, their possessions were taken and their bodies were burned. In total, <b>the Nazis killed almost 3 million Jews using death camps.</b> The most infamous of all was <b>Auschwitz Birkenau, where over 1 million Jews were murdered by gas.</b> Most camps were built in Poland, but there were also camps in places such as Serbia, Croatia, Belarus.</p>
<p><b>Jewish resistance</b></p> 	<p><b>Fighting back against the Nazis was very difficult.</b> They were well trained and heavily armed while Jews in camps and ghettos were rarely armed or trained at all. Nazi officers would execute any rebels and even kill their families to discourage resistance. Still, there were more than 100 organized Jewish resistance movements in camps and ghettos from 1941-1943. The most well-known resistance movement was <b>the Warsaw Ghetto uprising in April-May 1943.</b> A group of Jews living in the ghetto led by 23-year-old Mordecai Anielewicz smuggled weapons into the ghetto and fired on German guards, resisting their removal to a death camp for almost a month. The fighters barricaded themselves into buildings, the Nazis responded by burning down the whole ghetto, building by building. Eventually the rebels were rooted out and <b>7,000 Jews were killed including Anielewicz.</b> Still, the uprising was the fiercest resistance operation ever staged against the Nazis and inspired subsequent uprisings in camps and ghettos across Europe.</p>

Key terms	Definition
<b>Jew</b>	A follower of Judaism. Jews and Christians both have the same God but have different beliefs about the message of the bible. For example, Christians believe that Jesus was the Son of God and saviour of mankind. Jews respect Jesus as a leader, but do not believe he was the saviour or the Son of God.
<b>Aryan</b>	In the 19 <sup>th</sup> and 20 <sup>th</sup> Centuries, some people believed that Europeans were descended from the ancient 'Aryan' race, who were racially superior to other races. There is no real evidence for an 'Aryan' race actually existing – Hitler referred to them as the 'master race'.
<b>Nazi</b>	A member or supporter of the Nazi Party who governed Germany from 1933-1945. The Nazis were led by Adolf Hitler.
<b>Holocaust / Shoah</b>	Mass murder (genocide) of Jews and other minority groups including Slavs, gypsies and homosexuals which took place 1941-1945. The Jewish word for the holocaust is "Shoah" which means catastrophe.
<b>Concentration camp</b>	A camp in which people are held under harsh conditions, usually for being part of a group that a country has decided are "undesirable." First used by the British in the Boer War.
<b>Boycott</b>	To withdraw support for something as a protest. One of the first things that the Nazis did to persecute the Jews was to encourage the people of Germany to boycott Jewish businesses (refuse to buy from them).
<b>Einsatzgruppen</b>	Nazi death squads. Their job was to round up Jews and other undesirable groups and shoot them; this included non combatants. They killed around 2 million people.
<b>Anti-Semitism</b>	Hostility towards or prejudice against Jewish people.
<b>Ghetto</b>	A part of a city or an area in which members of a minority group live together. Jews in Nazi occupied countries were forced to live in ghettos before the Nazis started moving them to concentration camps.
<b>Pogrom</b>	A violent riot with the aim of expelling or massacring a group of people, usually Jewish people. Pogroms against Jews have taken place throughout history, most notably in Russia from 1881 onwards, when Jews were blamed for the assassination of Tsar Nicholas II. In 1905, over 2,500 Jews were killed in Russia.
<b>Police State</b>	A country in which the Government has total control and uses the police to enforce that control, not for the benefit and protection of the people, but to control them and crush political opposition.
<b>Gestapo</b>	The Nazi Secret Police force. They would gather information about people who were suspected of opposing the Nazi leadership. They spied on people and collected information from communities.
<b>Genocide</b>	Acts committed with intent to destroy, in whole or in part, a national, ethnical, racial or religious group.
<b>Stereotype</b>	A widely held, simplified and often untrue view of something or someone.

**What was the Holocaust?**  
 During the Second World War, the Nazis murdered nearly six million European Jews. This **genocide** is called the Holocaust. The Holocaust has a number of causes. Its direct cause is the fact that the Nazis wanted to exterminate the Jews. But their lust for murder didn't come out of nowhere. The antisemitic Nazi ideology must be considered in the broader context of the age-old hostility towards Jews, modern racism, and nationalism.

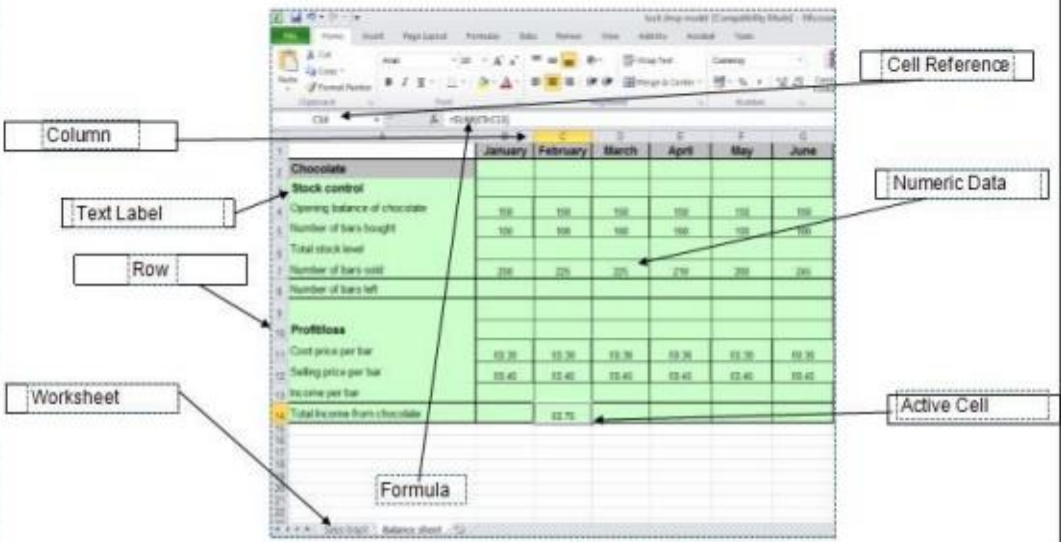
**Interpretations of the holocaust:**  
 Since the fall of Nazi Germany in 1945, the holocaust has become one of the most debated aspects of 20<sup>th</sup> century history. This is, in part because it is so important but also **because the Nazis destroyed much of the evidence for what they were doing**, so it is still unclear how much of the Holocaust was planned, who was actually involved (was it mainly carried out by the Nazis or ordinary Germans too?) and even Hitler's own level of involvement is debated (did he order and oversee the holocaust himself or were lower ranking Nazis more responsible for key decisions?). **Some Historians argue that Hitler planned the Holocaust from the start and the Nazis were heavily involved in it's execution;** these historians are called "intentionalists."  
 Another group are the "**functionalists.**" **These historians argue that the Holocaust was not closely planned in detail** and was carried out because of the initiative of other groups such as the SS or ordinary Germans. The most common view today is a mixture of these two, best summarized by Historian, Ian Kershaw who believes that Hitler's violence and anti-Semitism were vital in causing the holocaust, though he probably didn't plan it in detail himself, and left it to his followers to do most of the planning and arranging.

<b>1933:</b> Hitler passes the enabling act in Germany, giving him the power to make laws. Germany is under Nazi control.	<b>1935</b> The Nuremberg Laws: Jews are banned from being German citizens or marrying non Jews.	<b>1938</b> Kristallnacht; A night of Nazi perpetrated violence against Jews, 91-250 Jews killed, 7,000 businesses destroyed, the Holocaust begins.	<b>1939</b> Hitler invades Czechoslovakia and Poland, WW2 breaks out, the Nazis now control many more European Jews than they did before war.	<b>October 1939</b> The first Jewish ghettos established in Nazi occupied countries. Conditions are squalid, there is poverty, starvation and isolation.	<b>1941</b> Germany begin their invasion of the Soviet Union, Einsatzgruppen Death Squads are used to kill Jews by firing squad.	<b>Summer 1941</b> The first use of gas to kill Jews by a low ranking Nazi, Herbert Lange and Chelmo in Poland,	<b>January 1942</b> The Wannsee Conference is called to find a "final solution" to the "Jewish problem." The Nazis begin to build death camps around Europe.	<b>1942-1945</b> More than 2 million Jews are moved from concentration camps and ghettos to death camps where they are killed using poisonous gas.	<b>1945</b> WW2 ends and Nazi Germany is defeated, America, British and Russian troops discover the camps, exposing the holocaust to the world. 27
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**Spreadsheets** are used to store information and data. Once we have our data in a spreadsheet we can perform powerful calculations, make graphs and charts and analyse pattern/trends in the data. Once the data is formatted it becomes information.

Other uses for spreadsheets –

- Modelling and Planning
- Finance and Budgeting
- Predictions / Simulations
- Calculations
- Creating charts and graphs



**Golden rule: every formula always starts with an =**

Cell references begin with a letter, and finish with a number. EG: **A1**

	A	B	C	D	E	F	G
1							
2							
3							
4							
5							

A range is a selection of cells. EG: **A2:F4**

	A	B	C	D	E	F	G
1							
2							
3							
4							
5							

**Operators**

+	Adds two numbers / cells
-	Subtracts one cell or number from another
*	Multiplies two numbers/cells
/	Divides one number / cell from another one
<	Less than
>	Greater than
<=	Less than or equal to
>=	Greater than or equal to

**At Home Imagine that you are creating a spreadsheet to keep track of your spending – include pocket money, money received as gifts etc.**

- Could you use a function to calculate how long it would take you to save up for something that you want? Could you create a test for someone else who has completed this unit to check their knowledge of the key terms learnt? Could you create your own 'house style'? What font would you use? What colour scheme?

