

# KNOWLEDGE ORGANISER BOOKLET

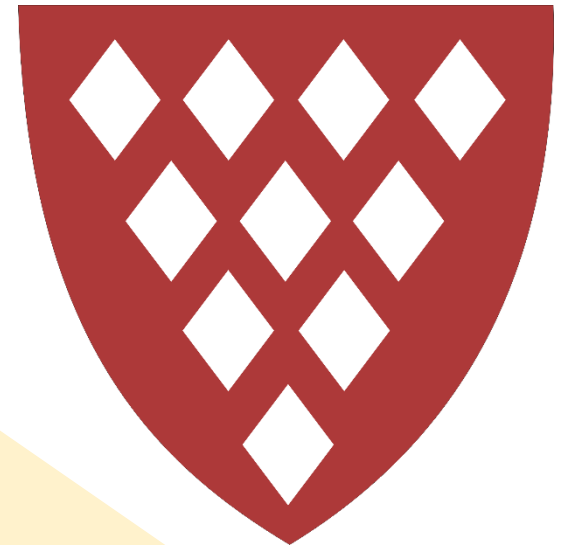
**YEAR 11 – CYCLE 1**

2025 - 2026

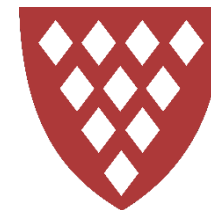
**CORE & HUMANITIES**

Name:

Tutor Group:



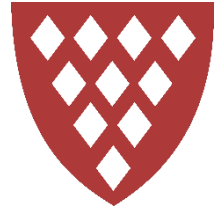
# Contents



## CORE & HUMANITIES

Subject	Page No
Instructions for Use.....	2
Instructions for Maths Home Learning.....	4
Maths.....	5
English.....	6
Biology.....	12
Chemistry.....	15
Physics.....	17
Geography.....	19
History.....	26
PSHE.....	36
RE.....	38
Notes.....	40






# Instructions for Use



For all of your subjects, there are certain **facts** that you **need** to know in order for you to best understand the content you study in lessons.

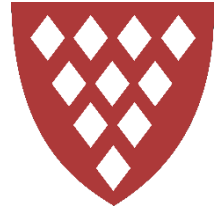
In this booklet are **Knowledge Organisers** for each subject which contain the core concepts that you have to know to be successful in your lessons.

The **first 15 minutes** of Home Learning is the same in all subjects (apart from Maths) and should be completed in your single **Home Learning exercise book**:

-  **Look:** read a specific section of the *Knowledge Organiser*.
-  **Cover:** cover it over or put it to one side;
-  **Write:** from memory, write out as much of the information as you can remember for that section;
-  **Check:** check back with the *Knowledge Organiser*. Anything missing or incorrect, add in purple pen.
-  **Review:** information you didn't recall the first time you may wish to check in a different format, such as repeating the process or creating revision cards.

The next lesson, your teacher will check that you have completed this process and you will be quizzed in your subject lesson to see what you can recall.

# Instructions for Use : Example



**Show My Homework** for Geography says: ‘Knowledge Organiser: How to Read Grid References’.



1. **LOOK:** carefully read the section of the *Knowledge Organiser* which you are learning.



2. **COVER:** cover it over or put it to one side.



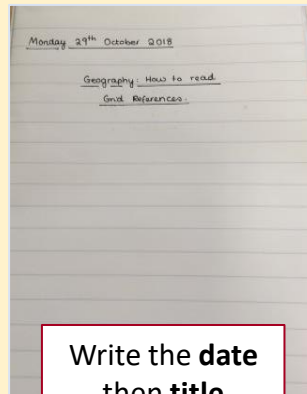
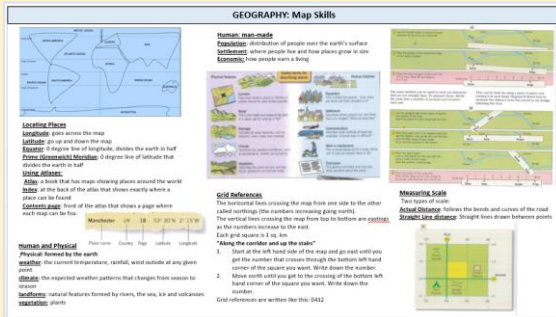
3. **WRITE:** write out as many details as you can from memory.



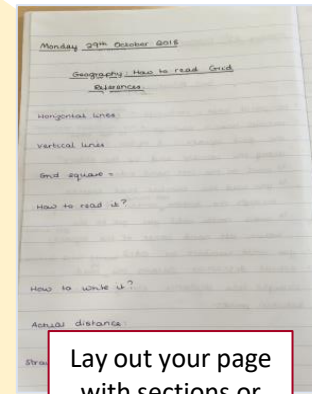
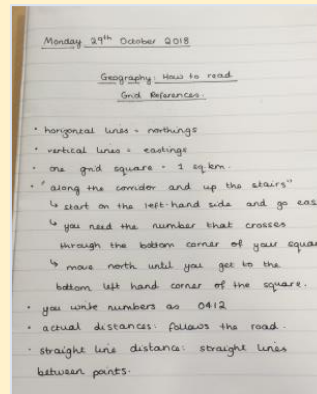
4. **CHECK:** check back over your answer with the *KO*. Anything which is missing or incorrect, add in in **purple pen**.



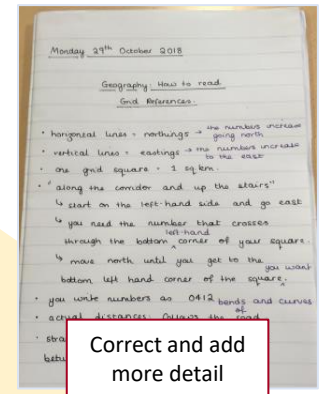
5. **REVIEW:** if you had significant gaps or parts you didn't understand, repeat the process from Step 1.



Write the **date**  
then **title**  
(**subject: focus**)



Lay out your page  
with sections or  
questions to help



Correct and add  
more detail  
using your  
purple pen.

# **sparx** is your Maths homelearning

You do not have a knowledge organiser for maths. This is because the best way to remember and understand mathematics is to do it. Write your Sparx password in the space below so you don't forget it.

Sparx username: .....

Sparx password: .....

## **How do I log on?**

Go to [www.sparxmaths.uk](http://www.sparxmaths.uk). Select **Kingsbridge Academy** and enter your username and password.

## **What do I have to do each week?**

Complete all of your Compulsory Section Sparx homework and get it 100% correct. If within your hour of home learning time you should complete the target and optional sections which are designed to help you make better progress in Maths.

## **How long should it take?**

Sparx will adjust your homework so it should take about 1 hour. If you find yourself taking longer than this, you should make sure you are coming for help on the difficult bits.

## **When should I do it?**

You should complete your Sparx homelearning in the 4 allocated 15-minute slots in your homelearning timetable

## **What if I get stuck or can't do it?**

You can watch the videos, ask a friend or parent or ask a maths teacher (in person or by email).

## **Why do I get different questions to my friend?**

Sparx creates a custom homework just for you – because you are an individual. We are really pleased that we are able to offer you personalised homework.

## **Why do I have to do 100%?**

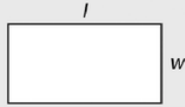
We care about you and believe that you deserve to do well in maths. Students who do all questions learn more and get better results.

# GCSE Maths

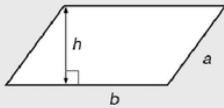
For GCSE Maths you are required to learn the following formulas.

## Areas

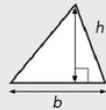
Rectangle =  $l \times w$



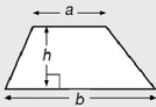
Parallelogram =  $b \times h$



Triangle =  $\frac{1}{2} b \times h$

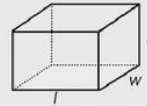


Trapezium =  $\frac{1}{2} (a + b)h$

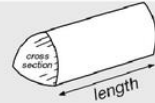


## Volumes

Cuboid =  $l \times w \times h$



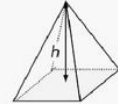
Prism = area of cross section  $\times$  length



Cylinder =  $\pi r^2 h$



Pyramid =  $\frac{1}{3} \times$  area of base  $\times h$

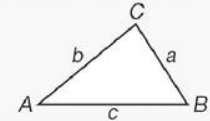


## Trigonometric formulae

Sine Rule  $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

Cosine Rule  $a^2 = b^2 + c^2 - 2bc \cos A$

Area of triangle =  $\frac{1}{2} ab \sin C$



## Quadratic equations

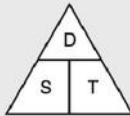
### The Quadratic Equation

The solutions of  $ax^2 + bx + c = 0$ , where  $a \neq 0$ , are given by  $x = \frac{-b \pm \sqrt{(b^2 - 4ac)}}{2a}$

## Compound measures

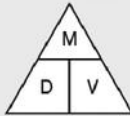
### Speed

speed =  $\frac{\text{distance}}{\text{time}}$



### Density

density =  $\frac{\text{mass}}{\text{volume}}$



### Pressure

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

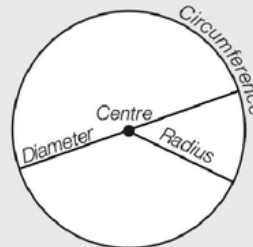


## Circles

Circumference =  $\pi \times$  diameter,  $C = \pi d$

Circumference =  $2 \times \pi \times$  radius,  $C = 2\pi r$

Area of a circle =  $\pi \times$  radius squared,  $A = \pi r^2$



Foundation tier formulae

Higher tier formulae

Key Vocabulary

	Word	Example:
	<b>curiosity:</b> The desire to learn or know more about something or someone.	Lanyon's <b>curiosity</b> leads to his eventual death.
	<b>internal conflict:</b> having two opposite thoughts or feelings at once.	Jekyll experiences an <b>internal conflict</b> between civilised and savage behaviours.
	<b>responsibility:</b> blame; a duty to care for someone or something.	Jekyll feels very little <b>responsibility</b> for Hyde's crimes.
	<b>morality:</b> The belief that some behaviour is right and acceptable and other behaviour is wrong.	Stevenson leads us to question the <b>morality</b> of Jekyll's experiment.
	<b>suppression:</b> not allowing yourself to feel, show, or be affected by (an emotion).	Hyde's outburst is caused by his <b>suppression</b> within Jekyll.
	<b>civilised:</b> behaving in a polite, reasonable and respectful way. Following the rules of society.	Jekyll is initially presented as a <b>civilised</b> member of society.
	<b>duality:</b> the quality or state of having two parts.	Stevenson explores the <b>duality</b> of human nature.
	<b>dichotomy:</b> a division of something into two opposing or contrasting parts.	Jekyll's experiment does create a clear <b>dichotomy</b> between good and evil.
	<b>virtue and vice:</b> a virtue is a moral behaviour. A vice is an immoral behaviour.	Jekyll desires both <b>virtue and vice</b> .
	<b>consequence:</b> something that happens as a result of another action.	Jekyll is eventually forced to face the <b>consequences</b> of his actions.
	<b>concealment:</b> the act of hiding something	The letter within the safe is a good example of <b>concealment</b> .
	<b>savagery:</b> 1. The quality of being fierce or cruel. 2. The condition of being primitive or uncivilised.	Hyde's violence represents the inner <b>savagery</b> of humans.

Key Quotations

Utterston is a lawyer: his affections 'grow like ivy'.	The back of Jekyll's house is a 'sinister block' with 'neither bell nor knocker'. There are no windows.	Hyde 'trampled calmly' over the small girl. He is described as a 'damned Juggernaut'.
When murdering Carew, Hyde 'broke out of all bounds' and broke out in a 'great flame of anger'.	Lanyon changes: 'The rosy man had grown pale; his flesh had fallen away'.	Jekyll discovered that 'man is not truly one but truly two'.
Jekyll describes his transformation: 'racking pangs... a grinding in the bones... deadly nausea'.	Hyde is associated with 'darkness' and 'fog'. After Carew's murder, the fog 'began to lie thickly' in the houses.	Enfield warns us about curiosity: 'You start a question and it's like starting a stone'.



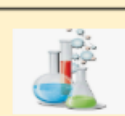
## Plot Overview

<b>Story of the Door</b>	Utterson and Enfield take their regular Sunday walk down a well-maintained street in a dingy neighbourhood. Enfield stops at a <b>door</b> and tells <b>the story of a girl being trampled</b> . Utterson realises the story is connected to his friend, Henry Jekyll.
<b>Search for Mr Hyde</b>	Utterson is worried by the reference to Hyde in Jekyll's will, but Jekyll laughs off his worries. <b>Utterson is worried and has nightmares about Hyde. He eventually manages to speak with him.</b> Hyde is repellent and Utterson feels no better having met him.
<b>Dr Jekyll Was Quite At Ease</b>	Utterson goes to dine with Jekyll. He brings up the subject of Hyde. Jekyll grows pale and wants to drop the subject but Utterson persists. <b>Jekyll claims he can be rid of Hyde at any moment, but makes Utterson promise to look after Hyde if necessary in future.</b>
<b>The Carew Murder Case</b>	Nearly a year later, a vicious murder occurs. <b>Sir Danvers Carew is brutally attacked and killed by Hyde.</b> Utterson notices the weapon used was a stick he had given to Jekyll. They visit Hyde's flat in Soho but he has disappeared.
<b>The Incident of the Letter</b>	<b>Utterson visits Jekyll and finds him looking 'deadly sick'.</b> He gives Utterson a letter from Hyde and asks Utterson to judge what should be done with it. However, Utterson learns that no letter was delivered to the house. Later, <b>Guest notices that the handwriting is the same as Jekyll's own, but slanted the opposite way.</b> Utterson thinks Jekyll is covering for Hyde.
<b>The Incident of Dr Lanyon</b>	Jekyll appears recovered and is living a good life. However, in January, he refuses to see anyone. <b>Utterson visits Lanyon and finds him gravely ill after a huge shock. Lanyon dies</b> and leaves Utterson a letter, to be opened after Jekyll's death or disappearance.
<b>The Incident at the Window</b>	Utterson and Enfield are back on their Sunday walk. They decide to enter Jekyll's court to try and see him. <b>Jekyll appears at the window but suddenly his face changes to a look of terror.</b> The two visitors are left terrified and shocked.
<b>The Last Night</b>	Poole visit Utterson in fear: he believes Hyde is hiding in Jekyll's lab and may even have killed Jekyll. Utterson and Poole break down the door. They find the body of Hyde who has <b>taken his own life.</b> There is a letter for Utterson.
<b>Dr Lanyon's Narrative</b>	<b>Utterson reads Lanyon's letter. It tells him of Lanyon seeing Hyde transform into Jekyll.</b> This is what shocked him and led to his eventual death.
<b>Henry Jekyll's Full Statement</b>	<b>Utterson read's Jekyll's letter, in which he explains the nature of his experiment to try and separate good and evil. We learn that his savage, instinctive side took control and he could no longer return to his normal self.</b>

Character Function		
	<b>Dr. Henry Jekyll</b>	Jekyll is the main character. He experiments in order to try and separate good and evil. He represents new science and a move away from traditional values.
	<b>Edward Hyde</b>	Hyde is the other, savage side of Jekyll. He is amoral and acts on instinct. He represents our hidden, instinctive side.
	<b>Dr. Hastie Lanyon</b>	Lanyon is a traditional doctor. He dies after witnessing Hyde's transformation. He symbolises the death of traditional values.
	<b>Gabriel Utterson</b>	Utterson is a lawyer. He is a reliable narrator, so we believe his account. He functions as a detective, and we follow his investigations.
	<b>Richard Enfield</b>	Enfield is Utterson's cousin. They walk together. He recalls the 'story of the door' and functions as a catalyst for the story.
	<b>Sir Danvers Carew</b>	Danvers Carew is an MP who is murdered by Hyde. He is kind, innocent and virtuous. His death reflects the death of innocence and Hyde's lack of motive.
	<b>Mr Guest</b>	Guest only appears in Chapter 5. His role is to 'guess' the link between Jekyll's and Hyde's writing.
	<b>Female minor characters</b>	The only females are minor characters. They are passive and weak. Females seem to have little role to play in traditional society.