**Knowledge Organiser - Spreadsheets**

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

<b>Common Formulas/Functions</b>	<b>= SUM</b>	Adds a range of cells together
	<b>= AVERAGE</b>	Finds an average for a range of cells
	<b>= MIN</b>	Returns the smallest value in range
	<b>= MAX</b>	Returns the highest value in a range
	<b>= COUNT</b>	Counts cells if they meet a condition

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

# Knowledge Organiser Computer Science Programming

**Selection** is used to allow the program to make a choice and take a different path.

The keywords used in Python are:

**if** - checks if the **condition** is true, if so the program runs the indented code below it.

**elif** - if the first **if** fails then this **elif** condition is checked, there can be multiple of these.

**else** - if all **if** and **elif** statements are not true the the code indented below **else** will run.

**Example:**

```
colour = input("Enter your favourite colour");
if colour == "Red":
    print("Reminds me of tomatoes");
elif colour == "Blue":
    print("Reminds me of the sea!");
else:
    print("If it ain't Red or Blue then I ain't interested");
```

**Variables** are simply a place on the computer's memory that is given a name in order for it to remember it.

In Python you create a variable by writing the name of the variable followed by an =.

**Examples:**

```
name = "Spongebob"; age = 14
```

To **print** out a statement or a **variable** we use the code below:

**Printing a new message:**

```
print("Hello World");
```

**Printing the value of a variable:**

```
print(x);
```

**Printing a message with variables included:**

```
print("Hello",name,"your are",age,"years old today");
```

**Key Words:**

**Algorithm:** A set of instructions or code used to solve a problem.

**Syntax:** The rules of the programming language that need to be followed in order for it to work.

**Variables:** Data that is stored in memory that is likely to change.

**Program:** Code compiled together to perform a specific function.

**String:** A Variable data type that can store a combination of letters, characters and numbers.

**Integer:** A Variable data type that can store whole numbers.

**Float:** A Variable data type that can store decimal numbers.

**Boolean:** A Variable data type that stores either TRUE or FALSE.

To allow your Python program to get information from the user you will need to use the **input** command. Make sure you use the correct command for what you are asking for.

**String inputs (such as a name):**

```
input("Enter your name");
```

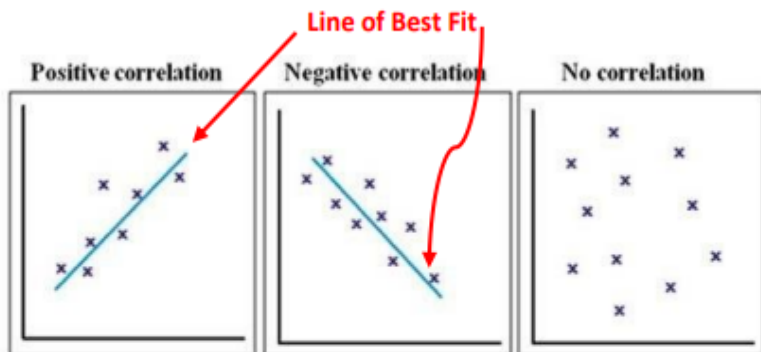
**Integer Inputs (for whole number responses):**

```
int(input("What is your age?"));
```

**Float Inputs (for decimal number responses):**

```
float(input("What is your shoe size?"));
```

## Scatter Graphs and Correlation



The points lie close to a straight line, which has a positive gradient.

This shows that as one variable **increases** the other **increases**.

The points lie close to a straight line, which has a negative gradient.

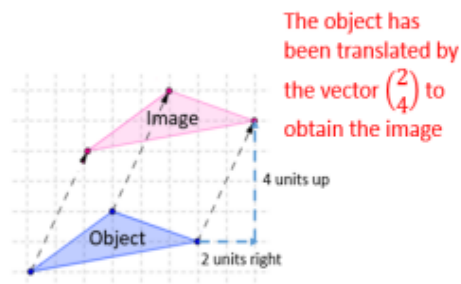
This shows that as one variable **increases**, the other **decreases**.

There is no pattern to the points.

This shows that there is **no connection** between the two variables.

## Translations:

$$\text{Translation Vectors: } \begin{pmatrix} x \\ y \end{pmatrix}$$



## Compound Measures

Speed ( $S$ ), Distance ( $D$ ) and Time ( $T$ )

$$S = \frac{D}{T}, \quad D = S \times T, \quad T = \frac{D}{S}$$

Pressure ( $P$ ), Force ( $F$ ), and Area ( $A$ )

$$P = \frac{F}{A}, \quad F = P \times A, \quad A = \frac{F}{P}$$

Density ( $D$ ), Mass ( $M$ ) and Volume ( $V$ )

$$D = \frac{M}{V}, \quad M = D \times V, \quad V = \frac{M}{D}$$

Units:

Speed: m/s, km/h, mph

Pressure: N/m<sup>2</sup>, N/cm<sup>2</sup>

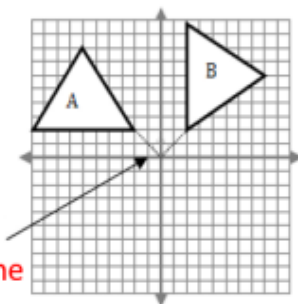
Density: kg/m<sup>3</sup>, g/cm<sup>3</sup>

## Rotations

Angle (90°, 180° or 270°)

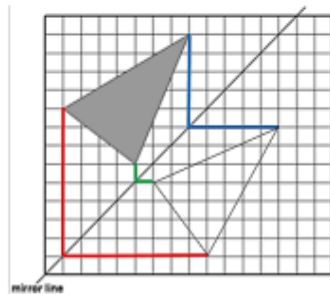
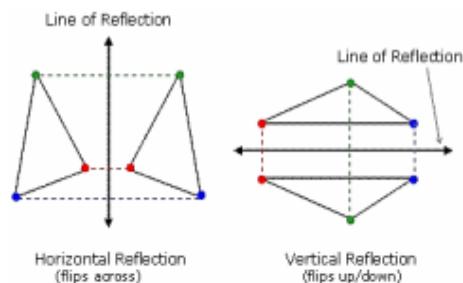
Direction (Clockwise or Anti-Clockwise)

Centre of Enlargement

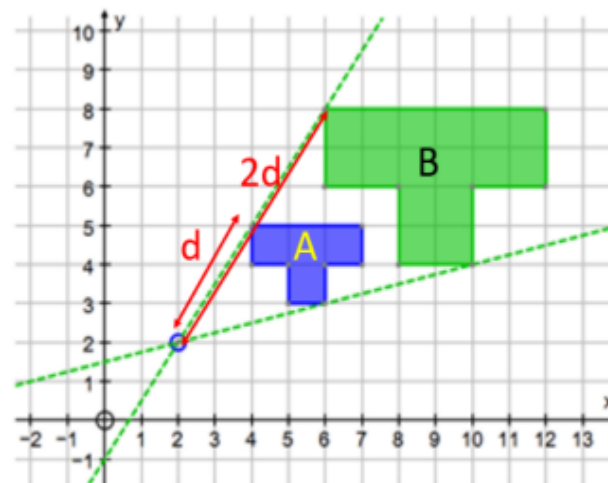


Shape A has been rotated 90° clockwise about the Origin (0,0)

## Reflections



## Enlargements



Shape A has been enlarged by a scale factor 2 about the point (2,2) to obtain shape B

Shape B is also twice the distance from (2,2) compared to Shape A

# 9A Half-term 5

### Solving Linear Equations 1:

To solve equations use the **BALANCING METHOD**

$$4(2x - 3) = 36$$

Expand the brackets

$$8x - 12 = 36$$

$$(+12) \quad (+12)$$

$$8x = 48$$

$$(\div 8) \quad (\div 8)$$

$$\text{Solution: } x = 6$$

$$7x - 11 = 2x + 34$$

Subtract  $2x$  from both sides as it is the smallest

$$(-2x) \quad (-2x)$$

$$5x - 11 = 34$$

$$(+11) \quad (+11)$$

$$5x = 45$$

$$(\div 5) \quad (\div 5)$$

$$\text{Solution: } x = 9$$

$$\frac{x}{4} + 7 = 11$$

$$(-7) \quad (-7)$$

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

$$(\times 4) \quad (\times 4)$$

$$\text{Solution: } x = 16$$

### Solving Linear Equations 2:

Linear Equations can have fractional and negative solutions!

$$18 - 7x = 3(2x - 8)$$

Expand the brackets

$$18 - 7x = 6x - 24$$

Add  $7x$  from both sides as it is the smallest

is the smallest

$$(+7x) \quad (+7x)$$

$$18 = 13x - 24$$

$$(+24) \quad (+24)$$

$$42 = 13x$$

$$(\div 13) \quad (\div 13)$$

$$\text{Solution: } x = \frac{42}{13}$$

$$\frac{3x + 8}{2} = 1$$

$$(\times 2) \quad (\times 2)$$

$$3x + 8 = 2$$

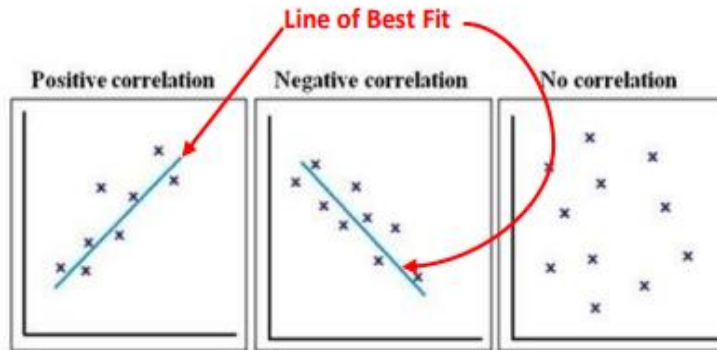
$$(-8) \quad (-8)$$

$$3x = -6$$

$$(\div 3) \quad (\div 3)$$

$$\text{Solution: } x = -2$$

### Scatter Graphs and Correlation



The points lie close to a straight line, which has a positive gradient.

This shows that as one variable **increases** the other **increases**.

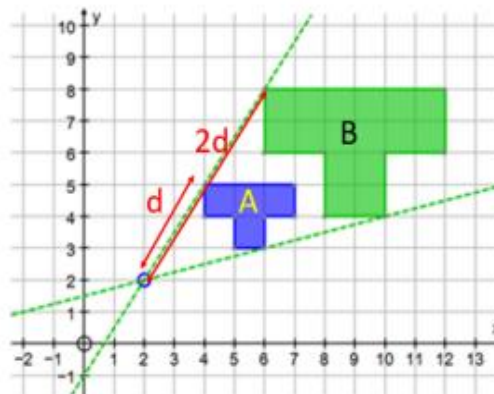
The points lie close to a straight line, which has a negative gradient.

This shows that as one variable **increases**, the other **decreases**.

There is no pattern to the points.

This shows that there is **no connection** between the two variables.

### Enlargements

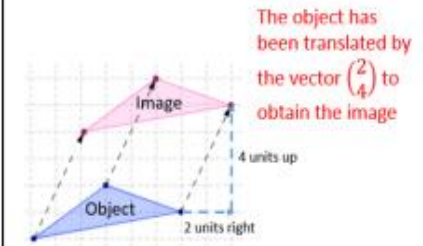


Shape A has been enlarged by a scale factor 2 about the point (2,2) to obtain shape B

Shape B is also twice the distance from (2,2) compared to Shape A

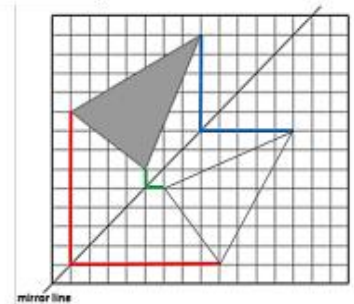
### Translations:

Translation Vectors:  $\begin{pmatrix} x \\ y \end{pmatrix}$



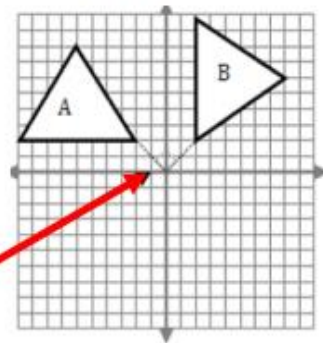
The object has been translated by the vector  $\begin{pmatrix} 2 \\ 4 \end{pmatrix}$  to obtain the image

### Reflections



### Rotations

- Angle ( $90^\circ$ ,  $180^\circ$  or  $270^\circ$ )
- Direction (Clockwise or Anti-Clockwise)
- Centre of Rotation



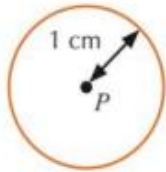
Shape A has been rotated  $90^\circ$  clockwise about the point (0,0)

9B

Half-term 5

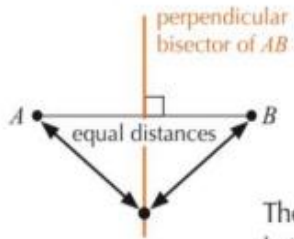
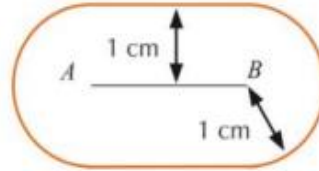
## Loci

A **locus** (plural **loci**) is a **set of points** which satisfy a particular condition. The types of loci you need to know are the sets of points that are a **fixed distance away** from a point or a line (or another kind of shape), and the sets of points that are **equidistant** (i.e. the **same distance**) from two points or two lines.



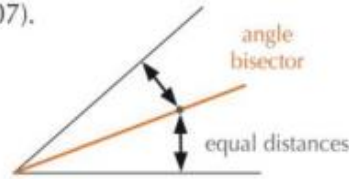
The locus of points that are a fixed distance, e.g. 1 cm, from a **point P** is a **circle** with radius 1 cm centred on **P**. To construct this, set your **compasses** to the given distance and draw a circle around the point.

The locus of points that are a fixed distance from a **line AB** is a 'sausage shape'. To construct this, use your compasses to draw the ends, which are **semicircles**, then join them up with your ruler.



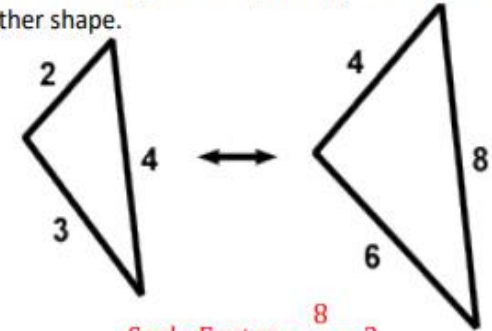
The locus of points equidistant from **two points A and B** is the **perpendicular bisector** of **AB** (see page 307).

The locus of points equidistant from **two lines** is their **angle bisector** (see page 308).

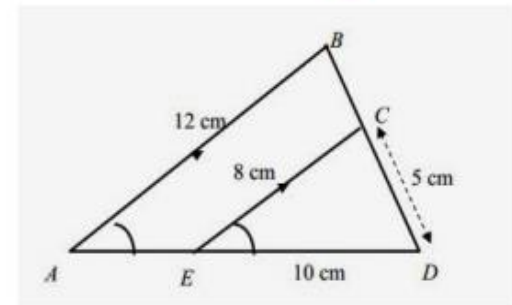


## Similarity:

Two shapes are similar if one is an enlargement of the other. To find the **scale factor**, we divide the one side by its corresponding side on the other shape.

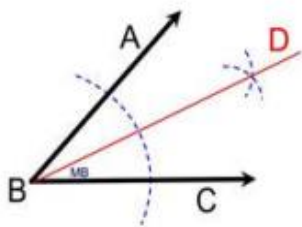


$$\text{Scale Factor} = \frac{8}{4} = 2$$

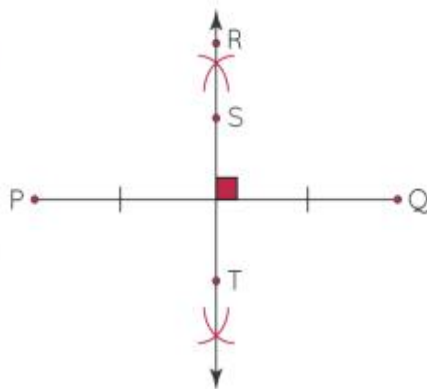


$$\text{Scale Factor} = \frac{12}{8} = 1.5$$

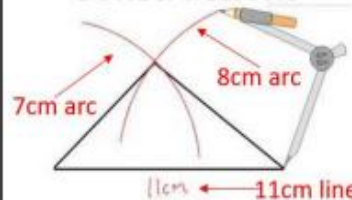
## Angle Bisector



## Angle Bisector



## SSS Constructions



## Negative and Fractional Indices

$$x^{-n} = \frac{1}{x^n}$$

$$\frac{1}{x^n} = \sqrt[n]{x}$$

$$\left(\frac{4}{7}\right)^{-2} = \left(\frac{7}{4}\right)^2$$

$$= \frac{49}{16}$$

$$64^{\frac{1}{3}} = \sqrt[3]{64}$$

$$= 4$$

9A

Half-term 6

## Surds:

Any number that cannot be square rooted to give an integer answer is a **Surd**.

Eg.  $\sqrt{2}$ ,  $\sqrt{110}$ ,  $\sqrt{75}$  etc.

## Rules of Surds:

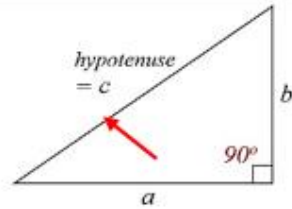
$$\sqrt{ab} = \sqrt{a} \times \sqrt{b}$$

$$\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$$

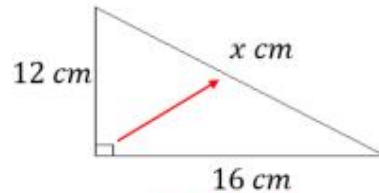
$$\sqrt{a} \times \sqrt{a} = a$$



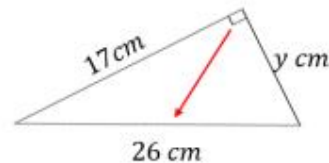
### Pythagoras' Theorem:



$$c^2 = a^2 + b^2$$

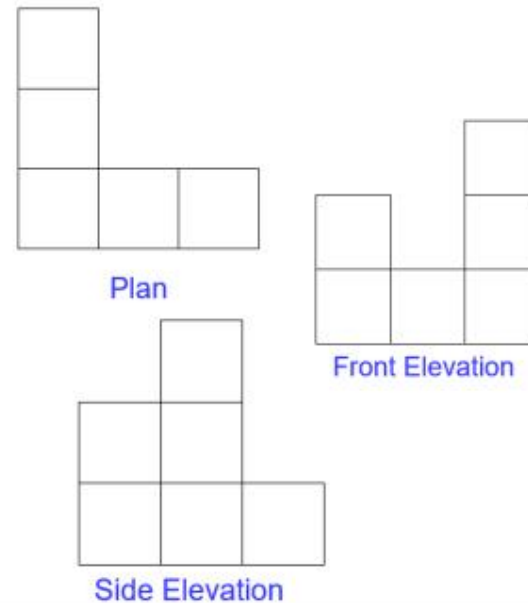
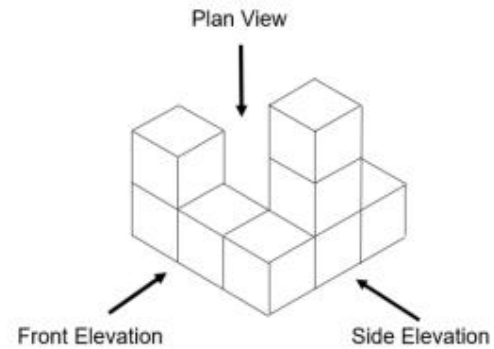


$$\begin{aligned} a^2 + b^2 &= c^2 \\ 12^2 + 16^2 &= x^2 \\ 144 + 256 &= x^2 \\ x^2 &= 400 \\ (\sqrt{\quad}) \quad (\sqrt{\quad}) \\ x &= 20\text{cm} \end{aligned}$$



$$\begin{aligned} a^2 + b^2 &= c^2 \\ y^2 + 17^2 &= 26^2 \\ y^2 + 289 &= 676 \\ (-289) \quad (-289) \\ y^2 &= 387 \\ (\sqrt{\quad}) \quad (\sqrt{\quad}) \\ y &= \sqrt{387}\text{ cm or } y = 19.7\text{cm}(3\text{sf}) \end{aligned}$$

### Plans and Elevations



## 9B Half-term 6

# Y9 Music HT5&6 Sequencing, Main Element Focus:Texture

**DAW** – Digital Audio Workstation: GarageBand/LogicProX

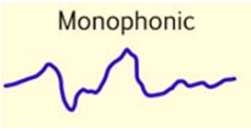
**Texture** describes how layers of sound within a piece of music interact.