Writer's Craft:	
<b>light and darkness</b>	Stevenson uses imagery of light to represent the virtuous part of humans. <b>Darkness symbolises the inner, savage parts of us.</b> Hyde is always associated with darkness, Jekyll with both.
<b>symbolic setting</b>	<b>Jekyll's house symbolises the dual nature of humans.</b> The front (respectable) part is the façade (face) that we put on in public. The back is our hidden, secret instinctive self. Hyde's own flat is in Soho, part of London associated with poverty and immorality. Represents the ability to move easily between good and evil.
<b>figurative imagery</b>	Stevenson uses metaphor and simile throughout. <b>Many images are linked to animals (e.g. ape-like) and to natural forces (storm of blows).</b> They help us to imagine this unknown force.
<b>foil</b>	A foil is a character who acts as a contrast to another. Hyde is a foil to Jekyll: his wild behaviour emphasises Jekyll's respectability. Lanyon is also a foil to Jekyll, as he is content with traditional values.
<b>epistolary form</b>	<b>Epistolary form = written in the form of letters.</b> This allows Stevenson to delay revealing key information until the end to increase tension. It also <b>reflects the theme of secrecy.</b>
<b>structure</b>	<b>Non-chronological (not in time order) structure</b> – we find out information alongside Utterson which enhances the sense of mystery.

# GCSE English Literature - R.L. Stevenson's *Jekyll and Hyde*: Knowledge Organiser

Key Context:		
	<b>gothic genre</b>	Gothic horror was a popular genre. It relies on psychological fear rather than terror – often fear of the unknown. Darkness and supernatural elements are common.
	<b>mystery genre</b>	Mystery was another common genre. People enjoyed following detectives as they investigated mysterious occurrences.
	<b>changing values</b>	Traditional Victorians valued reputations, respectability and appearances. These values were beginning to be questioned.
	<b>attitudes to science</b>	Science was broadening beyond the traditional biology to become more experimental. People could see experiments in their homes. There was a thirst for new knowledge.
	<b>attitudes to religion</b>	Traditional Victorians had been Christian. With the discovery of evolution, religion was being questioned and beliefs were weakened.
	<b>evolution</b>	Darwin published 'On the Origin of Species' in 1859, in which he outlined theories of evolution. People started to question creationism.
	<b>atavism</b>	The belief that people could start to exhibit behaviours from earlier ancestors (e.g. Hyde's animalistic 'ape-like' violence)
	<b>shilling shockers</b>	Shilling shockers were cheap stories of crime and violence. They usually featured lower class criminals – <u>JandH</u> subverts this.
	<b>physiognomy</b>	The belief that it was possible to tell a person's character from their outer appearance. This links to the description of Hyde's character, and Jekyll's ' <u>slyish</u> cast'.

Themes and Ideas: Stevenson may be suggesting that...	
<b>the duality of human nature</b>	... humans are not born 'good' in God's image, but are a complex mix of good and evil. We are a product of our animal ancestors and our socialisation. Both good and evil are natural to us.
<b>curiosity</b>	...we should be cautious about what we want to know. Some knowledge can be dangerous. Once we discover something, we can never 'unknow' it.
<b>science and religion</b>	...science can be helpful but we shouldn't go too far. We also need religion to give us a source of morality and control our behaviours. If we have no morals and no consequences, we may revert to savagery.
<b>secrecy and repression</b>	...the culture of secrecy and repression in society could be dangerous as it leads to violence and sexual repression building up.
<b>fear and violence</b>	...our biggest fear should be of our own human natures, as they are capable of terrible, destructive acts. Humans have naturally violent instincts. We also fear the unknown, as we can't deal with it.
<b>friendship</b>	...friendship is valuable. True friends take risks for others and have relationships that are built on trust.
<b>human weakness</b>	...humans are easily tempted and may look for easy options. It is difficult to remain moral at all times: even the most respectable characters struggle at times.

**Language Analysis:**

**What is this skill?** Language analysis is the skill of exploring writers' choices. Specifically, it involves identifying the words, phrases, language techniques and sentence structures that writers use in order to convey ideas. More importantly, you need to be able to explain *how* these specific choices help writers to convey ideas.

**Where is this assessed?** Language analysis is assessed in English Language Paper 1 Questions 2 and 4; and Language Paper 2 Questions 3 and 4. These skills will also be assessed in all of your English Literature essays.

**Denotation:** The dictionary definition of a word

e.g. The denotation of the word 'storm' is

**Connotation:** The idea that is associated with a word

e.g. Connotations of the word 'storm' can include anger and violence.

**Key Methods of Language Analysis**

Technique	Definition	General Effect:
<b>imagery</b>	A general term for descriptive language that helps the reader to <i>imagine</i> something that is being written about.	Enables the reader to create a mental picture of a situation, particularly an unfamiliar one or one created by the writer in fiction.
<b>metaphor</b>	A form of imagery where one thing is described as <i>being</i> something else.	Allows the reader to create a vivid mental picture; can convey emotions through implication.
<b>simile</b>	A form of imagery where one thing is described as being similar to something else, using the words 'like' or 'as'	Allows the reader to create a vivid mental picture, often by comparing something new with something more familiar.
<b>personification</b>	A form of imagery where a non-living object is described using human actions, features or emotions.	Allows the writer to assign emotions to the object; often helps to develop atmosphere.
<b>colour imagery</b>	Use of colours to form part of the description.	Can allow the writer to use connotations of the colours to develop meanings.
<b>adjectives</b>	Words that describe what a person, place, thing or emotion is like.	Enables the reader to develop a vivid mental picture. Look for connotations.
<b>semantic field</b>	A group of words that belong to the same topic area / theme.	Used to highlight or develop a key theme or atmosphere
<b>rhetorical question</b>	A questions posed to the audience which requires them to think about their own answer / response.	Can demonstrate a character's uncertainty in fiction. Can be used in discursive texts to engage audience in a controversial issue.
<b>short sentence</b>	A sentence with a limited number of words (often fewer than 5 words).	Highlights a significant idea or event within the text.
<b>imperative</b>	A direct command, formed with the verb as the first word.	Creates a forceful, authoritative tone. Gives importance to the action.
<b>verbs</b>	Words that name actions or states of being. Every sentence must contain at least one.	Look at the connotations of the verbs used.
<b>modal verbs</b>	Words which indicate possibility or permission: can/ could/ must / may/ might/ shall. should/ will/ would	Creates a specific level of certainty or confidence in the views and ideas being presented.
<b>allusion</b>	A reference to something outside of the text e.g. a literary work, mythological figure, advertising slogan etc.	Connects to the reader by drawing on their wider knowledge; can help to articulate 'big ideas' in a text.

**Sentence structures for analysis:**

The word ' \_\_\_\_\_ ' suggests...  
 The phrase ' \_\_\_\_\_ ' helps to describe the (x) as...  
 The metaphor ' \_\_\_\_\_ ' presents the (x) as...  
 The writer's use of \_\_\_\_\_ conveys the idea that...  
 The words ' \_\_\_\_\_ ' and ' \_\_\_\_\_ ' help to create a tone of...  
 The tone changes from \_\_\_\_\_ to \_\_\_\_\_ when...  
 The semantic field of \_\_\_\_\_ reinforces the idea of...  
 The idea of \_\_\_\_\_ is reinforced with the phrase...  
 The image of ' \_\_\_\_\_ ' hints at...  
 The verb ' \_\_\_\_\_ ' creates a sense of...

**Tone bank: What is the mood?**

melancholy	nostalgia	reflection
enthusiasm	authority	dejection
plaintiveness	intrigue	forcefulness
isolation	loss	determination
wonderment	overwhelmed	sinister
vulnerability	empowerment	conflicted

**Structure Analysis:**

**What is this skill?** Structure analysis is the skill of exploring writers' choices. Specifically, it involves tracing the key ideas in a text and, importantly, identifying how it is ordered and organised. More importantly, you need to be able to explain *how* these specific choices of content and organisation help writers to convey ideas.

**Where is this assessed?** Structure analysis is assessed in English Language Paper 1 Questions 3. It can also be included in your answers to Question 4 on both papers. Text structure is also part of your analysis for all of your literature texts.

**Key Words for Structure Analysis**

Method	Definition	General Effect:
establish	to set up or introduce a topic / setting / character at the beginning.	introduces the reader to the setting / character / mood of the text
develop	to build up details about a topic / setting / character within a text	gives the reader more information about important aspects of the text
cyclical structure	when the ending of the text reflects the beginning	shows how much a character and their situation have (or haven't) changed
contrast	present things that are opposite to each other	highlights the difference between two things
chronological	in time order (e.g. chronological story structure = told in the order in which it happened)	allows the reader to follow the events of a story as they are experienced by the character; aids empathy
flashback	when a story goes back to a moment in the character's past	allows the reader access to significant events in the character's past
zoom in	to move from a broad, general description to focus on a more specific area	focuses the reader in on significant details – makes them important
zoom out	to move from a small focus area to a broader, more general description	allows the reader to see the wider context of characters / events
internal thoughts	access to the character's inner personal thoughts and feelings; being metaphorically 'in the character's head'.	creates a personal tone; helps us to understand the character's thoughts and feelings; guides our response to the character
external action / description	description of things that are happening in the outside world of the character; things that a person in the character's world would be able to perceive.	allows us to see what a character's world is like and what is happening
dual perspective	a story told from two different narrative viewpoints / two different characters' experiences.	gives alternative viewpoints; can allow us to view events going on in different places / at different points in time
links back	when an idea in a text reminds us of something that we read earlier in the piece	helps us to notice how ideas have changed or developed
foreground	to highlight an idea or make it stand out in the text	guides the reader to notice something that is important
foreshadow	to hint at something that will (or might) happen later in the text	creates intrigue as we want to know whether our predictions are correct.
repetition	including a significant word, phrase or idea on multiple occasions	makes a word / idea stand out: it will usually be significant

**Sentence structures for analysis:**

At the start, we focus on...  
 At the beginning, we are introduced to...  
 The writer starts by establishing...  
 We then move on to find out...  
 The writer then develops...  
 We zoom in to focus on...  
 We zoom out to see...  
 Our focus shifts from (x) to (y)  
 We move from external action to internal thoughts when...  
 We end with a focus on...

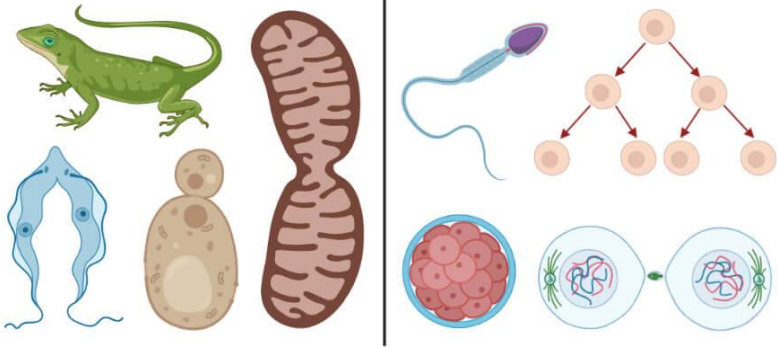
This builds tension by...  
 This intrigues us because...  
 This could foreshadow...  
 This foregrounds the idea that...  
 This hints that...  
 This makes us feel...  
 The overall structure moves from (x) to (y) in order to...

**Effects:**

engages us...	creates empathy with...	creates tension by...
intrigues us...	reflects the idea that...	creates fear by...
makes us question...	makes us think that...	creates excitement by



## Differences Between Asexual and Sexual Reproduction

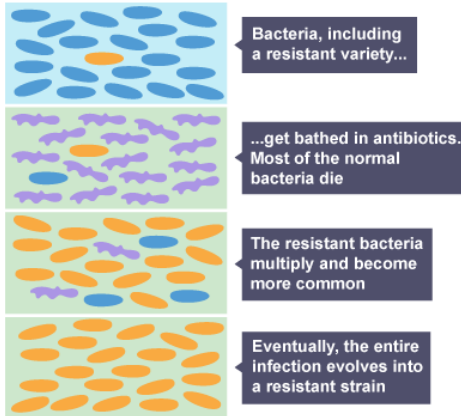


1. Asexual reproduction is when individuals make clones of themselves. Only one parent involved and no genetic mixing, no variation. Only mitosis involved.
2. Sexual reproduction involves the fusing of gametes, 2 parents and genetic mixing. Gives variation within a population.

Inherited disorders

**Cystic fibrosis:** Caused by the inheritance of two recessive alleles. Disorder of cell membranes, mostly affecting lungs and digestive system.

**Polydactyly:** Caused by the inheritance of a dominant allele. Results in one or more extra fingers and or toes.



## Punnet square for working out inheritance.

	T	T
t	Tt	Tt
t	Tt	Tt

Key words	
Gamete	Specialised sex cell; sperm, egg, pollen
Monohybrid inheritance	Controlled by a single gene
Allele	Different version of the same gene
Genotype	The alleles an individual has e.g. Bb
Phenotype	The physical expression of a gene e.g. brown eyes
Dominant allele	Will always be expressed in the phenotype. Represented with a capital letter
Recessive allele	Will only be expressed if there are two present. Represented by a lower case letter
Heterozygous	Two different alleles e.g. Bb
Homozygous	Two of the same allele e.g. BB or bb
Gene	Short section of DNA that codes for a specific protein.
Variation	Difference between individuals. Can be genetic, environmental or both.

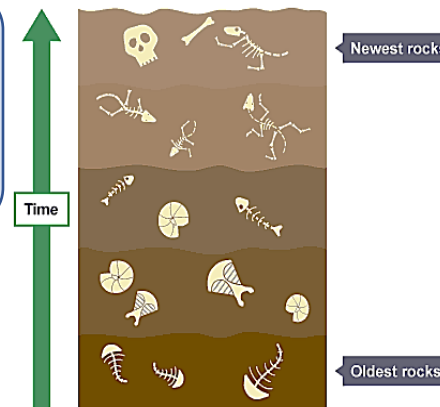
## Natural selection

- All individuals shows **variation due to mutation**.
- Some individuals **better suited** to the environment due to their advantageous genes. These individuals are more likely to **survive and pass on these genes** to their offspring.
- Individuals not well suited more likely to die.
- Overtime, the species will **evolve**.

## Linnaeus's system of classification



Fossils provide a snap shot of the past and allow us to study how much or how little organisms have changed as life developed on Earth.



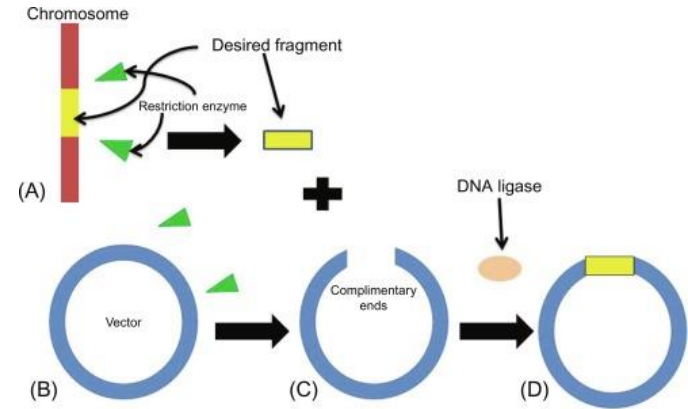
**Evidence for evolution:**  
Fossil records and antibiotic-resistant bacteria.

## Genetic engineering

1. selection of the desired characteristic
2. the gene responsible for the characteristic is 'cut out' of the **chromosome**
3. the gene is transferred and inserted into another organism
4. replication of the modified organism.

## Selective breeding

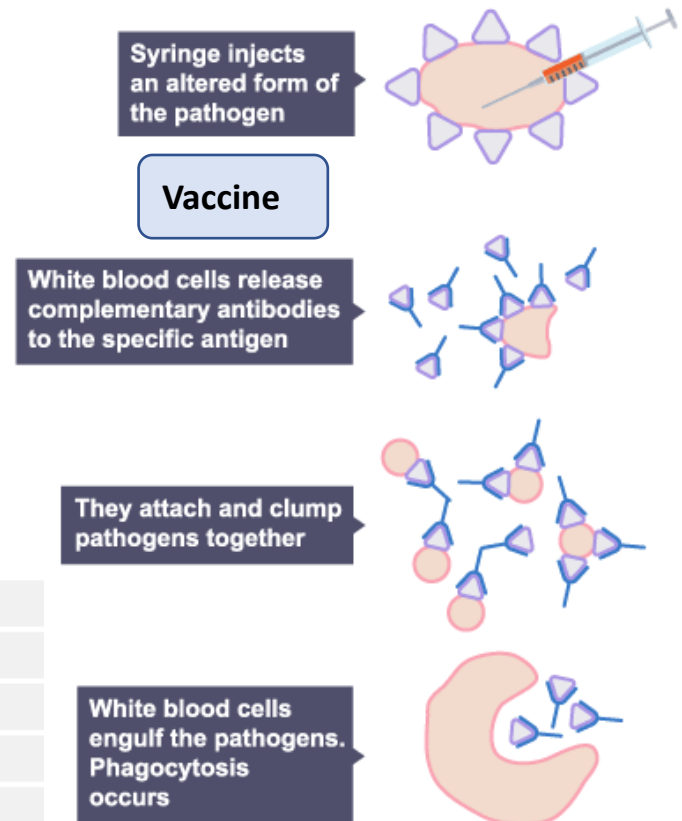
1. decide which characteristics are important enough to select
  2. choose parents that show these characteristics
  3. choose the best offspring from parents to produce the next generation
  4. repeat the process continuously for many generations
- N.B inbreeding can lead to loss of alleles from the population.



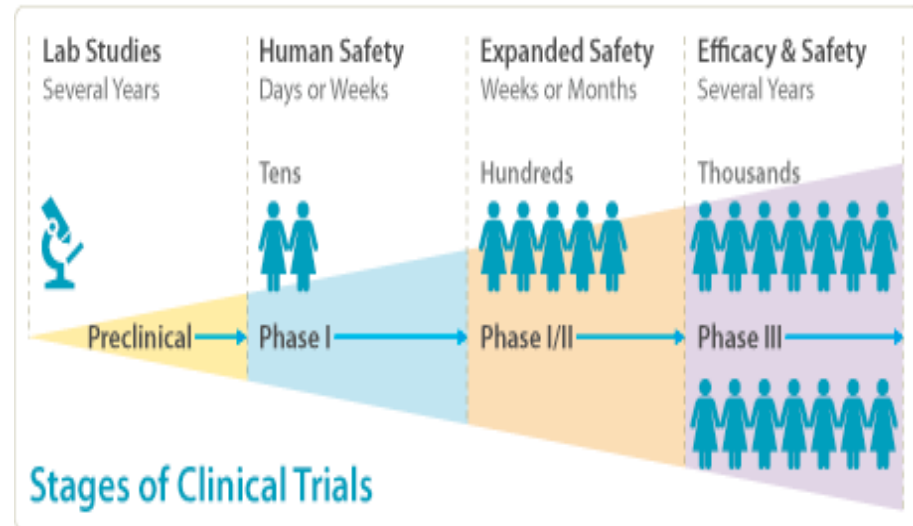
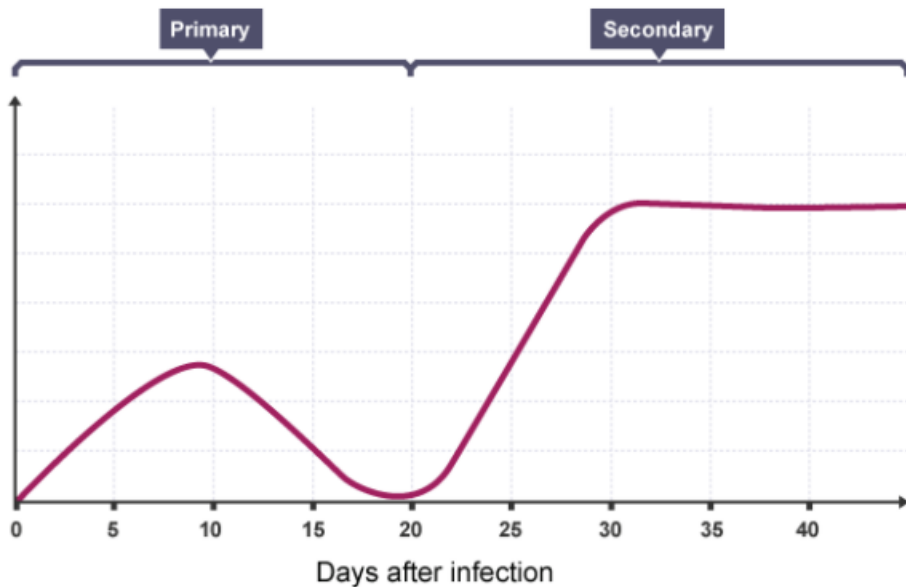
## Antibiotics treat bacteria only

Type	Examples
Direct contact	This can be sexual contact during intercourse or non-sexual contact, like shaking hands.
Water	Dirty water can transmit many diseases, such as the cholera bacterium.
Air	When a person who is infected by the common cold sneezes, they can spray thousands of tiny droplets containing virus particles to infect others.
Unhygienic food preparation	Undercooked or reheated food can cause bacterial diseases like Escherichia coli which is a cause of food poisoning.
Vector	Any organism that can spread a disease is called a vector. Many farmers think tuberculosis in their cattle can be spread by badgers.

Pathogen	Example in animals	Example in plants
Viruses	HIV potentially leading to AIDS	Tobacco mosaic virus
Bacteria	Salmonella	Agrobacterium
Fungi	Athlete's foot	Rose black spot
Protists	Malaria	Downy mildew



Pathogen	Disease	Symptoms
Virus	HIV	Mild flu-like symptoms leading to AIDS
Virus	Measles	Fever, rash, can lead to infertility
Virus	Tobacco mosaic virus (TMV)	Infects chloroplasts, reducing ability to photosynthesis. Stunted. growth.
Bacteria	Gonorrhoea	Yellow/ green discharge, pain when urinating
Bacteria	Salmonella	Food poisoning (sickness and diarrhoea)
Protist (vector spread)	Malaria	Recurrent episodes of fever, headache, vomiting.
Fungus	Rose black spot	Black spots on leaves, reducing photosynthesis



## Crude Oil and Fractional Distillation

### Crude Oil

**CRUDE OIL** — a mixture of many hydrocarbons.

It's a finite resource found in rocks and formed from dead plants and animals that have spent millions of years buried in mud.

Crude oil is processed to produce fuels and to provide stock chemicals used to manufacture polymers, solvents, detergents, lubricants etc.

Hydrocarbons only contain hydrogen and carbon atoms.



### Combustion

**COMPLETE COMBUSTION** — an oxidation reaction that occurs when a fuel reacts with plenty of oxygen.



Hydrocarbons are used as fuels because combustion releases a lot of energy.

### Hydrocarbons

As the length of the hydrocarbon chain increases, the...

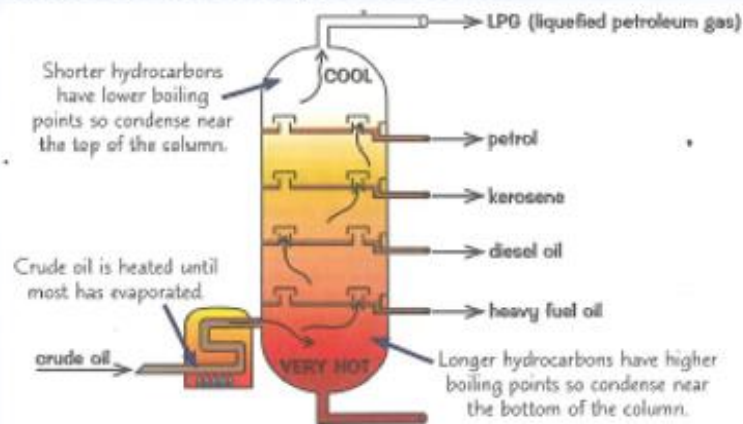
...boiling point increases.

...viscosity increases.

...flammability decreases.

### Fractional Distillation

**FRACTIONAL DISTILLATION** — a process used to separate the hydrocarbons in crude oil into fractions according to their boiling points.



## Alkanes and Cracking

### Alkanes

**ALKANES** — the simplest type of hydrocarbon, containing only single covalent bonds (they're saturated).

Most hydrocarbons in crude oil are alkanes.

The general formula for the homologous series of alkanes is  $C_nH_{2n+2}$ .

Number of carbon atoms	1	2	3	4
Name	Methane	Ethane	Propane	Butane
Formula	$CH_4$	$C_2H_6$	$C_3H_8$	$C_4H_{10}$
Structure	$\begin{array}{c} H \\   \\ H-C-H \\   \\ H \end{array}$	$\begin{array}{c} H & H \\   &   \\ H-C & -C-H \\   &   \\ H & H \end{array}$	$\begin{array}{c} H & H & H \\   &   &   \\ H-C & -C & -C-H \\   &   &   \\ H & H & H \end{array}$	$\begin{array}{c} H & H & H & H \\   &   &   &   \\ H-C & -C & -C & -C-H \\   &   &   &   \\ H & H & H & H \end{array}$

### Two Methods of Cracking

There is a high demand for fuels with shorter carbon chains.

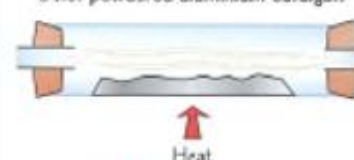
**CRACKING** — breaks down long-chain hydrocarbons into shorter, more useful ones.

Alkenes are used to make polymers and are a starting material for making other chemicals.



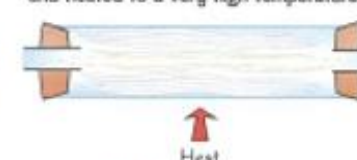
Long-chain hydrocarbons are vaporised by heating.

Hydrocarbon vapour is passed over a hot powdered aluminium catalyst.



1 Catalytic cracking

Hydrocarbon vapour is mixed with steam and heated to a very high temperature.



2 Steam cracking

## Purity, Formulations and Gas Tests

### Purity

	Everyday Definition	Chemical Definition
<b>PURE SUBSTANCE</b>	A substance with nothing added to it, e.g. milk.	A substance containing only one element or compound.

A chemically pure substance will:

Melt at a specific temperature.



Boil at a specific temperature.



You can test the purity of a sample by comparing its melting or boiling point with that of the pure substance.

Impurities in a sample will:

- lower the melting point and increase the melting range.
- increase the boiling point and may also increase the boiling range.

### Formulations

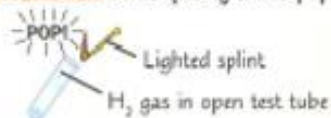
**FORMULATIONS** — useful mixtures with a precise purpose.