**Melody** The main tune

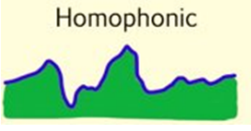
**Harmony** The chords that support the melody

**Layering** Introducing each new sound one by one. The addition of each layer creates a thicker texture.

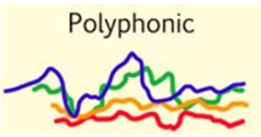
**Monophonic** music has only one melodic line, with no harmony or counterpoint.



**Homophonic** music has one clear melodic line; it's the line that naturally draws your attention. All other parts provide accompaniment.

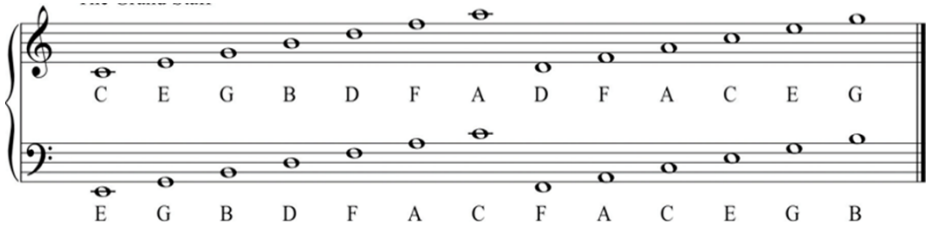


**Polyphonic** music has more than one independent melody occurring at the same time, the music is polyphonic.

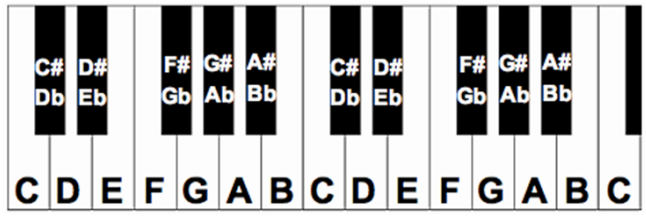


# Y9 Music HT5&6 Sequencing

Treble and Bass clef notation



Piano keyboard diagram



Element	Definition
Dynamics	The volume of the music
Rhythm/Metre/Tempo	Pattern of sound/The number of beats per bar/Speed
Context	The background information of the music
Structure	The sections of a piece of music
Melody	The main tune
Instrumentation	Instruments and sounds used
Texture	Layers of sound and how they work together
Harmony/Tonality	The chords used/The key of a piece of music

# Equality & Society

## Religion, Philosophy & Ethics

Key Terms	Definition
Equality	Is the state of being equal, especially in statue, rights or opportunities.
Human Rights	are rights that every person has. The 1948 United Nations Declaration of Human Rights lists all the basic human rights everyone is entitled to.
Equality Act 2010	A UK law that defines nine protected qualities. Discriminating against someone because of these qualities is illegal.
Hate Speech	Speech that harms or attacks someone based on their race, religion, ethnicity, sexual orientation, disability, age or gender.
Prejudice	are opinions that we form without knowing all the facts.
Discrimination	means treating someone unfairly as a result of prejudice.
Stereotypes	A view that is commonly believed but oversimplifies the situation e.g. girls love pink.
Islamophobia	A dislike or prejudice against Islam or Muslims.
Persecution	Treating someone badly because of their race, political views or religious beliefs.
Freedom	is the right to act, think or speak as you want, without interference from an individual, organisation or government.

### Equality Laws

- Every human being deserves to be treated equally, fairly and with respect, regardless of anything that may make them “different”.
- Laws have been passed and agreements made in order to promote equality such as:
  - The 1948 United Nations Declaration of Human Rights lists 30 basic human rights everyone is entitled to such as; the right to life, the right to education, the right to freedom of speech etc.
  - The 2010 UK Equality Act recognizes nine characteristics that should be protected from discrimination such as; gender, sexual orientation, race, religion etc.
- Despite the laws in place to protect the most vulnerable in society there is often conflict and debate over how these laws should be applied.

**Positive discrimination** is where a particular group is given special privileges to compensate for a perceived disadvantage. For example, disabled people can often access parking spaces closest to a building’s entrance.



### Protected Characteristics



### Religious Equality

- For centuries people have been persecuted due to their religious belief; one of the most commonly known about acts of religious discrimination is World War II where Hitler’s Nazi party sought to eradicate Judaism.
- Since the 2001 9/11 terror attacks, and more recent terror attacks claimed by supposed Muslims, there has been a rise in Islamophobia and racism towards the Muslim community.
- The media is often the cause of such prejudice as “click bait” or misleading newspaper headlines are created to encourage people to read their articles which in fact do not evidence the headline. E.g., in 2015, The Sun newspaper was forced to apologise over a headline that was completely untrue and very misleading. The headline suggested 1 in 5 British Muslims have sympathy for terrorists.
- To tackle religious discrimination and misunderstandings many individuals, charities and interfaith groups have tried to create community cohesion. They may do this by creating opportunities for people to learn about religions, by acting as role models or by creating positive events for different faith groups to come together.



**Mohammad Salah** has had an unprecedented effect on people as a famous Muslim footballer – a famous chant was created by fans of the Liverpool football team in support of Salah and his Muslim faith.

### Animal Equality

**Animal rights** refers to the idea that animals should be entitled to live lives that are free from abuse by humans. In the UK, there are laws designed to protect animals from cruelty...

- It is a crime to neglect or mistreat an animal, including when an animal is being transported or slaughtered.
- It is also illegal to stage fights between animals for entertainment, or to test cosmetics on animals.
- Some forms of hunting are also illegal
- People can be fined or face imprisonment if they cause unnecessary suffering to animals.

An increasing numbers of people are turning to **vegetarian** or **vegan** ways of living. This may be due to the belief that animals deserve rights, the most basic being the right to life, or due to environmental concerns about eating meat.

**Jewish and Christian holy books** teach that humans are superior to animals, that we should rule over them. Thus, so long as humans are not cruel to them, animals can be used for our benefit.

**Some atheists believe** that humans evolved just as all other animals have – as such, we are no more important than other animals and so any rights you give to a human should be given to animals too.

Religious Studies

## Gender Equality

Inequality between men and women is still present in today's society.

**Inequality against women** - recent figures suggest, **only 34% of UK Members of Parliament are women**, in businesses around the world only 31% of senior management are women and only 17% of engineers are women. Additionally, on average, women earn 16% less than men for working the same job – this is called the 'gender pay gap'. These figures highlight the fact that there is a significant gender divide in certain high paying professions.

**Inequality against men** – many workplaces **don't offer men extended parental leave** or part-time working once they become a parent whilst they may offer this to women.

### Danger of gender stereotyping...

Both genders have **stereotypes which may appear harmless but, when adopted by society, may lead to prejudice, discrimination and people trying to conform to the stereotype even though it may be harmful to them.** For example, an old-fashioned stereotype is that after having children a woman should give up caring about her career to look after her family and a father be devoted to providing financially for the family. Some workplaces will allow women to change their jobs to part-time after having children but not men which discriminated against men. Some workplaces have also been accused of not promoting women who are likely to get pregnant or have a small family assuming they won't be able to make time for their work, discriminating against women.

### Feminism

**Feminism is the advocacy of women's rights on the ground of the equality of the sexes**, in recent years there have been many movements by groups and individuals to challenge the gender divide, for example a ban on adverts featuring "harmful gender stereotypes" or those which are likely to cause "serious or widespread offence" has come into force. The ban covers scenarios such as a man with his feet up while a woman cleans, or a woman failing to park a car. The UK's advertising watchdog introduced the ban because it found some portrayals could play a part in "limiting people's potential".

**Most Jews, Christians and Muslims all believe men and women are equal** as the bible teaches that God created humans "in his image" so everyone is made the same, equal. However, there are some who take certain religious teachings and use them to promote the idea of men having authority over women.

*"Homosexual people have a right to be in a family. They are children of God"* Pope Francis (Catholic Christian)

*"When the whole world is silent, even one voice becomes powerful"* Malala Yousafzai (Muslim human rights activist)

*"In suffering the animals are our equals"* Peter Singer (atheist Humanist)



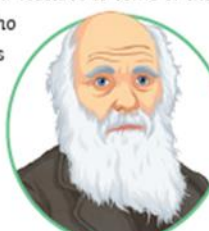

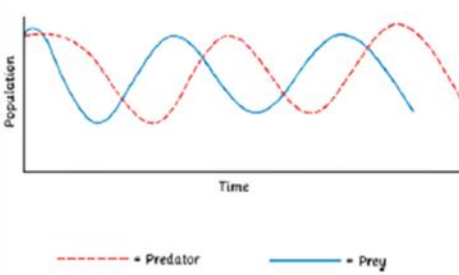
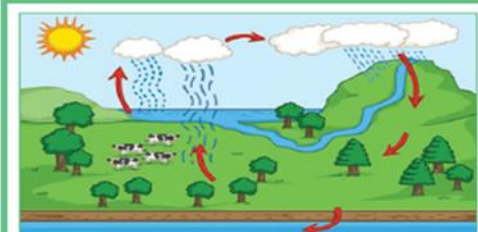
## LGBTQ+ Equality

Members of the **LGBTQ+ community have faced years of persecution and harassment, notable events throughout history include...**

- Criminal Law Amendment Act in 1885: homosexual relationships are an offence which could result in a prison sentence
- 1967 the Sexual Offences act stopped the criminalisation of homosexual relationships however it placed strict conditions on LGBT interactions which lead to more arrests,
- the first Gay Pride took place in 1972 and has grown every year since
- in 1988 the government introduced 'Section 28' it banned the "promotion" of homosexuality by local authorities and in Britain's schools for example councils were forbidden from stocking libraries with literature or films that contained gay or lesbian themes and schools for unable to discuss LGBT issues with students
- in **2010 the Equality Act was introduced** stating LGBTQ+ individuals had equal rights
- In 2014 the Equal Marriage Act made LGBTQ+ relationships recognisable by law

Some believe certain religious groups do not believe in LGBTQ+ equality thus many individuals and religious organisations having points to make about this...

- **Pope Francis (Head of the Catholic Christian Church)** believes that **God gives us our sexual orientation, so no one chooses who they are attracted too.** He also believes that loving relationships, between any genders, are a good thing because the Bible suggests we are all made equal. However, the Catholic Church believe that **one purpose of sex is to have children within a marriage** and therefore any sex that doesn't have the potential to have children and isn't within a marriage is wrong thus... LGBTQ+ sexual relationships are wrong (just like all sexual relationships that either don't have the potential for a child or are outside of marriage).
- On the other hand, there are some religious groups that protest LGBTQ+ relationships in all forms. **Westboro Baptist Church** is a small church in Kansas, America. They believe that suffering is a punishment from God for sinning (doing something wrong). The Church believe homosexuality goes against God's plan for families and therefore it is a sin so, they think they **have a duty to spread this belief to stop people sinning and prevent God's punishments.** Their actions are very offensive to LGBTQ+ individuals.

Keywords	Abiotic and Biotic Factors	Food Chains	Competition
<p><b>Biodiversity</b> - the variety of living organisms.</p> <p><b>Carrion</b> - decaying flesh and tissue of dead animals.</p> <p><b>Community</b> - made up of the populations of different species living in a habitat.</p> <p><b>Competition</b> - the negative interaction between two or more organisms which require the same limited resource.</p> <p><b>Consumers</b> - feed on other organisms for their energy. Can be primary, secondary or tertiary.</p> <p><b>Decomposers</b> - organisms which feed on dead and decaying organisms. They break down the biomass and release nutrients into the soil.</p> <p><b>Deforestation</b> - the removal and destruction of trees in forest and woodland.</p> <p><b>Ecosystem</b> - the interaction between the living organisms and the different factors of the environment.</p> <p><b>Global warming</b> - the increase of the average global temperature.</p> <p><b>Habitat</b> - where a living organism lives.</p> <p><b>Interdependence</b> - the interaction between two or more organisms, where it is mutually beneficial.</p> <p><b>Population</b> - the number of individual organisms of a single species living in a habitat.</p> <p><b>Predators</b> - organisms which kill for food.</p> <p><b>Prey</b> - the animals which are eaten by the predators.</p> <p><b>Producers</b> - convert the sun's energy into useful compounds through photosynthesis. They are green plants or algae.</p> <p><b>Scavengers</b> - organisms which feed on dead animals (carrion).</p> <p><b>Species</b> - organisms of similar morphology which can interbreed to produce fertile offspring.</p>	<p><b>Abiotic factors</b> are the non-living factors of an environment. E.g. moisture, light, temperature, CO<sub>2</sub>, wind, O<sub>2</sub> or pH.</p> <p><b>Biotic factors</b> are the living factors of an environment. E.g. predators, competition, pathogens, availability of food.</p> <p style="background-color: #fff9c4; padding: 5px;"><b>Adaptations</b></p> <p>Adaptations are specific features of an organism which enable them to survive in the conditions of their habitat.</p> <p>Adaptations can be structural, behavioural or functional:</p> <ul style="list-style-type: none"> <li>• <b>Structural adaptations</b> are features of the organism's body e.g. colour for camouflage.</li> <li>• <b>Behavioural adaptations</b> are how the organism behaves e.g. migration to a warmer climate during colder seasons.</li> <li>• <b>Functional adaptations</b> are the ways the physiological processes work in the organism e.g. lower metabolism during hibernation to preserve energy.</li> </ul> <p>A plant or animal will not physically change to adapt to its environment in its lifetime. Instead, there is natural variation within the species and only organisms whose features are more advantageous in the environment survive. The survivors then go on to reproduce and pass on their features to some of their offspring. The offspring who inherit these advantageous features are better equipped to survive.</p> <p>Charles Darwin described this process as 'survival of the fittest'.</p> 	<p>The source of all energy in a food chain is the sun's radiation. It is made useful by plants and algae which produce organic compounds through photosynthesis.</p>  <p>The living organisms use the energy to produce biomass and grow.</p> <p>When a living organism is consumed, some of the biomass and energy is transferred. Some of the energy is lost.</p> <p>Remember: the arrow in a food chain indicates the direction of the flow of energy.</p> <p>Populations of predators and prey increase and decrease in cycles. The size of the predator population depends on the size of the prey population and vice versa. Overall, there is a stable community.</p>  <p style="text-align: center;"> <span style="color: red; font-weight: bold;">- - -</span> = Predator      <span style="color: blue; font-weight: bold;">—</span> = Prey         </p>	<p>Species will compete with one another and also within their own species to survive and to reproduce.</p> <p><b>Mutualism</b> occurs when both species benefit from a relationship.</p> <p><b>Parasitism</b> occurs when a parasite only benefits from living on the host.</p> <p>Animals compete for resources such as food, water and space/shelter. They may also compete within their own species for mates.</p> <p>Plants compete for resources including light, water, space and minerals. All these resources are needed for photosynthesis so the plant can make its own food. Plants do not need to compete for food.</p> <p style="background-color: #fff9c4; padding: 5px;"><b>Water Cycle</b></p>  <p><b>Convection</b> is the movement caused within a fluid as the hotter, less dense material rises and colder, denser material sinks under the influence of gravity. This results in the transfer of heat.</p> <p><b>Evaporation</b> occurs when heat energy from the surroundings (or a heat source) is transferred to water particles as kinetic energy. The particles begin to move more rapidly and can turn from a liquid into a gas.</p> <p><b>Condensation</b> occurs when moving particles transfer kinetic energy to the surroundings. The particles begin to move even more slowly and can turn from a gas into a liquid.</p> <p><b>Precipitation</b> occurs when rain, snow, sleet, or hail falls to (or condenses on) the ground.</p> <p><b>Transpiration</b> is the process by which water is carried through plants from roots to the stomata on the underside of leaves and it evaporates into the surroundings.</p>

## RPI: Field Techniques Quadrats and Transects

The distribution of an organism is affected by the environment and abiotic factors.

Quadrats can be used to measure the frequency of an organism in a given area e.g. the school field. You could count the individual organisms or estimate the percentage cover. You must collect data from at least two areas to make a comparison. Quadrats should always be placed randomly.

Transects are used to measure the change of distribution across an area e.g. from the edge of a river and moving further from the water's edge. You could either count the number of organisms touching the transect at regular intervals or use a quadrat placed at regular intervals along the transect.

$$\text{mean} = \frac{\text{total number of organisms}}{\text{number of quadrats}}$$



## Biodiversity and Waste Management

Biodiversity is the variety of living organisms on the earth or in an ecosystem. It is important in helping to maintain stable ecosystems. Organisms are often interdependent, relying on others as food sources, or to create suitable environmental conditions to survive. Human survival is also dependent on this biodiversity.

The global human population has exceeded 7 billion. Human population has increased due to modern medicine and farming methods, reducing famine and death from disease. This means a greater demand for food, resources and water. It also means more waste and emissions are created.



Sewage, toxic chemicals, household waste and gas emissions pollute the water, land and air, killing plants and animals and reducing biodiversity.

## Maintaining Ecosystems and Biodiversity

There are many ways that biodiversity and ecosystems are maintained:

- Breeding programmes can help to protect endangered species from extinction.
- Conservation programmes can help to protect and preserve specialised ecosystems and habitats such as peat bogs and coral reefs.
- Reintroduction of hedgerows and field margins on agricultural land can help improve biodiversity by breaking up the monoculture crops.
- Sustainable forestry programmes help to manage the woodlands and reduce the deforestation to a sustainable rate.
- Societies actively encourage recycling and reusing of products and packaging to reduce the household waste going to landfill sites.

Unfortunately these programmes can be difficult to manage. They are often expensive and are difficult to regulate. People who are employed in certain areas, e.g. tree felling, cannot always transfer their skills to an environmentally friendly role and so become unemployed. It is difficult to maintain biodiversity whilst preventing crops being overrun with pests and weeds, which would affect food security for the human population.

# Year 9 Term 3 Chemistry - Chemistry of the Atmosphere

## The Early Atmosphere

Approximately 4.6 billion years ago the Earth was formed. Scientists have lots of ideas and theories about how the atmosphere was produced and the gases within it, but due to the lack of evidence, they cannot be sure.

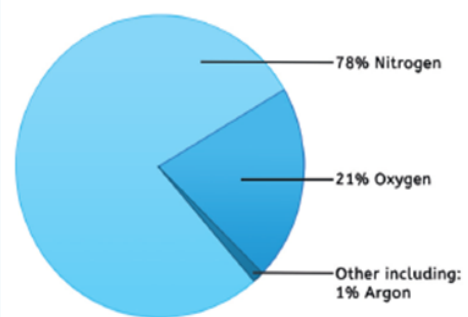
One theory suggested that intense volcanic activity released gases that made Earth's early atmosphere very similar to that of Mars and Venus. These planet's atmospheres mainly consist of carbon dioxide with little oxygen.

Nitrogen gas would have also been released from volcanoes and would have built up in the atmosphere.

Water vapour in Earth's early atmosphere would have condensed to create the seas and oceans. Carbon dioxide would have dissolved into the water, decreasing the level in the atmosphere.

## Percentage of Gases in the Atmosphere

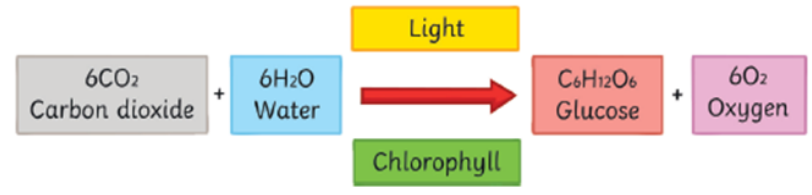
The pie chart below shows the abundance of each gas in our atmosphere.