Each component in a formulation is present in a measured quantity, and contributes to the properties of the formulation.



### Four Tests for Gases

- 1 HYDROGEN** burns quickly with a pop.



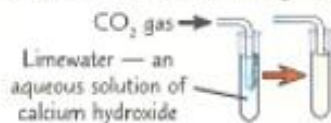
- 2 OXYGEN** will relight a glowing splint.



- 3 CHLORINE** bleaches damp litmus paper white.



- 4 CARBON DIOXIDE** makes limewater turn cloudy when shaken with or bubbled through it.



## Alkenes

**ALKENES** — unsaturated hydrocarbons that have a carbon-carbon double bond (this is the functional group). The C=C double bond makes them more reactive than alkanes.

The general formula for the alkenes is  $C_nH_{2n}$ .

**Functional group** — a group of atoms in a molecule that dictate how that molecule typically reacts.

Number of carbon atoms	2	3	4
Name	Ethene	Propene	Butene
Formula	$C_2H_4$	$C_3H_6$	$C_4H_8$
Structure			e.g.

## P3 Particle Model– Yr11 Cycle 1: Knowledge Organiser

Specific heat capacity	The energy needed to raise the temperature of 1kg of a substance by 1°C.
Specific Latent Heat	Then energy needed to change the state of 1kg of a substance without changing its temperature

### Equations

$\Delta E = mc \Delta\theta$  Change in thermal energy = mass x specific heat capacity x temperature change  
 $E = mL$  Energy required to change state = mass x specific latent heat

### Required Practical

#### Investigating Specific Heat Capacity

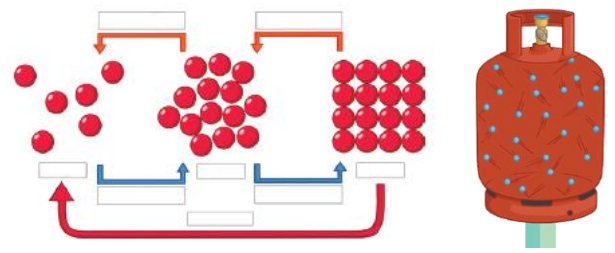
##### Method:

- Using the balance, measure and record the mass of the copper block in kg.
- Wrap the insulation around the block.
- Put the heater into the large hole in the block and the block onto the heatproof mat.
- Connect the power pack and ammeter in series and the voltmeter across the power pack.
- Using the pipette, put a drop of water into the small hole.
- Put the thermometer into the small hole and measure the temperature.
- Switch the power pack to 12V and turn it on.
- Read and record the voltmeter and ammeter readings – during the experiment, they shouldn't change.
- Turn on the stop clock and record the temperature every minute for 10 minutes.
- Record the results in the table.
- Calculate work done and plot a line graph of work done against temperature.

### 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.

### Changing State

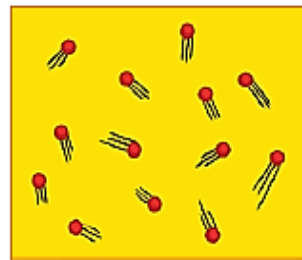


Specific latent heat will be different for different materials.

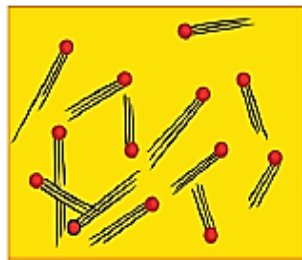
- solid → liquid - specific latent heat of fusion
- liquid → gas - specific latent heat of vaporisation

### Internal Energy

Particles within a system have kinetic energy when they vibrate or move around. The particles also have a potential energy store. The total internal energy of a system is the kinetic and potential energy stores.



Low Temperature

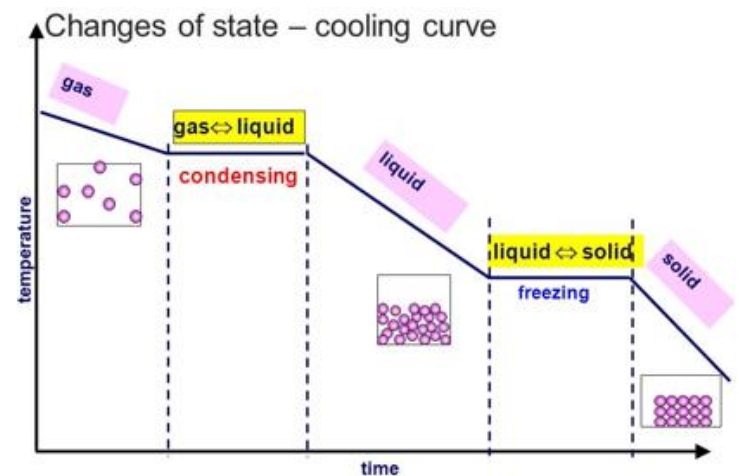


High Temperature

If the system is heated, the particles will gain more kinetic energy, so increasing the internal energy.

### 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.

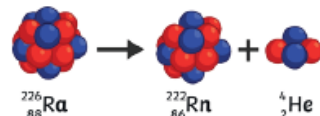


## P4 Atomic Structure – Yr11 Cycle 1: Knowledge Organiser

Ionising Radiation	Radiation that removes electrons from atoms, forming ions.
Isotope	An atom that has the same number of protons but a different number of Neutrons.
Irradiation	When an object is exposed to a radioactive source
Contamination	When an object comes into contact with a radioactive source and the radioactive material stays in or on the object.
Half life	The time taken for the number of radioactive nuclei in a source to half
Ion	A charged atom that has a different number of electrons to protons

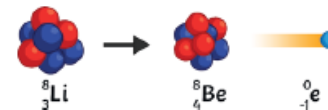
### Alpha Decay Equations

An alpha particle is made of two protons and two neutrons. The atomic number goes down by two and its mass number decreases by four.



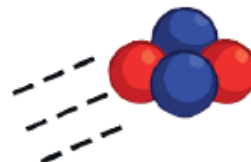
### Beta Decay Equations

A neutron turns into a proton and releases an electron. The mass of the nucleus does not change but the number of protons increases.



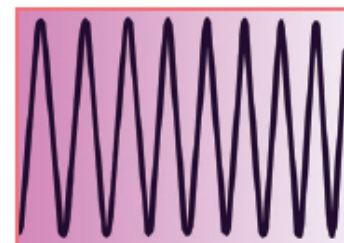
### Alpha

Alpha radiation is an alpha particle emitted from the nucleus of a radioactive nuclei. It is made from two protons and two neutrons. They can't travel too far in the air and are the least penetrating – stopped by skin and paper. However, they are highly ionising because of their size.



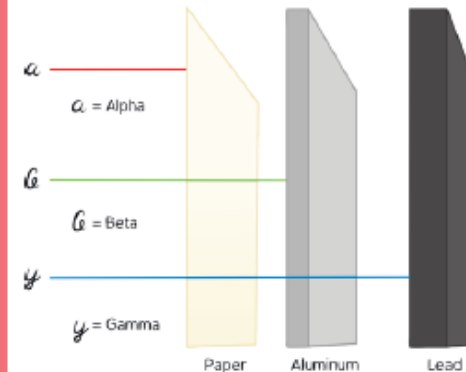
### Gamma

A gamma wave is a wave of radiation and is the most penetrating – stopped by thick lead and concrete.



### Beta

Beta radiation is a fast moving electron that can be stopped by a piece of aluminium. Beta radiation is emitted by an atom when a neutron splits into a proton and an electron.



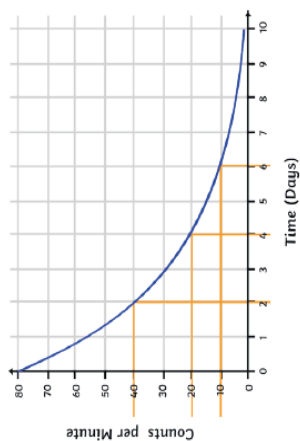
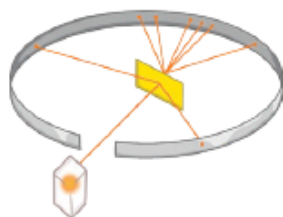
Alpha radiation is more dangerous inside the body. It is highly ionising and able to cause a lot of damage. Outside the body it is less dangerous because it cannot penetrate the skin.

Beta radiation is less dangerous inside the body as some of the radiation is able to escape. Outside the body it is more dangerous as it can penetrate the skin.

Gamma radiation is the least dangerous inside the body as most will pass out and it is the least ionising. Gamma is more dangerous outside the body as it can penetrate the skin.

### Gamma rays

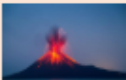
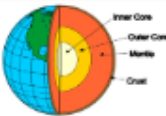

There is no change to the nucleus when a radioactive source emits gamma radiation. It is the nucleus getting rid of excess energy.





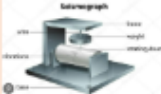
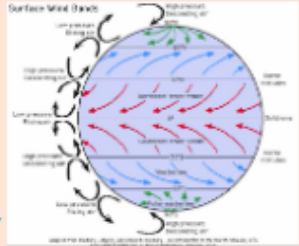
Judging from the graph, the radioactive material has a half-life of two days.


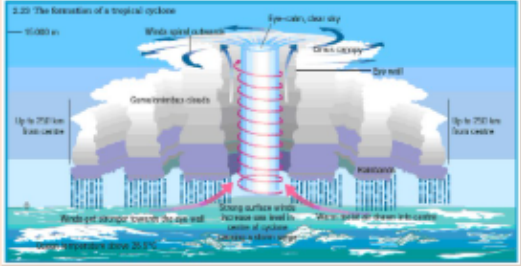
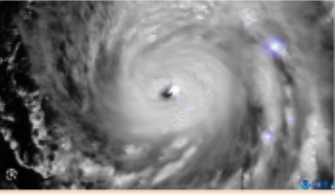



A graph of half-life can be used to calculate the half-life of a material and will always have this shape.




Isotope	Protons	Electrons	Neutrons
${}_1^1\text{H}$	1	1	0
${}_1^2\text{H}$	1	1	1
${}_1^3\text{H}$	1	1	2

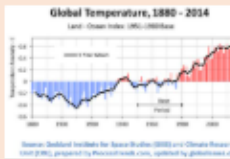
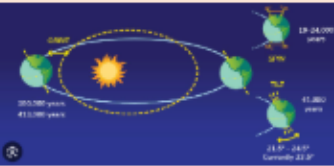
Lesson 1: Natural Hazards	Lesson 2: Plate boundaries	Lesson 3: Location of tectonic hazards
<p><b>What are Natural Hazards?</b> Natural hazards are physical events such as earthquakes and volcanoes that have the potential to do damage to humans and property. They become disasters when they cause high levels of death, injury, damage or disruption.</p>  <p><b>Types of hazard</b></p> <ul style="list-style-type: none"> <li>• <b>Hydro-meteorological</b> – Droughts, Tornadoes, Heatwaves, Wildfires, floods, storms</li> <li>• <b>Geophysical</b> – Landslides, earthquakes, volcanic eruptions, tsunamis</li> </ul> <p><b>What affects hazard risk?</b></p> <ul style="list-style-type: none"> <li>• <b>Population growth</b> – a growing population increases the number of people at risk from a natural hazard</li> <li>• <b>Global climate change</b> – evidence is suggesting that this is increasing the intensity of rotating tropical storms and exposing new areas to their dangers.</li> <li>• <b>Deforestation</b> – this contributes to climate change and increases the risk of flooding</li> <li>• <b>Wealth (level of development)</b> - LICs are particularly at risk as they do not have the money to protect themselves e.g. earthquake-proof buildings</li> </ul>	<p><b>Structure of the Earth</b> The earth has 4 layers. The crust is split into major sections called tectonic plates.</p>  <p>There are 2 types of crust: <b>Oceanic</b> (thin and younger but dense) and <b>Continental</b> (old and thicker but less dense). These plates move due to convection currents and slab pull (weight of the plate being pulled by gravity).</p> <p><b>Constrictive Plate Margin</b> - 1. Two plates move apart. 2. Magma rises between the plates. 3. As magma breaks, it cause low magnitude earthquakes. 4. Magma is hot &amp; fluid, so flows a long way before cooling. 5. This results in broad, flat Shield Volcanoes – low magnitude.</p> <p><b>Destructive Plate Margin</b> - 1. Two plates move towards each other. 2. Dens, oceanic plate sinks. 3. Friction causes high magnitude earthquakes. 4. Sinking plate creates sticky, gas-rich magma. 5. Results in composite volcano-high magnitude.</p> <p><b>Conservative Plate Margin</b> – 1. Two plates move past each other. 2. Plates move at different speeds or direction. 3. Friction between plates builds stress. 3. Earthquakes happen when plates slip - NO volcanoes.</p>	<p><b>Distribution of tectonic activity – how it is spread out over Earth’s surface</b></p>  <ul style="list-style-type: none"> <li>• Along plate boundaries in a linear pattern (in a line)</li> <li>• On the edge of continents.</li> <li>• Around the edge of the Pacific ocean - the 'Ring of fire'</li> </ul> <p><b>Volcanoes</b></p> <ul style="list-style-type: none"> <li>• <b>Constructive</b> margins – Hot magma rises between the plates e.g. Iceland. The lava here is 'runny' - this forms Shield volcanoes.</li> <li>• <b>Destructive</b> margins – an oceanic plate subducts under a continental plate. Friction causes oceanic plate to melt and pressure forces magma up to form composite volcanoes e.g. the west coast of South America.</li> </ul> <p><b>Earthquakes</b></p> <ul style="list-style-type: none"> <li>• <b>Constructive</b> margins – usually small earthquakes as plates pull apart.</li> <li>• <b>Destructive</b> margins – violent earthquakes as pressure builds and is then released.</li> <li>• <b>Conservative</b> margins – plates slide past each other. They catch and then as pressure builds it is released e.g. San Andreas fault.</li> </ul>
<ol style="list-style-type: none"> <li>1. In your own words, define natural hazard.</li> <li>2. Give two example of hydro-meteorological hazards.</li> <li>3. What type of hazard are tsunamis and earthquakes?</li> <li>4. Explain how population growth affects hazard risk.</li> <li>5. Explain how level of development affects hazard risk.</li> </ol>	<ol style="list-style-type: none"> <li>1. How many layers does Earth’s structure have?</li> <li>2. What are tectonic plates?</li> <li>3. What moves Earth’s tectonic plates?</li> <li>4. What is happening at a destructive plate boundary?</li> <li>5. What is happening at a conservative plate boundary?</li> </ol>	<ol style="list-style-type: none"> <li>1. What does the word ‘distribution’ mean?</li> <li>2. Describe the distribution of volcanoes and earthquakes.</li> <li>3. How many types of plate boundary are there?</li> <li>4. What type of volcanoes are found at destructive plate boundaries?</li> <li>5. Explain how earthquakes are formed at conservative boundaries.</li> </ol>