## How Did the Levels of Oxygen Increase?

2.7 billion years ago, algae first produced oxygen. Gradually over time, the levels of oxygen in our atmosphere increased as plants evolved. This was followed by animals as the levels of oxygen increased to a level that would sustain more complex life.

Oxygen is produced by plants in the process of photosynthesis.



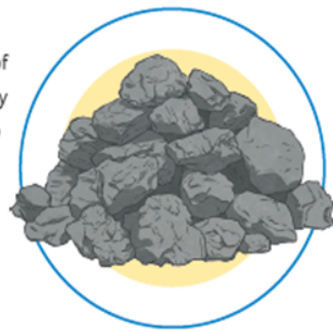
## How Did the Levels of Carbon Dioxide Decrease?

Carbon dioxide dissolves in water. As water vapour condensed and the oceans and seas formed, the carbon dioxide gas dissolved producing carbonate compounds. This process reduced the amount of carbon dioxide in the atmosphere. Carbonate compounds were then precipitated: limestone is an example of a sedimentary rock; it has the chemical name calcium carbonate.

Plants in the oceans absorbed carbon dioxide gas for photosynthesis. The organisms from the food chains that the plants supported were turned into fossil fuels. Fossil fuels are non-renewable and consist of coal, crude oil, and gas, all of which contain carbon.

Crude oil was formed millions of years ago. When aquatic plants and animals died, they fell to the bottom of the sea and got trapped under layers of sand and mud. Over time, the organisms got buried deeper below the surface. The heat and pressure rose, turning the remains of the organisms into crude oil or natural gas. Oxidation did not occur due to the lack of oxygen.

Coal is a fossil fuel formed from giant plants that lived hundreds of millions of years ago in swamp-like forests. When these plants died, they sank to the bottom of the swamp where dirt and water began to pile on top of them. Over time, pressure and heat increased and the plant remains underwent chemical and physical changes. The oxygen was pushed out and all that remained was coal.



## The Human Impact and the Greenhouse Effect

Scientists believe that human activities have resulted in the increased amount of greenhouse gases in the atmosphere. Activities such as farming cattle and farming rice release huge amounts of methane into the atmosphere.

Burning fossil fuels in cars and power stations releases large amounts of carbon dioxide. With large areas of the rainforest being cut down through deforestation, the excess carbon dioxide is not being absorbed by photosynthesis.

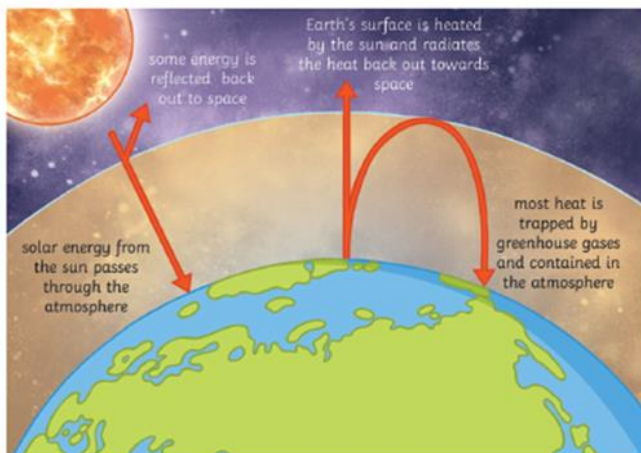
However, not everyone believes that humans are causing the rise in greenhouse gases. Some believe that the rise in global temperatures is associated with cycles of climate change and natural factors.

Climate science is often complicated as there are difficulties associated with predicting future global temperatures. The media present information that can be biased, inaccurate or lacks substantial evidence.

After reading an article on global warming, consider the trustworthiness of the source by considering these factors:

- Is the research done by an expert in that field and do they have the right skills and qualifications to report on the issue?
- Which organisation is reporting the evidence? If it is a newspaper, some stories are sensationalised in order to sell papers.
- Was the research funded by a legitimate organisation and was it conducted in a non-biased way? Think about the methods that were used to obtain the data and the impact the collection and analysis of this data had on the overall result.

## The Greenhouse Effect



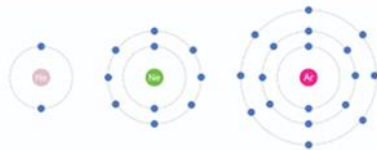
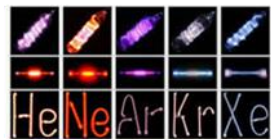
A greenhouse is a house made of glass and is commonly used by gardeners to help grow plants and keep them warm. As the sun shines through the greenhouse, the air is heated up and becomes trapped by the glass and is prevented from escaping. During daylight, a greenhouse stays quite warm and this lasts into the night.

The earth and its atmosphere are very similar to that of a greenhouse. The greenhouse gases in the atmosphere trap the heat and keep the earth warm. The main greenhouse gases are carbon dioxide, water vapour and methane. During the daylight, the sun warms up the earth's surface. During the night, as the earth begins to cool and release the heat back into the atmosphere, some of the heat is trapped by the greenhouse gases in the atmosphere.

If the greenhouse effect becomes too strong, the earth will get too warm and melt the Arctic ice. As we burn more fossil fuels, the levels of carbon dioxide and the other greenhouse gases increase in our atmosphere which makes the greenhouse effect stronger.

## Group 0

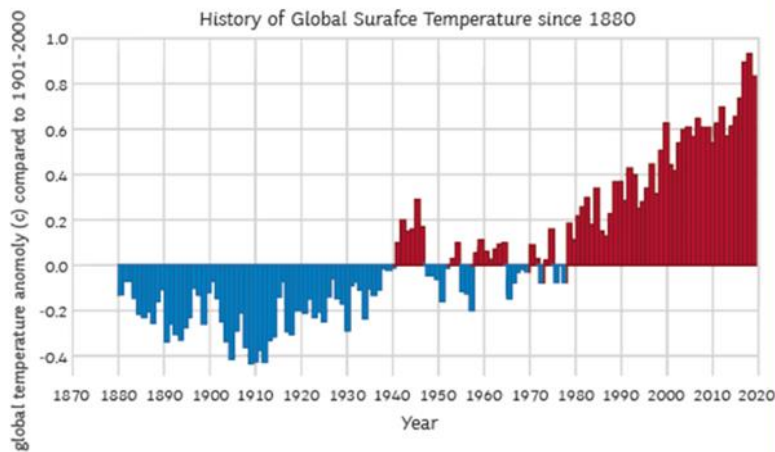
The group 0 elements are also known as Noble Gasses. They are all unreactive gasses as they have a full outer shell of electrons. They get denser and their boiling points get higher down the group. They have important uses. For example radon is used in cancer treatment as it is radioactive and argon is used to fill lightbulbs as it won't react with the filament. Noble gasses give off light when a current is passed through them.



## What is the Difference Between Climate Change and Global Warming?

Since the Earth was formed over 4.6 billion years ago, its climate has constantly been changing with several ice ages followed by warmer temperatures. Changes in the Sun's energy reaching the Earth and volcanic eruptions were responsible for the changes until about 200 years ago.

Global warming is different to climate change and is used to explain how the earth's climate has warmed up over the past 200 years. Scientists believe that the warming of the climate is due to the activities of humans.



## Carbon Footprint

The carbon footprint is the total amount of carbon dioxide and other greenhouse gases emitted over the full life cycle of a product, service or event.

An individual's carbon footprint is a calculation of all the activities that that person has taken part in throughout the year.

These activities might involve flying abroad or travelling by bus or rail. Each of which might be powered by petrol or diesel. Heating a home in winter by using a gas-powered boiler and using electricity to power lights and electronic devices.

Food also has a carbon footprint, for example, beef and rice produces huge amounts of methane when farmed.



## Sulfur Dioxide

Sulfur dioxide is an atmospheric pollutant. It is a gas that is produced from the burning of fossil fuels. Sulfur dioxide is able to dissolve in rainwater and produces acid rain. Acid rain causes damage to forests, kills plants and animals that live in aquatic environments, and damages buildings and statues as the acid rain erodes the stone that they are made from.

sulfur + oxygen  $\rightarrow$  sulfur dioxide

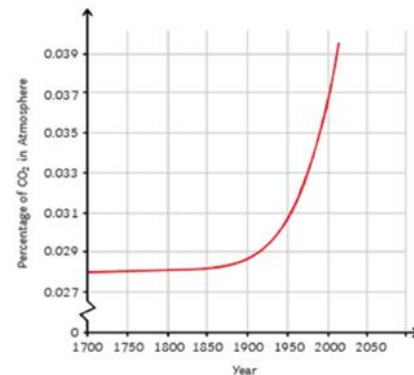


Sulfur dioxide can be further oxidised to form sulfur trioxide.

## What is the Link Between Carbon Dioxide and Global Warming?

There is a strong correlation between the percentage concentration of carbon dioxide in the atmosphere and increased global temperatures.

The impact of this is that the polar ice caps are melting, sea levels are rising and habitats and rainfall patterns are changing. The impact of which is already being felt around the globe. The consequences of human activity will affect us all.





# Year 9 Term 3 Physics - States of Matter

## Required Practical

### Measuring the density of a regularly shaped object:

- Measure the mass using a balance.
- Measure the length, width and height using a ruler.
- Calculate the volume.
- Use the density ( $\rho = m/V$ ) equation to calculate density.

### Measuring the density of an irregularly-shaped object:

- Measure the mass using a balance.
- Fill a eureka can with water.
- Place the object in the water - the water displaced by the object will transfer into a measuring cylinder.
- Measure the volume of the water. This equals the volume of the object.
- Use the density ( $\rho = m/V$ ) equation to calculate density.



## Density

Density is a measure of how much mass there is in a given space.

Density ( $\text{kg/m}^3$ ) = mass (kg) ÷ volume ( $\text{m}^3$ )

A more dense material will have more particles in the same volume when compared to a less dense material.

## Particles

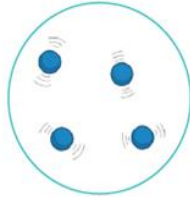
Solids have strong forces of attraction. They are held together very closely in a fixed, regular arrangement. The particles do not have much energy and can only vibrate.



Liquids have weaker forces of attraction. They are close together, but can move past each other. They form irregular arrangements. They have more energy than particles in a solid.



Gases have almost no forces of attraction between the particles. They have the most energy and are free to move in random directions.



## Particles

Gas particles can move around freely and will collide with other particles and the walls of the container. This is the pressure of the gas.

If the temperature of the gas increases, then the pressure will also increase. The hotter the temperature, the more kinetic energy the gas particles have. They move faster, colliding with the sides of the container more often.



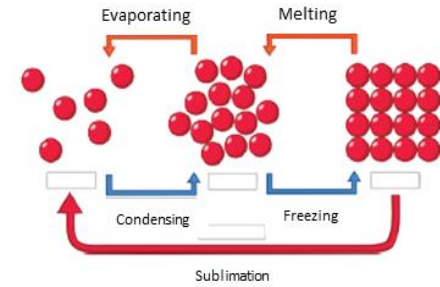
## Specific Latent Heat Equation

The amount of energy needed/released when a substance of mass changes state.

$$\text{energy (E)} = \text{mass (m)} \times \text{specific latent heat (L)}$$

$$E = mL$$

## Changing State

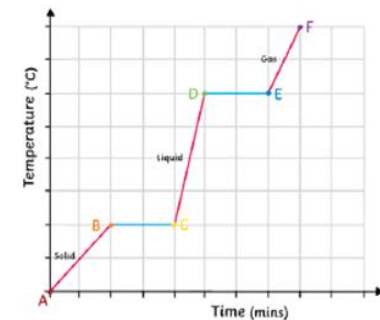


If a system gains more energy, it can lead to a change in temperature or change in state. If the system is heated enough, then there will be enough energy to break bonds.

When something changes state, there is no chemical change, only physical. No new substance is formed. The substance will change back to its original form. The number of particles does not change and mass is conserved.

## Specific Latent Heat

Energy is being put in during melting and boiling. This increases the amount of internal energy. The energy is being used to break the bonds, so the temperature does not increase. This is shown by the parts of the graph that are flat.



Specific latent heat is the amount of energy needed to change 1kg of a substance from one state to another without changing the temperature. Specific latent heat will be different for different materials.

- solid → liquid - specific latent heat of fusion
- liquid → gas - specific latent heat of vaporisation

## Specific heat capacity

Heating a material transfers the energy to its thermal energy store - the temperature increases.

E.g. a kettle: energy is transferred to the thermal energy store of the kettle. Energy is then transferred by heating to the water's thermal energy store. The temperature of the water will then increase.

Some materials need more energy to increase their temperature than others.

change in thermal energy = mass × specific heat capacity × temperature change

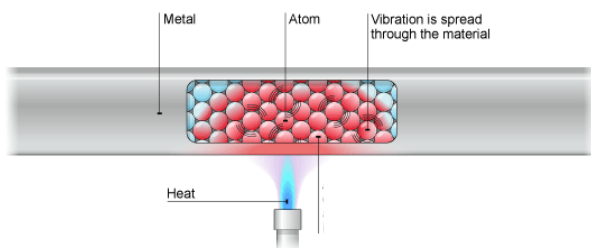
$$\Delta E = m \times c \times \Delta \theta$$

(J)            (kg)            (J/kg°C)            (°C)

Specific heat capacity is the amount of energy needed to raise the temperature of 1kg of a material by 1°C.

## Conduction

Conduction is the transfer of heat through solids. When particles are heated, they vibrate more. These vibrations are transferred through the particles. Metals are good conductors of heat because they have free electrons which also pass on the vibrations.



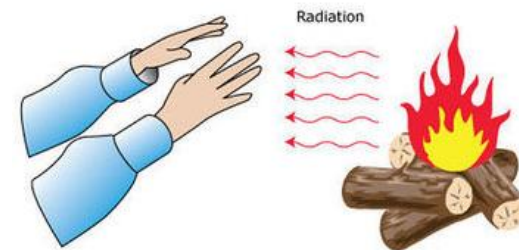
## Convection

Convection is the transfer of heat energy through liquids and gases. Hotter liquids and gases rise, give off their heat energy, cool back down, and sink. This creates a convection current.



## Radiation

Heat also travels as a wave through all substances and even a vacuum (such as space). This is known as infrared radiation.



# Year 9 Spanish Knowledge Organiser

## Unit 4: Adict@s a la moda

### 4.1 Esto es lo que llevo

llevo...	I wear...	el vestido	dress
los calcetines	socks	las zapatillas (de deporte)	trainers
la camisa	shirt	los zapatos	shoes
la camiseta	t-shirt	bonito/a	pretty
la chaqueta	jacket	cómodo/a	comfortable
la corbata	tie	elegante	smart, stylish
la falda	skirt	guay	cool
la gorra	cap	tradicional	traditional
el jersey	jumper	este/esta	this
los pantalones	trousers	estos/estas	these
el uniforme	uniform	ese/esa	that
los vaqueros	jeans	esos/esas	those
		aquel/aquella	that (further away)
		aquellos/aquellas	those (further away)



### 4.2 Estrellas con estilo

los estampados	patterns	de lunares	spotted
amplio/a	baggy	de rayas	striped
corto/a	short	apropiado/a	appropriate
de cuadros	checked	distinto/a	different
estampado/a	patterned	la blusa	blouse
estrecho/a	tight	la cinta para el pelo	headband
de flores	floral	el cinturón	belt
hortera	tacky	el estilo	style
largo/a	long	el pijama	pijamas
liso/a	plain		



### 4.3 De tiendas

la carnicería	butcher's
la chocolatería	chocolate shop
la joyería	jewellery shop
la panadería	baker's
la papelería	stationery shop
la perfumería	perfume shop
la pescadería	fishmonger's
la tienda de disfraces	fancy dress shop
la tienda de ropa	clothes shop
la zapatería	shoe shop
el abrigo	coat
abrir	to open



### 4.4 En el centro comercial

los centros comerciales	shopping centres	en línea	online
por Internet	online	hacer clic	to click (the mouse button)
las tiendas pequeñas	small shops	la oferta	offer
la agencia de viajes	travel agency	el ratón	mouse
las alfombras	rugs	la variedad	variety
la alimentación	food	primero	first
la azotea	rooftop	segundo	second
el juguete	toy	tercero	third
la juguetería	toy shop	cuarto	fourth
el hogar	homewares/home	quinto	fifth
la moda deportiva	sportswear	sexto	sixth
los muebles	furniture	séptimo	seventh
la planta baja	ground floor	octavo	eighth
la relojería	watch shop	noveno	ninth
el anuncio	advert	décimo	tenth
devolver	to return		



### 4.5 ¡Es imposible comprar así!

tiene un agujero	it has a hole
está roto/a	it is broken
cambiar	to (ex)change
el cambio	exchange
funcionar	to work/function
pedir	to ask for
probar	to try on
quedar bien	to suit/fit
el reembolso	refund
¿en serio?	really?
lo siento	I'm sorry
el tique de compra	receipt
vale	right, good, OK
vender	to sell



### 4.6 Si ganara la lotería

si fuera millonario/a...	if I were a millionaire...
si fuera posible...	if it were possible...
si ganara la lotería...	if I were to win the lottery...
cambiaría de peinado	I would change my hairstyle
compraría...	I would buy...
un montón de ropa de marca	lots of designer clothes
unas gafas de sol de marca	designer sunglasses
iría a la peluquería	I would go to the hairdresser's
tendría un asistente personal	I would have a personal assistant
tendría un teléfono móvil	I would have an expensive de lujo
viajaría por todo el mundo	mobile phone
el coche cuatro por cuatro	I would travel around the world
el equipamiento propio/a	4x4 vehicle
la ropa de marca	equipment
salir de fiesta	own
	designer clothes
	to go out partying



# Year 9 Spanish Knowledge Organiser

## Unit 4: Adict@s a la moda

### 4.1 Esto es lo que llevo

normalmente	normally	llevo	I wear	una camisa	a shirt	rojo/a/os/as	red	de rayas	striped
siempre	always	llevé	I wore	una falda	a skirt	azul/es	blue	de manga corta/ larga	short/long sleeved
a veces	sometimes	llevaba	I used to wear	unos zapatos	shoes	blanco/a/os/as	white	estrecho /amplio	tight / baggy
nunca	never	llevaré	I will wear	unas botas	boots	verde/s	green	elegante	elegant

### 4.2 Estrellas con estilo

este/esta	this	la falda	skirt	es		cómodo/a/os/as	comfortable	que	este/esta	this	camisa	shirt
estos/estas	these	la gorra	cap	is	más more	elegante/s	elegant	than	estos/estas	these	falda	skirt
ese/esa	that	el jersey	jumper	son	menos less	feo/a/os/asa	ugly		ese/esa	that	zapatos	shoes
		los pantalones	trousers	are		caro/a/os/as	expensive				botas	boots

### 4.3 De tiendas

Este fin de semana	this weekend	tengo que ir de compras	I have to go shopping	a	la panadería	baker's
La semana que viene	next week	iré de compras	I will go shopping	to the	la papelería	stationery shop
El sábado	On Saturday				la perfumería	perfume shop
					la pescadería	fishmonger's

### 4.4 En el centro comercial

En la planta baja	on the ground floor	se puede comprar	you can buy	las alfombras	rugs
En la primera planta	on the first floor			la alimentación	food
En la segunda planta	on the second floor			juguets	toys
En la tercera planta	on the third floor			la moda deportiva	sportswear
				los muebles	furniture



### 4.5 ¡Es imposible comprar así!

Tengo un problema	este/esta	this	camisa	shirt	tiene un agujero	it has a hole	Quiero un reembolso	I want a refund
I have a problem	estos/estas	these	falda	skirt	está roto/a	it is broken	quiero cambiarlo/la/las	I want to exchange it/them
			zapatos	shoes	no me quedar bien	doesn't suit/fit me		
			botas	boots				