Lesson 4: HIC Case study – Noto, Japan	Lesson 5: LIC Case study – Turkey/Syria	Lesson 6: Contrasting responses
<p><b>Noto, Japan (HIC) 1st January 2024 4:10pm</b>  <b>7.6 on Richter scale</b>  <b>Primary effects</b></p> <ul style="list-style-type: none"> <li>• 208 deaths, collapsed buildings</li> <li>• 600 people injured</li> <li>• Extensive damage to buildings</li> <li>• Damage to 15 fishing ports</li> </ul> <p><b>Secondary effects</b></p> <ul style="list-style-type: none"> <li>• 1-6m Tsunami</li> <li>• Extensive coastal flooding caused by tsunamis generated by the earthquake</li> <li>• Sporadic fires</li> </ul> <p><b>What's the difference between Primary &amp; Secondary effects?</b>  <b>Primary effects</b> happen immediately. <b>Secondary effects</b> happen as a result of the primary effects and are therefore often later.</p> <p><b>Earthquakes</b>  <b>Primary effects</b></p> <ul style="list-style-type: none"> <li>• Property and buildings destroyed.</li> <li>• People injured or killed.</li> <li>• Ports, roads, railways damaged.</li> <li>• Pipes (water and gas) and electricity cables broken.</li> </ul> <p><b>Secondary effects</b></p> <ul style="list-style-type: none"> <li>• Business reduced as money spent repairing property.</li> <li>• Blocked transport hinders emergency services.</li> <li>• Broken gas pipes cause fire.</li> <li>• Broken water pipes lead to a lack of fresh water.</li> </ul>	<p><b>Turkey/Syria (LIC) 6<sup>th</sup> February 2023 3:17am</b>  <b>7.8 on Richter scale</b></p> <p><b>Primary effects</b></p> <ul style="list-style-type: none"> <li>• 55,000 deaths</li> <li>• 130,000 injured</li> <li>• 26 million affected in Syria and Turkey</li> <li>• 164,000 buildings destroyed or severely damaged</li> </ul> <p><b>Secondary effects</b></p> <ul style="list-style-type: none"> <li>• Psychological impacts from experiencing the event</li> <li>• Estimated that 2.7 million people made homeless</li> <li>• One in three children who lost their homes in the Turkey earthquakes a year ago still living in temporary shelters</li> </ul> <div data-bbox="762 731 1164 988" data-label="Image"> </div>	<p style="text-align: center;"><b>Japan 2024</b></p> <p><b>Immediate responses</b> – short-term measures to help the survivors</p> <ul style="list-style-type: none"> <li>• Every person receives a text message warning</li> <li>• Emergency co-ordination centre established</li> <li>• 2,000 troops sent to help with the disaster</li> <li>• 62,000 people evacuated due to tsunami warnings</li> <li>• \$28m government disaster fund</li> </ul> <p><b>Long-term responses</b> – longer-term reconstruction work</p> <ul style="list-style-type: none"> <li>• K-NET - a network of seismographs installed at approximately 1,000 locations nationwide. Stop all trains and other infrastructure</li> <li>• September 1<sup>st</sup> - Disaster Preparedness Day</li> <li>• Anti-seismic Design Standard to buildings</li> </ul> <p style="text-align: center;"><b>Turkey/Syria 2023</b></p> <p><b>Immediate responses</b></p> <ul style="list-style-type: none"> <li>• World leaders pledged to send aid as an international response.</li> <li>• Use of diggers and sniffer dogs to search for survivors</li> <li>• Offers of aid from 45 countries including NATO and the EU.</li> <li>• Offers of specialist equipment and experts.</li> <li>• Rescue teams working at night - Rescue workers – the 'White Helmets'.</li> </ul> <p><b>Long-term responses</b></p> <ul style="list-style-type: none"> <li>• Construction amnesty where buildings built illegally were given certificate if a fee was paid.</li> <li>• Building design includes using rubber shock absorbers</li> </ul>
<ol style="list-style-type: none"> <li>1. When and where did the Japan earthquake happen?</li> <li>2. How powerful was this earthquake?</li> <li>3. What's the difference between Primary &amp; Secondary effects?</li> <li>4. Give two primary effects of this earthquake.</li> <li>5. Give two secondary effects of this earthquake.</li> </ol>	<ol style="list-style-type: none"> <li>1. When and where did the Turkey/Syria earthquake happen?</li> <li>2. What time of day was the earthquake?</li> <li>3. How powerful was this earthquake?</li> <li>4. Give two primary effects of this earthquake.</li> <li>5. Give two secondary effects of this earthquake</li> </ol>	<ol style="list-style-type: none"> <li>1. In your own words, what is the difference between short and long-term responses?</li> <li>2. Give an example of a short-term response from Japan</li> <li>3. How many people from Japan were evacuated due to tsunami warnings?</li> <li>4. Give two problems with the short-term response in Turkey/Syria</li> <li>5. Explain why the responses differed between these two earthquakes.</li> </ol>

Lesson 7: Living in areas at risk	Lesson 8: Monitoring & 3 Ps	Lesson 9: Atmospheric circulation
<p><b>Why do people live in areas at risk?</b></p> <ul style="list-style-type: none"> <li>Poor people have no choice</li> <li>Hazards are rare so not seen as a threat</li> <li>Some people have no experience or knowledge of the risks</li> <li>Volcanoes can bring benefits such as fertile soils and rich minerals</li> <li>Plate margins sometimes coincide with favourable areas for trade e.g. coastal areas</li> </ul> <p><b>Living on a plate margin: Iceland</b></p> <ul style="list-style-type: none"> <li>Iceland is located on a constructive plate margin (The mid-Atlantic ridge)</li> <li>The North American and Eurasian plate meet here.</li> <li>Geothermal energy generates 25% of Iceland's electricity. Most of the rest is HEP.</li> <li>Iceland's landscapes supports a huge tourism industry.</li> <li>Naturally occurring hot water provides heating for 90% of all buildings.</li> </ul> <div style="display: flex; justify-content: space-around;">   </div>	<p><b>Reducing the impact of tectonic hazards</b></p> <p><b>Monitoring</b></p> <ul style="list-style-type: none"> <li>Seismometers measure earth movement.</li> <li>Volcanoes monitored by remote sensing to detect heat and ground deformation to measure changes in the shape of the ground.</li> <li>Gas sensors can also detect rising magma beneath the volcano</li> </ul> <p><b>Prediction</b></p> <ul style="list-style-type: none"> <li>Observing monitoring data can allow accurate prediction and evacuation before event. e(.g. Eyjafjallajökull, 2010).</li> <li>Historical records of earthquakes can help determine probability and so help plan.</li> <li>Earthquakes are technically harder to predict as the fault line stretches over a much larger area</li> </ul> <p><b>Protection</b></p> <ul style="list-style-type: none"> <li>Earthquake resistant construction of buildings.</li> <li>Earth embankments or explosives can be used to divert lava flows.</li> </ul> <p><b>Planning</b></p> <ul style="list-style-type: none"> <li>Avoid building in at risk areas.</li> <li>Training for emergency services and planned evacuation routes and drills.</li> <li>TV adverts to improve peoples preparedness for these events</li> </ul> 	<p>At the equator, the sun's rays are most concentrated – highest levels of <b>solar insolation</b>. This means that temperatures are high there. This one fact causes global atmospheric circulation at different latitudes.</p> <p>As the air heats at the equator, it rises – causing low pressure. As it cools, it sinks, causing high pressure. Winds move from high pressure to low pressure. They curve because of the <b>Coriolis effect</b> (the turning of the Earth) creating the Trade winds.</p> <p>Geographers have identified three cells of air movement in the atmosphere:</p> <ul style="list-style-type: none"> <li>Hadley</li> <li>Ferrell</li> <li>Polar</li> </ul> <p>These cells interact with each other and are responsible for the world's different climate zones &amp; biomes like the hot deserts.</p>  <p><b>Remember</b>          High pressure = sinking air, dry          Low pressure = rising air, wet</p>
<ol style="list-style-type: none"> <li>What type of plate boundary is Iceland on?</li> <li>Which two tectonic plates meet here?</li> <li>Give 3 reasons why people live in areas at risk.</li> <li>How much of Iceland's electricity is generated by geothermal energy?</li> <li>What % of Iceland's homes are heated by naturally occurring hot water?</li> </ol>	<ol style="list-style-type: none"> <li>What scientific instrument measures earth movement?</li> <li>What type of method is using historical earthquake records?</li> <li>Give an example of a method of protection.</li> <li>How can people be better prepared for these events?</li> <li>How can the emergency services improve their response?</li> </ol>	<ol style="list-style-type: none"> <li>What are levels of solar insolation like at the Equator?</li> <li>What happens to the air at the Equator?</li> <li>What type of pressure does this create?</li> <li>Name the three cells that make up the Global Atmospheric Circulation.</li> <li>What force causes the air movement between the cells to curve/bend?</li> </ol>

Lesson 10: Rotating tropical storms	Lesson 11: Structure & features of tropical storms	Lesson 12: Case study – Super-Typhoon Haiyan
<p><b>Where do they occur- how are they distributed over Earth's surface?</b></p> <p>Occur in low latitudes between 5° and 30° north and south of the equator (in the tropics). Ocean temperature needs to be above 27° C. Happen between summer and autumn when the ocean temperature is high enough.</p> <p>Atlantic Ocean - Hurricanes                      Indian Ocean – Cyclones                      Pacific Ocean- Typhoons</p>  <p><b>Sequence of a tropical storm</b></p> <ol style="list-style-type: none"> <li>1. Air is heated above warm tropical oceans.</li> <li>2. Air rises under low pressure conditions.</li> <li>3. Strong winds form as rising air draws in more air and moisture causing torrential rain.</li> <li>4. Air spins due to Coriolis effect around a calm eye of the storm.</li> <li>5. Cold air sinks in the eye so it is clear and dry.</li> <li>6. Heat is given off as the water vapour cools (latent heat) further powering the storm.</li> <li>7. On meeting land, it loses its source of heat and moisture so loses power.</li> </ol>	<p>There is a <b>common structure</b> to all rotating tropical storms:</p> <ul style="list-style-type: none"> <li>• Central eye – clear sky, calm weather, descending air</li> <li>• Eye wall – this surrounds the eye and is where the strongest winds are found</li> <li>• Alternating band of swirling cloud</li> <li>• Beneath the storm the sea bulges upwards due to the very low pressure. This causes a storm surge which results in serious flooding for coastal areas.</li> </ul>   <ul style="list-style-type: none"> <li>• From space these storms form a Catherine wheel shape</li> </ul>	<p><b>Typhoon Haiyan, Philippines, November 2013</b>                      Category 5 314km/hr winds 281.9mm or rain in under 12 hours</p>  <p><b>Primary effects</b></p> <ul style="list-style-type: none"> <li>• At least 6340 killed</li> <li>• 314 km/hr wind speeds.</li> <li>• 5m Storm Surge</li> <li>• Habitats &amp; Crops destroyed</li> <li>• 90% buildings in Tacloban destroyed</li> </ul> <p><b>Secondary effects</b></p> <ul style="list-style-type: none"> <li>• 130,000 houses destroyed, leaving 4.2 million homeless</li> <li>• \$14 Billion of damage</li> <li>• Water supply polluted</li> <li>• Public Order – Looting</li> <li>• Airports unusable for supplies</li> </ul>  <p><b>Immediate responses</b></p> <ul style="list-style-type: none"> <li>• 1,069 emergency shelters set up in public buildings.</li> <li>• Disaster Emergency Committee helped</li> <li>• 3,316,500 people outside these centres by providing aid.</li> <li>• UK aid charities provided shelter, food and medical supplies for up to 800,000</li> </ul>  <p><b>Long-term responses</b></p> <ul style="list-style-type: none"> <li>• UN appeal raised \$480 million.</li> <li>• Typhoon warning systems have been improved.</li> <li>• People are now better educated about how to respond.</li> </ul>
<ol style="list-style-type: none"> <li>1. Describe the distribution of rotating tropical storms.</li> <li>2. What ocean temperature is needed for them to form?</li> <li>3. What are they called in the Indian Ocean?</li> <li>4. Study the map. In what general direction are their paths?</li> <li>5. What happens when the storm goes over land?</li> </ol>	<ol style="list-style-type: none"> <li>1. What is found in the centre of a tropical storm?</li> <li>2. What surrounds this?</li> <li>3. Describe the characteristics of the storm in the satellite image.</li> <li>4. Name three hydro-meteorological hazards associated with these storms.</li> <li>5. Describe the structure and features of a tropical storm</li> </ol>	<ol style="list-style-type: none"> <li>1. Where and when did this storm occur?</li> <li>2. Describe the path of this storm (see map).</li> <li>3. Give two primary effects of this storm.</li> <li>4. Give two secondary effects of this storm.</li> <li>5. Explain how improving the warning system and better educating the population will help in future events like this.</li> </ol>