### 4.6 Si ganara la lotería

si fuera millonario/a...	if I were a millionaire...	compraría...	I would buy...	tendría un asistente personal	I would have a personal assistant
si fuera posible...	if it were possible...	un montón de ropa de marca	lots of designer clothes	tendría un teléfono móvil	I mobile phone
si ganara la lotería...	if I were to win the lottery...	unas gafas de sol de marca	designer sunglasses	viajaría por todo el mundo	I would travel around the world
		iría a la peluquería	I would go to the hairdresser's	el coche cuatro por cuatro	4x4 vehicle





# Year 9 Spanish Knowledge Organiser

## Unit 5: Yo y Mi Mundo



### 5.1 Lo que hago por las mañanas

la rutina	<i>routine</i>	
desayunar	<i>to have breakfast</i>	
despertar(se)	<i>to wake up</i>	
duchar(se)	<i>to have a shower</i>	
ir al instituto	<i>to go to school</i>	
lavar(se) los dientes	<i>to brush your teeth</i>	
levantar(se)	<i>to get up</i>	
peinar(se)	<i>to brush/comb your hair</i>	
vestir(se)	<i>to get dressed</i>	
a menudo	<i>often</i>	
a veces	<i>sometimes</i>	
antes	<i>first, before</i>	
después	<i>after, afterwards</i>	
durar	<i>to last</i>	
inmediatamente	<i>immediately</i>	
luego	<i>then, later</i>	
mientras	<i>while</i>	
nunca	<i>never</i>	
raras veces	<i>rarely</i>	
siempre	<i>always</i>	
deprisa	<i>fast, quickly</i>	
tener prisa	<i>to be in a hurry</i>	

### 5.2 Lo que hago por las tardes y por las noches

acostar(se)	<i>to go to bed</i>	
cambiar(se) de ropa	<i>to get changed</i>	
cenar	<i>to have dinner</i>	
hacer los deberes	<i>to do homework</i>	
merendar	<i>to have a snack (afternoon)</i>	
pasear al perro	<i>to walk the dog</i>	
relajar(se)	<i>to relax</i>	
volver a casa	<i>to return home</i>	
cuando llego a casa	<i>when I arrive home</i>	
cuando me apetece	<i>when I feel like it</i>	
si mis padres me dejan	<i>if my parents let me</i>	
si tengo tiempo	<i>if I have time</i>	
siempre que puedo	<i>whenever I can</i>	
al final del día	<i>at the end of the day</i>	
aproximadamente	<i>approximately</i>	
el proyecto	<i>project</i>	
temprano	<i>early</i>	
(no) tener tiempo	<i>to (not) have time</i>	

### 5.3 ¡Te he dicho que no!

aguantar(se)	<i>to stand/bear</i>	
criticar	<i>to criticise</i>	
discutir	<i>to argue, quarrel</i>	
enfadarse	<i>to get angry</i>	
gritar	<i>to shout</i>	
llegar a casa	<i>to arrive home</i>	
llevarse bien con	<i>to get on well with</i>	
llevarse mal con	<i>to get on badly with</i>	
pelearse	<i>to fight/argue</i>	
respetar	<i>to respect</i>	
volver a casa	<i>to return home</i>	
estar de acuerdo	<i>to be in agreement</i>	
estar en contra	<i>to be against</i>	
estricto/a	<i>strict</i>	
incompatible	<i>incompatible</i>	
injusto/a	<i>unfair</i>	
justo/a	<i>fair</i>	
razonable	<i>reasonable</i>	
a todas horas	<i>all the time</i>	
el conflicto	<i>conflict</i>	
el lío	<i>mess</i>	
el permiso	<i>permission</i>	
la regla	<i>rule</i>	

# Year 9 Spanish Knowledge Organiser

## Unit 5: Yo y Mi Mundo

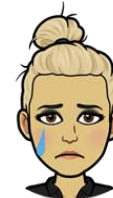
### 5.4 Sueño con otra vida

ambicioso/a	<i>ambitious</i>
el canal	<i>canal</i>
cansar	<i>to tire</i>
igual	<i>same, equal</i>
el pensamiento	<i>thought</i>
el puente	<i>bridge</i>
la quinceañera	<i>15th birthday party</i>
recoger	<i>to collect/pick</i>
el sentimiento	<i>feeling</i>
tardar	<i>to take (time)/be late</i>
traer	<i>to bring</i>
últimamente	<i>recently, lately</i>
vender	<i>to sell</i>
comenzar/empezar a	<i>to start doing</i>
dejar de	<i>to stop doing</i>
depender de	<i>to depend on</i>
hablar con	<i>to talk to</i>
hablar sobre	<i>to talk about</i>
pensar en	<i>to think about</i>
soñar con	<i>to dream about</i>
volver a	<i>to do something again</i>



### 5.5 Tengo inquietudes

la basura	<i>rubbish</i>
la contaminación	<i>contamination, pollution</i>
contaminante	<i>contaminating, polluting</i>
el crecimiento	<i>growth</i>
el desperdicio de plástico	<i>plastic waste</i>
la destrucción	<i>destruction</i>
la extinción	<i>extinction</i>
los hábitats naturales	<i>natural habitats</i>
las inundaciones	<i>floods</i>
las lluvias torrenciales	<i>torrential rain</i>
los mares	<i>seas</i>
medioambiental	<i>environmental</i>
el medio ambiente	<i>environment</i>
la sequía	<i>drought</i>
la tala de árboles	<i>tree felling</i>
alarmante	<i>alarming</i>
en peligro	<i>in danger</i>
preocupante	<i>worrying</i>
por todas partes	<i>everywhere</i>
trágico/a	<i>tragic</i>
me enfurece	<i>I'm furious about</i>
me da miedo	<i>I'm scared of</i>
me da pena	<i>I'm saddened by</i>
me da rabia	<i>I'm angry about</i>
me preocupa	<i>I'm worried about</i>



### 5.6 En busca de un mundo mejor

cuidar (de)	<i>to care (for)</i>
proteger	<i>to protect</i>
se puede/se debe...	<i>you can/you must...</i>
reciclar...	<i>recycle...</i>
...cartón	<i>...cardboard</i>
...latas	<i>...cans</i>
...papel	<i>...paper</i>
usar el transporte público	<i>use public transport</i>
ir a pie	<i>go on foot</i>
ir en bicicleta	<i>go by bike</i>
no comprar envases de plástico	<i>not buy plastic containers</i>
comprar productos locales	<i>buy local products</i>
ducharse	<i>take a shower</i>
no malgastar agua	<i>not waste water</i>
ser miembro de un grupo de presión	<i>be a member of a pressure group</i>
a diario	<i>daily</i>
el compromiso	<i>obligation/commitment</i>
la concentración	<i>gathering/rally</i>
la conciencia	<i>awareness</i>
las donaciones	<i>donations</i>
el espacio verde	<i>green space</i>
la prioridad	<i>priority</i>
todo lo posible	<i>everything possible</i>



# Year 9 Spanish Knowledge Organiser

## Unit 5: Yo y Mi Mundo

### 5.1 Lo que hago por las mañanas

normalmente siempre a menudo nunca	normally always often never	antes del instituto por la mañana	before school in the mornings	me levanto me ducho me lavo los dientes desayuno	I get up I shower I brush my teeth I eat breakfast	depués luego	then later	me visto me peino voy al instituto	I get dressed I brush my hair I go to school
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### 5.2 Lo que hago por las tardes y por las noches

Cuando llego a casa when I arrive home	me cambio de ropa hago los deberes meriendo paseo al perro	I get changed I do homework I have a snack (afternoon) to walk the dog	y and	si mis padres me dejan si tengo tiempo siempre que puedo al final del día	if my parents let me if I have time whenever I can at the end of the day	me relajo me acuesto	I relax I go to bed
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### 5.3 ¡Te he dicho que no!

Por lo general in general A veces nunca Siempre	In general Sometimes I never I always	discuto con mis padres me peleo con mis hermano/a me enfado con mi madre grito a mi major amigo/a	argue with my parents fight with my brother/sister get angry with my mother shout at my best friend	y and a veces sometimes	mi madre me grita mi padre no nos permite salir	my mum shouts at me my dad doesn't allow us to go out
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### 5.4 Sueño con otra vida

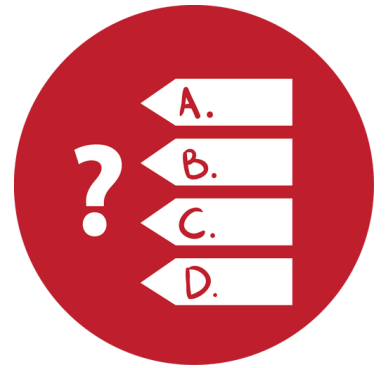
Mi rutina diaria My daily routine	me aburre bores me	bastante mucho un poco	quite a bit a lot a bit	sueño con I dream of	vivir en las montañas comprar un coche rápido no hacer nada	living in the mountains buying a fast car doing nothing
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### 5.5 Tengo inquietudes

Me preocupa Para mi el problema más grande Me da rabia Me da pena	I worry about For me the biggest problem is I am angered by I am saddened by	las inundaciones las lluvias torrenciales los mares el medio ambiente	<i>floods</i> <i>torrential rain</i> <i>seas</i> <i>environment</i>	y and también also	la basura la contaminación el desperdicio de plástico la extinción	<i>rubbish</i> <i>contamination, pollution</i> <i>plastic waste</i> <i>extinction</i>
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### 5.6 En busca de un mundo mejor

Para proteger el medio ambiente In order to protect the environment	se debe you should se puede you can	reciclar... ...cartón ...latas ...papel	<i>recycle...</i> <i>...cardboard</i> <i>...cans</i> <i>...paper</i>	y and también also	usar el transporte público ir a pie ir en bicicleta comprar productos locales no malgastar agua	<i>use public transport</i> <i>go on foot</i> <i>go by bike</i> <i>buy local products</i> <i>not waste water</i>
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