Lesson 13: Climate change impact on tropical storms	Lesson 14: Tropical storms MPPP	Lesson 15: UK weather hazards
<p><b>There is strong scientific evidence of global warming</b> and this may be impacting upon natural systems including the distribution, frequency &amp; intensity of tropical storms</p> <p>Over the last few decades sea surface temperatures in the Tropics have increased by 0.25-05 degrees Celsius.</p> <p>In the future this may affect tropical storms in the following ways:</p> <ol style="list-style-type: none"> <li><b>Increased intensity</b> – rainfall totals in particular seem to be increasing, leading to increased flooding</li> <li><b>They may extend</b> to the South Atlantic and areas in the Sub-Tropics</li> <li><b>Frequency</b> of these storms may increase</li> <li><b>Stalling</b> – changes in upper atmospheric winds may result in increased stalling of these storms. This is when they remain stationary over an area for several days, increasing the damage caused.</li> </ol> 	<p><b>Tropical storms cannot be prevented, but they can be monitored and their tracks predicted.</b></p> <p><b>Prediction</b></p> <ul style="list-style-type: none"> <li>Monitoring wind patterns allows path to be predicted.</li> <li>Use of satellites to monitor path to allow evacuation</li> </ul> <p><b>Planning</b></p> <ul style="list-style-type: none"> <li>Avoid building in high risk areas</li> <li>Emergency drills so that people know what to do</li> <li>Evacuation routes – people clear on where to go if disaster strikes</li> </ul> <p><b>Protection</b></p> <ul style="list-style-type: none"> <li>Reinforced buildings and stilts to make safe</li> <li>Flood defences e.g. levees and sea walls</li> <li>Re-planting Mangroves to improve protection for coastal areas</li> </ul> 	<p>The UK does experience weather hazards despite its <b>moderate climate</b>:</p> <p><b>Thunderstorms</b> - following hot weather bring lightning and torrential rainfall</p> <p><b>Prolonged rainfall</b> over a long period - leads to river floods</p> <p><b>Drought and extreme heat</b> - causes rivers to dry-up and reservoirs to run low. Can also result in wildfires.</p> <p><b>Heavy snow &amp; extreme cold</b> – less common these days but can cause significant hardship (particularly in remote rural areas) and transport disruption. Pipes often burst once the cold spell ends.</p> <p><b>Strong winds</b> - can cause disruption to power supplies, transport and severe damage in coastal areas</p> 
<ol style="list-style-type: none"> <li>In recent years, how much have sea surface temperatures increased in the Tropics?</li> <li>What might be more intense in future storms?</li> <li>What might happen to frequency?</li> <li>Give two other possible effects of climate change on tropical storms.</li> </ol>	<ol style="list-style-type: none"> <li>Can tropical storms be prevented?</li> <li>How are satellites used?</li> <li>Why are emergency drills important?</li> <li>Explain how can buildings be made safe.</li> <li>How does re-planting mangroves help?</li> </ol>	<ol style="list-style-type: none"> <li>How is the UK's climate described? What does this mean?</li> <li>What problems can strong winds cause?</li> <li>What weather hazard causes rivers to dry-up and reservoirs to run low?</li> <li>Give two problems caused by heavy snow.</li> <li>When was the 'Beast from the East'? (Google this one)</li> </ol>

Lesson 16: 2014 Somerset floods	Lesson 17: Evidence for climate change	Lesson 18: Causes of climate change
<p><b>December 2013 - February 2014 – Somerset Floods, SW England</b></p> <p>This is a very low-lying area, which experiences winter flooding. Wettest January on record. 350mm of rain fell in January and February, about 100mm above average</p> <p><b>Social Effects</b></p> <ul style="list-style-type: none"> <li>Residents evacuated to temporary accommodation for months</li> <li>600 homes flooded across Somerset Levels.</li> <li>16 farms evacuated.</li> <li>Villages such as Moorland and Muchelney cut off. This affected people going to school, shopping etc.</li> </ul> <p><b>Economic effects</b></p> <ul style="list-style-type: none"> <li>Estimated £10 million damage by Somerset County Council.</li> <li>Local roads cut off by floods.</li> <li>Over 1000 livestock evacuated.</li> <li>Bristol to Taunton Railway line closed at Bridgwater.</li> </ul> <p><b>Environmental effects</b></p> <ul style="list-style-type: none"> <li>Floodwaters heavily contaminated with sewage, oil and chemicals.</li> <li>Huge amounts of debris had to be cleared. Stagnant water had to be re-oxygenated before being pumped back into the rivers.</li> </ul> <p><b>Management strategies</b></p> <ul style="list-style-type: none"> <li>A £20 million Flood Action Plan was launched by Somerset County Council.</li> <li>8km of the River Tone and River Parratt were dredged to increase the capacity of the channel (March, 2014)</li> <li>By 2024 a tidal barrage at Bridgwater is being considered.</li> </ul>	<p>Evidence for climate change shows changes before humans were on the planet. So some of it must be natural. However, the <b>rate</b> of change since the 1970s is unprecedented. Humans are responsible!</p> <p><b>The Met Office has reliable climate evidence since 1914 – but we can tell what happened before that using several methods.</b></p> <p><b>Ice and Sediment Cores</b></p> <ul style="list-style-type: none"> <li>Ice sheets are made up of layers of snow, one per year. Gases trapped in layers of ice can be analysed. Ice cores from Antarctica show changes over the last 400 000 years.</li> <li>Remains of organisms found in cores from the ocean floor can be traced back 5 million years.</li> </ul> <p><b>Pollen Analysis</b></p> <ul style="list-style-type: none"> <li>Pollen is preserved in sediment. Different species need different climatic conditions, so this is a record of past climate.</li> </ul> <p><b>Tree Rings</b></p> <ul style="list-style-type: none"> <li>A tree grows one new ring each year. Rings are thicker in warm, wet conditions</li> <li>This gives us reliable evidence for the last 10 000 years.</li> </ul> <p><b>Temperature Records</b></p> <ul style="list-style-type: none"> <li>Historical records date back to the 1850s. Historical records also tell us about harvest and weather reports.</li> </ul>	<p><b>There are a number of <u>Natural</u> and <u>Human</u> causes of climate change</b></p> <p><b>Natural causes</b></p> <ul style="list-style-type: none"> <li><b>Orbital changes</b> – The sun’s energy on the Earth’s surface changes as the Earth’s orbit is elliptical its axis is tilted on an angle.</li> <li><b>Solar Output</b> – sunspots increase to a maximum every 11 years.</li> <li><b>Volcanic activity</b> – volcanic aerosols reflect sunlight away reducing global temperatures temporarily.</li> </ul> <p><b>Human causes</b></p> <ul style="list-style-type: none"> <li><b>Fossil fuels</b> – release carbon dioxide with accounts for 50% of greenhouse gases.</li> <li><b>Agriculture</b> – accounts for around 20% of greenhouse gases due to methane production from cows etc. Larger populations and growing demand for meat and rice increase contribution.</li> <li><b>Deforestation</b> – logging and clearing land for agriculture increases carbon dioxide in the atmosphere and reduces ability to planet to absorb carbon through photosynthesis.</li> </ul> <div style="display: flex; justify-content: space-around;">   </div>
<ol style="list-style-type: none"> <li>Where in the UK is Somerset?</li> <li>Give two physical causes of this flood?</li> <li>What was the estimated cost of this flood event?</li> <li>How many homes were flooded across the Somerset levels?</li> </ol>	<ol style="list-style-type: none"> <li>What has happened to the rate of climate change since the 1970s?</li> <li>Explain how ice cores help scientist describe past Earth climates.</li> <li>Explain how past weather records help scientists describe past Earth climates.</li> </ol>	<ol style="list-style-type: none"> <li>Give one example of a natural cause of climate change.</li> <li>Give one example of a human cause of climate change.</li> <li>Explain how volcanic activity causes climate change.</li> <li>Explain how Deforestation causes climate change.</li> </ol>

Lesson 19: Effects of climate change	Lesson 20: Managing climate change	Keywords
<p><b>Social and Economic effects</b></p> <ul style="list-style-type: none"> <li>Increased disease e.g. skin cancer and heat stroke.</li> <li>Winter deaths decrease with milder winters.</li> <li>Crop yields affected by up to 12% in South America but will increase in Northern Europe but will need more irrigation.</li> <li>Less ice in Arctic Ocean increases shipping and extraction of oil and gas reserves. Trapped methane released as permafrost melts.</li> <li>Droughts reduce food and water supply in sub-Saharan Africa.</li> <li>Water scarcity in South and South East UK.</li> <li>Increased flood risk. 70% of Asia is at risk of increased flooding</li> <li>Declining fish in some areas affect diet and jobs.</li> <li>Increased extreme weather</li> <li>Skiing industry in mountain areas e.g. Alps (Europe) threatened.</li> </ul> <div style="display: flex; justify-content: space-around;">    </div> <p><b>Environmental effects</b></p> <ul style="list-style-type: none"> <li>Increased drought in Mediterranean region causing environmental stress for plants and animals with possible extinction</li> <li>Lower rainfall causes food shortages for orangutans in Borneo and Indonesia.</li> <li>Sea level rise leads to flooding and coastal erosion of coastal habitats</li> <li>Ice melts threaten habitats of polar bears.</li> <li>Warmer rivers and oceans affect marine wildlife e.g. coral bleaching and decline in biodiversity</li> <li>Forests in North America may experience more pests, disease and forest fires.</li> </ul>	<p>There are two ways that climate change can be managed: Mitigation and Adaption</p> <p><b>Mitigation</b> means taking actions to reduce the long-term risk of climate change</p> <p><b>Adaption</b> means taking actions to adjust to climate change</p> <p><b>Mitigation methods</b></p> <ul style="list-style-type: none"> <li>Alternative energy production will reduce CO2 production.</li> <li>Planting Trees – helps to remove carbon dioxide.</li> <li>Carbon Capture – takes carbon dioxide from emission sources is stored underground.</li> <li>International Agreements e.g. the Paris Climate Agreement</li> </ul> <p><b>Adaption methods</b></p> <ul style="list-style-type: none"> <li>Changes in agricultural systems need to react to changing rainfall and temperature patterns and threat of disease and pests e.g. planting drought-resistant crops</li> <li>Managing water supplies – e.g. by installing water efficient devices and increasing supply through desalination plants.</li> <li>Reducing risk from rising sea levels would involve constructing or upgrading defences like the Thames Flood Barrier or restoring mangrove forests or raising buildings in areas at risk from flooding on stilts.</li> </ul> <div style="text-align: center;">  </div>	<p>Keywords</p> <ul style="list-style-type: none"> <li>Hazard risk</li> <li>Natural hazard</li> <li>Convection current</li> <li>Conservative plate margin</li> <li>Constructive plate margin</li> <li>Destructive plate margin</li> <li>Earthquake</li> <li>Monitoring</li> <li>Prediction</li> <li>Global atmospheric circulation</li> <li>Management</li> <li>Adaptation</li> <li>Mitigation</li> <li>Quaternary period</li> <li>Subduction</li> </ul>
<ol style="list-style-type: none"> <li>Name one positive social effect of climate change.</li> <li>Name one negative social effect of climate change.</li> <li>How will water supply be affected in the UK?</li> <li>How will the Arctic be affected?</li> <li>How will coastal areas be affected?</li> </ol>	<ol style="list-style-type: none"> <li>What is the difference between mitigation and adaption?</li> <li>Give an example of a mitigation method and explain how it works.</li> <li>Give an example of an adaption method and explain how it works.</li> <li>What do you think is best – mitigation or adaption?</li> </ol>	

## Making of America (Growing Tensions 1789-1838) Knowledge Organiser

1	Name three states which joined the USA between 1790 and 1838	Maine; Alabama; Ohio; Indiana; Illinois; Michigan; Tennessee; Mississippi; Vermont; Missouri; Rhode Island; Kentucky; Louisiana; Arkansas
2	Name one early President of the USA 1789-1838	George Washington; John Adams; James Madison; Thomas Jefferson; James Monroe; John Adams; Andrew Jackson;
3	What powers did states have to make laws?	Each had its own Governor and could make their own laws but couldn't go against the US Constitution
4	How many slaves lived in the South by 1838?	Over 2 million
5	Give three reasons why slavery expanded	Cotton gin sped up the process of separating cotton fibres. - New cotton-growing lands became available after 1790 - A huge demand from the North and overseas
6	What piece of machinery did Eli Whitney invent?	Cotton Gin
7	How much cotton was the USA exporting by 1838?	Over a million bales a year
8	Explain how the Missouri Compromise tried to solve divisions over slavery in the USA	New states would be in pairs: For every free state there would have to be a slave state. This would keep the balance of power in government
9	Name three of the Five Civilised Tribes	The Cherokee; Chickasaw; Choctaw; Creek; Seminole
10	What was the Indian Removal Act of 1830?	A law that promised money to tribes if they relocated to the west of the Mississippi
11	Which tribe challenged the Indian Removal Act in the Supreme Court?	Cherokee
12	Which President was responsible for the Indian Removal Act?	Andrew Jackson.
13	What was the 'Trail of Tears'?	Cherokee were force marched to Indian Territory. 4000 died.

### Key Terms

<b>Supreme Court</b>	Highest, most important court in the USA
<b>Constitution</b>	Set of 'rules' by which a country is run, eg. Who can vote
<b>Congress</b>	USA's place of government (Like UK's Houses of Parliament)
<b>State</b>	Areas of the USA with their own government and a governor. They can pass some laws.
<b>Territory</b>	Land with not enough people to be a State. They don't send representatives to Congress.

## Making of America (Visions of the West 1839-1860) Knowledge Organiser

1	Name the two main branches of the Sioux Indians	Lakota and Dakota. Lakota Sioux were more experienced with guns and horses.
2	What was the main source of food for the Cheyenne?	Buffalo
3	What was the name of the sacred centre of Sioux culture?	Black Hills of Dakota
4	Explain why the Sioux moved on to the Plains	Sioux homelands began filling up with other Indian tribes escaping white expansion in the East
5	Why did migrants from East USA want to travel West from the 1849s onwards?	Economic problems in the East.; Oregon and California had advertising campaigns to attract people.; Manifest Destiny – the belief that God wanted white people to settle in the West of America
6	Name two diseases which killed people on the trails to Oregon and California	Cholera and Typhoid
7	Who led the Mormons to Utah?	Brigham Young
8	Why were the Mormons so keen to settle in the West?	They wanted to practise their religion. They had been persecuted in the East and their leader; Joseph Smith had been killed.
9	Where was gold first discovered in California in 1848?	Sutter's Mill, California Territory
10	Name two states or territories added to the USA between 1839 and 1860	California, Colorado, Utah, Kansas
11	Why did more people go to Pike's Peak than to California to search for gold?	It was nearer and easier to get to. Plus, trains could take you to the edge of the Plains.
12	What impact did the gold rush have on California?	Improved Californian economy (created jobs); Impacted negatively on Indians; environmental impact (mining damaged landscapes and created flooding)
13	Impacts of Pike's Peak	Population rose = Colorado became a state. New towns grew, tensions with Native Americans

### Key Terms

<b>Sioux</b>	The largest Indian tribe
<b>Mormons</b>	A religious group. Christian but with specific beliefs different to most Christians
<b>Gold Rush</b>	Many people travelling to find gold
<b>Wakan Tanka</b>	The Great Spirit – The idea that all living things had their own spirit which came from the earth.
<b>Manifest Destiny</b>	The belief that God's plan was for white Americans to settle the whole continent of America

## Making of America (Cause and aftermath of Civil War) Knowledge Organiser

1	Which political party was established in 1854?	The Republican Party (an anti-slavery party)
2	What Act was passed in 1854 that allowed states to decide if they wanted to be free or slave states?	Kansas-Nebraska Act
3	Give a political reason for the start of the Civil War	People in the North were worried that slaveholders in the South were becoming too powerful. People in the South were angry at the election of President Lincoln
4	Give an economic reason for the start of the Civil War	The North was jealous that the South were benefitting from slavery – i.e.. not paying their workforce and receiving huge profits from cotton
5	How did the election of Abraham Lincoln in 1860 lead to Civil War?	His election in 1860 meant that South Carolina voted to secede (leave) the United States. It was quickly followed by 6 other states. Lincoln called this 'Confederacy' of states illegal.
6	When was the Emancipation Proclamation (which freed all slaves) issued?	1863
7	Name one positive change for black Americans during the Civil War	By 1862, South Carolina was freed, and ex-slaves began setting up regiments. Many slaves in the South were given 40 acres of land by General Sherman.
8	Name one negative change for black Americans during the Civil War	Some slaves were made to hard labour (eg. digging ditches). Some slaves continued working on cotton plantations even though they were free. They were paid less than white soldiers.
9	In what year did soldiers get equal pay in the army?	1864 (but they still couldn't serve as officers)
10	What was the Sea Islands Experiment?	Islands of the coast of South Carolina were given to freed slaves of the South
11	Name two steps that Lincoln took to rebuild the USA	Passed the 13 <sup>th</sup> Amendment freeing slaves. Set up the Freedman's Bureau (a charity to help ex-slaves)
12	Name two ways President Johnson failed to help black Americans	Ended the Freedman's Bureau; Allowed Southern states to introduce Black Codes (removed rights for blacks); pardoned (forgave) thousands of Confederate soldiers
13	Name two ways Radical Republicans helped black Americans	Re-established the Freedman's Bureau; Passed a Civil Rights Law in 1866; Passed the 14 <sup>th</sup> and 15 <sup>th</sup> Amendments (saying that blacks could be citizens and could vote); Sent in soldiers to police the South
14	Name two ways things got worse for Black Americans after 1870	Freedman's Bureau shut down in 1872; The Supreme Court said that voting rights were down to states to decide; In 1877, soldiers stationed in the South were removed.

### Key Terms

#### Emancipation Proclamation

A statement made by Abraham Lincoln in 1863 declaring that all slaves will be free

## Making of America (Settlement and conflict on the Plains) Knowledge Organiser

1	Name an impact of the railroads on Indians	Disrupted buffalo hunting grounds; Encouraged settlers and cattle ranchers to settle on Plains.
2	Name an impact of the railroads on workers	Created jobs for thousands (12,000 of whom were Chinese). Paid poorly and working conditions were terrible.
3	Name an impact of the railroads on the USA	New towns were created. More railroads were created. By 1880s, journey across USA could be done in days rather than months.
4	Why did the cattle industry cause tension and conflict on the Plains?	Texas Longhorn disrupted buffalo roaming areas. Overgrazing of Plains meant buffalo started to die out.
5	Give two reasons why people moved to the Plains	Cheap land; Railroads meant farmed goods could be sold easily; Homestead Act (1860) offered people 160 acres free for 5 years.
6	Why were the Plains so difficult to farm on?	Plains was a long way from big towns, so supplies were difficult to get. Few trees so building was difficult. Cholera a problem. People felt isolated.
7	Name two solutions homesteaders used to survive on the Plains?	Houses were made from earth (sod) Dry-farming techniques and new types of wheat (like Turkey red) which grew well on the Plains. Barbed wire meant enclosing land was easy. Wind pumps used to draw clean water.
8	What caused Little Crow's War in 1862?	Little Crow (Chief) had signed a reservation agreement in return for supplies from US government. Reservation officials refused to give emergency supplies even when the Sioux were starving.
9	What were the results of Little Crow's War?	Little Crow was killed. 38 Santee Sioux were publically hanged. Remaining Santee Sioux were forced to move to reservation in Dakota.
10	What caused Red Cloud's War 1866-68?	Gold discovered on the Sioux reservation in 1862. Red Cloud began attacking some miners. The US government set up forts.
11	What were the results of Red Cloud's War?	The US were defeated. Fort Laramie Treaty signed promising no settlers on Sioux land.
12	What caused the Great Sioux War?	Gold discovered on sacred ground. US govt. ordered all Sioux to leave but many refused.
13	What were the results of the Great Sioux War?	General Custer defeated by Sitting Bull, but Sioux eventually forced onto reservations.

### Key Terms

<b>Texas Longhorn</b>	A breed of cattle that is particularly good for beef
<b>Reservation</b>	Areas of land that Indians were forced to live on
<b>Dry-Farming</b>	A technique of using soil to retain rainwater. This was used on the dry plains to grow crops.
<b>Fort Laramie Treaty</b>	Treaty signed in 1868 (after previously being signed in 1851) that guaranteed US settlers wouldn't enter Indian lands without permission
<b>Cattle Ranchers</b>	People who made lots of money by rearing cattle and selling it for beef

## Making of America (Changing lives 1877-1900) Knowledge Organiser

1	Give three ways the US government tried to destroy the plains Indians culture	Tribes split up; Indians forced to convert to Christianity; Indian children forced to choose English names; history lessons showed Indians as barbaric.
2	Which group tried to protect the rights of Native Americans?	'Friends of the Indian' set up in 1883
3	How did they, in fact, help to destroy the Indian cultures?	They set up schools to help Indian children learn English. They persuaded the US government to pass the Dawes Act in 1887. It gave each Indian family 160 acres if they gave up their claims to tribal lands
4	How was life in the South for blacks still bad after the end of Reconstruction?	Majority worked as sharecroppers; Jim Crow laws meant there was segregation in the South; Blacks didn't have access to better paid jobs.
5	What opportunities were there in the West for blacks after the end of Reconstruction?	Homestead Act was open to blacks. By 1879, over 6000 black Americans had moved to Kansas. They were known as the exodusters
6	How did life for Blacks in the North improve after 1877?	In 1882 Booker T Washington set up a school to train black children to be farmers and house servants. In 1900 he set up the Negro Business League.
7	How did Big Business create positive opportunities between 1877 and 1900?	Cotton and tobacco demand increased so created jobs. Huge 'bonanza' farms meant jobs for many who couldn't afford their own land. Growth of railroads meant demand for coal, iron and steel.
8	What negative impact did Big Business have on people between 1877 and 1900	Cotton demand meant more blacks as poorly paid sharecroppers; American Tobacco Company refused to improve wages; Small farms lost out to Bonanza Farms
9	How did the growth of cities create new opportunities for people between 1877 and 1900?	Work, entertainment, education and freedom.
10	What problems did the growth of cities lead to?	Overcrowding & Disease
11	Why did people want to move to America?	American economy was booming by 1880s; USA offered freedom of religion and thought
12	What problems did immigrants face in America?	Immigrants often ended up in the poorest areas of cities; Laws preventing Chinese workers from moving freely in California. Immigrants often ended up in the poorest areas of cities.

### Key Terms

<b>Jim Crow laws</b>	The name given to laws that separated white and black people in the South
<b>Sharecropper</b>	Many black people lived on land owned by whites and had to give them 2/3 of their crops as rent. It gave control to white people and felt a lot like slavery to black people.
<b>Homestead Act</b>	1862 law that said people could get 160 acres of land on the Plains if they paid a small fee and stayed on the land for 5 years.
<b>Bonanza farms</b>	Huge farms owned by large businesses. Around 10,000 acres in size

## Nazi Germany (Democracy to Dictatorship) Knowledge Organiser

1	How did the Depression affect Germany?	High unemployment meant people found the Nazi message more appealing and voted for them.
2	When did Hitler become Chancellor?	January 1933
3	When was the Reichstag Fire?	February 1933
4	Which political party did the Nazis blame the fire on?	The Communists
5	When was the Enabling Act passed?	March 1933
6	How did the Enabling Act help Hitler secure power?	It gave him powers of a dictator. He used it to ban other political parties, make Trades Unions Nazi and took control of local governments and newspapers.
7	What does Gleichschaltung mean?	'Bringing Germany into line'
8	During the period of Gleichschaltung who was affected?	The Jewish were persecuted by law, Trade Unions were shut down as were political opposition.
9	When was the Night of the Long Knives?	June 1934
10	Who was the leader of the SA that was killed during the Night of the Long Knives?	Ernst Rohm
11	How did the Night of the Long Knives help Hitler?	The army became loyal to the Nazis; The SA's power was reduced; A culture of fear was created.
12	When did President Hindenburg die?	August 1934
13	How did Hindenburg's death help Hitler?	The German Army swore an oath of loyalty to Hitler. Hitler combined the offices of Chancellor and President to become 'Fuhrer' (meaning 'leader')

## Key Terms

<b>Reichstag</b>	The German seat of government (like Britain's Parliament)
<b>SA</b>	The 'Storm Troopers'. The Nazis' army (different to Germany's army). It lost strength after the Night of the Long Knives.
<b>SS</b>	Hitler's personal army. This gained strength after the Night of the Long Knives. The members were more purely 'Aryan'.
<b>Enabling Act</b>	The law passed that meant Hitler could pass laws without consulting the Reichstag.
<b>Fuhrer</b>	The title Hitler created after Hindenburg died. It means 'Leader'

## Nazi Germany (Controlling Germany) Knowledge Organiser

1	How did the Nazis control Germany?	Propaganda; Terror; Weak opposition; The Nazis were popular.
2	Who was the head of propaganda in Nazi Germany?	Josef Goebbels
3	Who led the SS?	Heinrich Himmler
4	What was the Gestapo?	Nazi Secret Police
5	What examples of terror did the Nazis use?	Nazis controlled the police, the judges, they used the SS and Gestapo, and they used concentration camps.
6	What examples of propaganda did the Nazis use?	Newspapers, Posters, 'People's Radio' sets, Rallies, Film, Berlin Olympics
7	Which political groups opposed the Nazis?	The Communists; the Social Democrats
8	Why were political groups not effective?	Social Democrats and Communists remained divided. Communists were identified and arrested by Gestapo.
9	Name the anti-Nazi Protestant Church	The Confessional Church
10	Who led the Confessional Church?	Martin Niemoller
11	Why was the Church ineffective at opposing the Nazis?	Nazis closed down Church schools and arrested some Church leaders, like Niemoller.
12	What was the name of the 'Nazi' Church?	Reich Church
13	In what ways was the Church successful in opposing the Nazis?	6000 pastors joined the Confessional church; Cardinal Galen criticised the Nazis successfully.
14	Which youth groups opposed the Nazis?	Swing Kids; Young Communists; Edelweiss Pirates

## Key Terms

<b>Concentration Camp</b>	A prison for people who went against the Nazi regime
<b>Gestapo</b>	Secret police. Relied on denunciations from people. Used brutal methods to get people to confess.
<b>Denunciation</b>	To tell the Nazi authorities about someone who is not loyal to the Nazi regime
<b>Propaganda</b>	Exaggerated or even false information that is published in order to influence people.

## Nazi Germany (Changing lives for Germans) Knowledge Organiser

1	How did life for workers improve?	Most people had a job; Average wages rose; Beauty of Labour improved conditions.
2	How did life for workers get worse?	Trade Unions were abolished; People forced into National Labour Service; Cost of living rose.
3	What was the Strength through Joy?	It organised better leisure activities and holidays for workers (although most didn't benefit)
4	What was the one condition of the Marriage Loan?	The wife had to leave her job
5	In what ways were Nazi policies towards women successful?	Marriages increased to 772,000 by 1939; Number of women in higher education dropped.
6	In what ways were Nazi policies towards women unsuccessful?	Births dropped by 1939; Number of women in employment increased (eg. 3.3 million in industry)
7	What roles were children prepared for at school?	Girls to be mothers/housewives; boys to be soldiers.
8	In what ways were Nazi policies towards children successful?	School lessons designed to indoctrinate children; specialist schools for leaders; Hitler Youth made compulsory in 1939.
9	In what ways were Nazi policies towards children unsuccessful?	Many children bored by Hitler Youth and resented the message. 3 million had not joined by 1938
10	What were Jews banned from in March 1933?	Jewish lawyers banned from conducting legal affairs in Berlin.
11	What did the Nuremberg Laws of 1935 involve?	Marriages banned between Aryans and Jews. Jews are no longer citizens.
12	What happened on Kristallnacht in 1938?	267 synagogues destroyed; 91 Jews killed; 30,000 Jews sent to concentration camps.
13	What did Jews have to do by 1939?	Jews have to hand over jewellery, gold, silver and pearls.

## Key Terms

<b>Eugenics</b>	The study of improving the human race. It is not at all considered a science today.
<b>Beauty of Labour</b>	Aimed to improve the workplace by building new toilets, showers and facilities.
<b>Adolph Hitler Schools</b>	Schools for children who were seen as future leaders of Nazi Germany. They were not very successful.
<b>Hitler Youth</b>	Groups (a bit like Scouts) for indoctrinating children and encouraging physical exercise.
<b>Indoctrination</b>	Brainwashing e.g. Making sure schools indoctrinated children into Nazi thinking.

## Nazi Germany (Germany in War) Knowledge Organiser

1	What kind of problems did Germans face when war broke out?	Foods, clothing, shoes and coal were strictly rationed; German civilians spent much time queuing, and the quality of products was reduced. In the spring of 1940, the RAF began bombing campaigns in Germany.
2	What items were soon rationed in Germany?	Bread, potatoes, butter, milk, cheese, eggs, cereal.
3	By 1941, what percentage of Germans were in war-related work?	55%
4	Who was made Minister of Armaments and War Production?	Albert Speer
5	How did the war change lives for women?	1.5 million were in the workforce by 1941
6	Who carried out the 1944 bomb plot against Hitler?	Colonel von Stauffenburg
7	Which religious leaders publically criticised the Nazis?	Dietrich Bonhoeffer and Cardinal Galen
8	How did the White Rose Group criticise the Nazis?	Leaflets. One was called 'An appeal to all Germans'
9	Who led the White Rose Group?	Sophie and Hans Scholl
10	What examples of passive resistance were there?	Reading banned literature; listening to the BBC; hiding Jews
11	How did total war impact people in Germany?	Women to join war effort; more shortages; more propaganda
12	How many people died in the bombing of Dresden?	25,000
13	What did Goebbels do to ensure Germany was focused on war?	½ million workers had to be soldiers; forced labour from other countries; more propaganda
14	When did the Nazis surrender?	May 1945

### Key Terms

<b>Military expenditure</b>	The amount a country spends on war
<b>Passive resistance</b>	Non-violent opposition
<b>Total War</b>	When everyone is enlisted to support the war effort
<b>Volksturm</b>	People's Storm (army). An army of young and old not already fighting. It was ineffective.

## Nazi Germany (Occupation of Europe) Knowledge Organiser

1	What did Nazis aim to achieve in Poland?	Himmler in 1940 tried an experimental strategy in Poland – to remove as many of the Polish and Slavic people as possible and replace them with Germans.
2	What did the Nazis do to the Polish people?	Between 1939-45 over 1.5 million Poles were deported and forced to work in labour camps.
3	Why did the Nazis treat the Netherlands better?	Dutch people were considered by the Nazis to have an 'Aryan background'
4	What else demonstrated the Nazis were less harsh to the Netherlands?	The Dutch education system wasn't changed as the Nazis knew there would be a backlash to this.
5	What happen to the 1944 Polish Uprising to resist the Nazis?	The uprising was brutally crushed by the Nazis.
6	What kind of resistance happened in the Netherlands?	Anti-Nazi leaflets were printed, and registry offices were attacked to gain access to ration cards and blank identity cards
7	What was the name of France that collaborated with the Nazis?	Vichy France
8	When did the Nazis starting putting Jews in ghettos?	1940
9	How many Jewish people did the Einsatzgruppen kill in 1941?	Around 1 million
10	What was the name of the gas used to kill Jewish people?	Zyklon B
11	What did senior Nazis decide at the Wannsee Conference in 1942?	To mass murder all Jewish people in Europe
12	How many people died at Auschwitz?	About 1.1 million killed






### Key Terms

<b>Hans Frank</b>	The name of the Nazi Governor in charge of part of Poland
<b>Ghettos</b>	Enclosed districts where Jews would live in isolation from non-Jewish people
<b>Einsatzgruppen</b>	Killing units which were made up of SS, police & locals. When they reached villages, the Einsatzgruppen rounded up Jews and communists
<b>Wehrmacht</b>	The German Army
<b>Collaboration</b>	Working with (the Nazis) to help them in their occupation



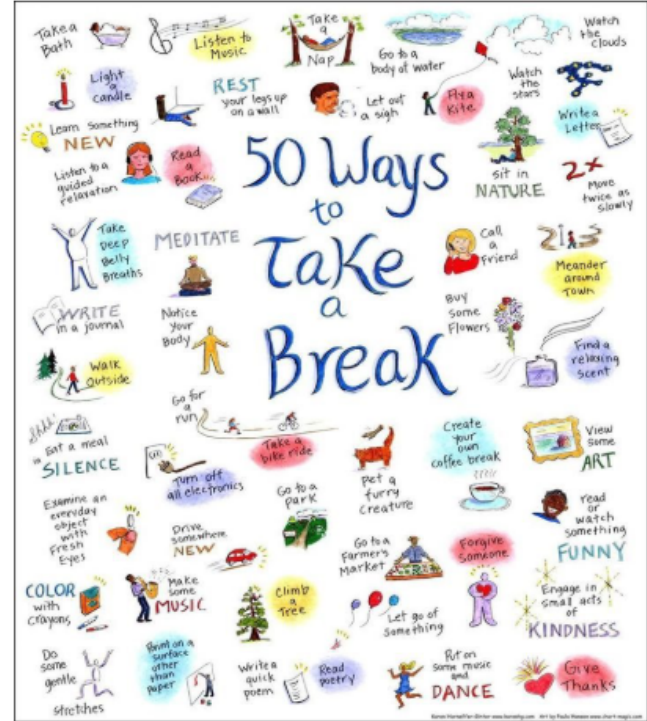
# PSHE: How can I look after my well-being?

## Key terms:

<p><b>Mental health</b></p> 	<p>This refers to how we feel, how well we're coping with daily life or what feels possible at the moment.</p>
<p><b>Good mental health</b></p> 	<p>Having good <b>emotional</b> and <b>mental</b> health is when we are in control of our thoughts, feelings, and behaviour.</p> <p>We are able to cope with life's challenges and we mostly feel good about ourselves and have good relationships with others.</p>
<p><b>Mental health</b></p> 	<p>Relating to the mind</p>
<p><b>Physical</b></p> 	<p>Relating to the body as opposed to the mind.</p>
<p><b>Emotions</b></p> 	<p>These are also called <b>feelings</b>. They can be affected by situations and our relationships with others</p>
<p><b>Healthy coping strategy</b></p>	<p>Good things we can do to help us to manage our most intense, thoughts and emotions.</p>

Take a break: do something you enjoy

Try to plan some activities that you enjoy and which will take your mind off things, whether that's texting or face-timing a friend, watching a film, reading a book or going for a walk.



## PSHE: How we can we look after our well-being?

- Your tutor
- Your Raising Standards Lead – Mr Hart
- Your Inclusion lead – Mrs Parry
- Your PSHE teacher /PSHE team including Mrs Joyce
- Ms Ray ( in charge of safeguarding )
- Any teacher

### Peer led student support:

- Your 6<sup>th</sup> from Mental Health Ambassador
- Your 6<sup>th</sup> form student leaders – email Mrs Joyce

There are lots of places to get advice about emotional wellbeing, social media or to discuss feelings.

ChildLine:  
[www.childline.org.uk](http://www.childline.org.uk) Phone: 0800 1111

Young Minds:  
[www.youngminds.org.uk](http://www.youngminds.org.uk)

Samaritans:  
[www.samaritans.org](http://www.samaritans.org) Phone: 116 123

In a crisis, text 'Shout' to



## '10 a day' choices towards balancing our mental health



1 Talk about your feelings



2 Do something you enjoy and are good at



3 Keep yourself hydrated



4 Eat well



5 Keep active in mind and body



6 Take a break



7 Stay connected to those you care about



8 Ask for help



9 Be proud of your very being



10 Actively care for others

### 5 minute mental wellbeing actions




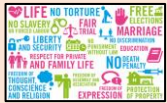





These are simple, free actions you can do daily.  
 Many take very little time or energy, and most can be done in less than five minutes.

- Breathe – take a few deep breaths
- Have a glass of water
- Have a healthy snack
- Do a 5 minute burst of exercise
- Connect with someone you care about – give them a hug, send them a message
- Take a moment to be still and present





**Buddhist teaching - We all had previous lives as people of all colours and all nations. - RE - Issues of Human Rights - "You are all in in Jesus Christ"**




**1. Part A - Key Terms**

<b>Censorship</b> 	The practice of suppressing and limiting access to materials considered obscene, offensive or a threat to security. People may be restricted in their speech by censorship laws.
<b>Discrimination</b> 	Acts of treating groups of people, or individuals differently, based on prejudice.
<b>Extremism</b> 	Believing in and supporting ideas that are very far from what most people consider correct or reasonable.
<b>Human Rights</b> 	The basic entitlements of all human beings, afforded to them simply because they are human. An example of human rights as stated in the declaration of Human Rights is that all people should receive an education.
<b>Personal conviction</b> 	Something a person strongly feels or believes in.
<b>Prejudice</b> 	Pre-judging: judging people to be inferior or superior without cause.
<b>Relative Poverty</b> 	A standard of poverty measured in relation to the standards of a society in which a person lives, for example, living on less than x percent of average UK income
<b>Absolute poverty</b> 	An acute state of deprivation, whereby a person cannot access the most basic human needs.
<b>Social justice</b> 	Promoting a fair society by challenging injustice and valuing diversity. Ensuring that everyone has equal access to provisions, equal opportunities and rights.

**2. Key Terms**

<b>UNDHR</b>	United Nations Declaration of Human Rights
<b>First article of UNDHR</b>	"All humans are born free and equal in dignity and rights."
<b>Eight-Fold Path</b> 	The Middle Way / Threefold Way / Magga - eight guiding principles to be followed throughout a Buddhists life
<b>Agape</b> 	Selfless, unconditional love, the highest of the four types of love in the Bible.
<b>Dignity</b>	Being worthy of honour or respect
<b>Empowered</b>	Authority or power given to someone to do something
<b>Oppressed</b>	Governed or treated with cruelty or injustice
<b>Religious discrimination</b>	Unequal treatment of an individual or group based on their beliefs.
<b>Racism</b>	Discrimination against people on the basis of their race.
<b>Religious Expression</b>	Having the freedom to express your religion - through clothing, symbols, mission, conversion, evangelism.
<b>Mission</b>	Calling of a religious organisation, especially a Christian one, to go out into the world and spread its faith.

**3. Key people, organisations and teachings**

<b>The Parable of the Rich Man and Lazarus</b>	"... in your lifetime you were given all the good things, while Lazarus got all the bad things... now he is enjoying himself here, while you are in pain.
<b>Amnesty International</b>	Human rights organisation, campaigning against injustice & inequality everywhere. 
<b>Malala Yousafzai</b>	Human rights campaigner - against a lack of education for girls. "Everyone has the right to education."
<b>Liberation Theology</b>	Christian idea that God has the power to change situations in the world that are unjust.
<b>Oscar Romero</b>	Was born in El Salvador in 1917. Became a priest in 1942, Archbishop of El Salvador in 1977. Was shot dead for his personal conviction
<b>Martin Luther King</b>	Influenced by Jesus' teachings on love. Campaigned against racism in the USA, through non-violent protest. "love one another."
<b>Christian Aid</b> 	Christian Charity working in partnership with local organisations in over 60 countries to help those in need - regardless of religion
<b>Karuna Trust</b> 	Inspired by Buddhist values, we exist to end discrimination, poverty and inequality in India and Nepal. Focused on education, gender equality and dignified livelihoods, transforming communities and changing society

#### 4. The sanctity of life

- † Christianity - The first book of the Bible teaches that God created human and animal life.
- † All human life is special as it is created by God and should be protected.
- † Each person should be treated with selfless, unconditional love - agape.
- † Every person is sacred, and worth is a core Christian belief
- † Jesus showed In his teachings and practices that all life should be valued: The Good Samaritan / visiting the lepers
- † Pope Francis refers to the importance of caring for the homeless and elderly.
- β All life is special and should be protected as only humans can reveal Buddha-Nature (Mahayana) or attain Arhathood (Theravada).
- β Each life is unique and valuable beyond measure.
- β All forms of life are caught in the cycle of existence (samsara) and are affected by actions and their Karma
- β Dependent origination teaches that life of each being is bound up with that of every other being. All forms of life should be treated with compassion and loving-kindness. It teaches harmlessness and non-violence (ahimsa).
- β Ahimsa is the first of the 5 Precepts, part of the Noble Eight-Fold Path (Right Action)
- β Karuna (compassion) means putting yourself in another's place, trying to imagine their feelings and exercising metta (loving-kindness)

#### 5. Practices to promote human rights, including equality

- † Agape in Action - following the action of Jesus many Christian charities express agape, e.g. helping at Salvation Army Hostels, working in Church Food Banks, volunteering for St Vincent de Paul
- β Dharma in Action - following the Dharma (teachings) of the Buddha many Buddhists have taken part in campaigns to support equality, e.g. Dalai Lama, and to show loving kindness to others (metta) e.g. members of the Buddhist Prison Chaplaincy

#### 6. Acquisition & use of wealth

- β Giving to those in need is an important virtue
- β Siddhartha Gautama gave up a life of riches
- β Should avoid extremes and follow the Middle Way
- † A person's value should be based on their actions rather than their possessions.
- † The parable of the Rich man and Lazarus.

#### 7. religious charities to alleviate poverty

- β **Karuna Trust** - Inspired by Buddhist values of Compassion (Karuna). Aims to end caste discrimination.
- β Fundraising to support individuals and communities
- β Supports hostels for children with disabilities
- † **Christian Aid** - aims to challenge systems that favour the rich and reflects that God loves all.
- † Organises projects to educate people / publicises examples of inequality and poverty
- † Works cooperatively with faith and secular groups

#### 8. Prejudice and discrimination

- β All people are equal and have within them the nature of enlightenment
- β Things such as gender, wealth and race, which separate people, are all illusory
- β Buddhists try to follow Right Action - the Fourth of the Noble Eight Fold path, which guide people in their lives. Right action includes five precepts for all Buddhists: not to destroy or harm life, not to take what is not given, not to misuse sex, not to lie, not to cloud the mind with drugs and alcohol.
- β By following the Eight-Fold Path, avoiding prejudice and discrimination, it is possible to avoid negative karma and rebirth, and cause positive effects to occur in your life.
- β The Buddha rejected the caste system and taught that all people are equal.
- β Metta (loving kindness) towards all beings is stressed.
- β Women are usually able to take part in all aspects of work, service and action
- β Some traditions do have nuns, although full ordination in Theravada Buddhism has faded out.
- † Prejudice and discrimination are unacceptable and are against Christian teachings
- † God created all human beings as equals, regardless of race, ability or gender "There is neither Jew nor Gentile, neither slave nor free, nor is there male and female, for you are all one in Christ Jesus."
- † The Ten commandments give guidance on living in harmony with others
- † Jesus's example of his treatment of lepers and outcasts
- † Jesus did not discriminate against women e.g. Jesus asks a Samaritan woman for a drink of water
- † The Roman Catholic and Greek Orthodox Churches do not allow women to become priests
- † In many other churches such as Anglican or Methodist, women can be priests, ministers or bishops.

#### 9. Racial discrimination and examples of campaigners

- † **Martin Luther King** - as a Christian he believed in Jesus' teaching on love and non-violence, and that all humans were equal in the eyes of God
- † He believed and dreamed of a world where people would not be discriminated against because of race / He gave speeches, organised campaigns and protest marches - all of which were peaceful and non-violent - to promote equality for all.
- † "we must learn to live together as brothers or perish together as fools."
- β **B.R. Ambedkar** - leading activist and social reformer, dedicated to improving the lives and opportunities for those discriminated against in India
- β He campaigned to get rid of the caste system in India
- β He believed in social equality and justice for all & worked against "untouchability".
- β He became a Buddhist, " I like the religion that teaches equality, liberty and fraternity."



